"A STUDY TO ASSESS THE PREVALENCE OF ANEMIA AND EVALUATE THE EFFECTIVENESS OF FRESH CURRY LEAVES TO IMPROVE HEMOGLOBIN AMONG ADOLESCENT GIRLS AT SELECTED HOSTELS, KOLAR, KARNATAKA".

By

MRS. SRILAKSHMI.G

PROJECT REPORT SUBMITTED TO

Sri Devaraj urs college of Nursing, Tamaka, Kolar

In partial fulfilment of the requirement for the degree of

MASTERS OF SCIENCE IN NURSING

In

OBSTETRICS AND GYNAECOLOGICAL NURSING

UNDER THE GUIDANCE OF

Mrs. GAYATHRI K. V

Associate professor

Department of OBG Nursing

Sri Devaraj Urs College of Nursing

Tamaka, Kolar-563103

2022

DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled **"A STUDY TO ASSESS THE PREVALENCE OF ANEMIA & EVALUATE THE EFFECTIVENESS OF FRESH CURRY LEAVES TO IMPROVE HEMOGLOBIN AMONG ADOLESCENT GIRLS AT SELECTED HOSTELS, KOLAR, KARNATAKA".** is bonafide and genuine research carried out by me under the guidance of **Mrs. Gayathri K.V,** Associate professor Department of **Obstetrics and Gynaecological Nursing**, Sri Devaraj Urs College of Nursing, Tamaka, Kolar-563103.

Place: Tamaka, Kolar

Date:

Signature of the Candidate

(Mrs.Srilakshmi. G)

CERTIFICATE BY THE GUIDE

This is to certify that the dissertation entitled **"A STUDY TO ASSESS THE PREVALENCE OF ANEMIA & EVALUATE THE EFFECTIVENESS OF FRESH CURRY LEAVES TO IMPROVE HAEMOGLOBIN AMONG ADOLESCENT GIRLS AT SELECTED HOSTELS, KOLAR, KARNATAKA".**is bonafide research done by Mrs. Srilakshmi.G in partial fulfilment of the requirement for the degree of **Master of Science in Obstetrics and Gynaecological Nursing,** Sri Devaraj Urs College of Nursing Tamaka, Kolar-563103

Signature of Guide

Place: Tamaka, Kolar

Date:

Mrs.Gayathri K.V
Associate professor
Obstetrics and Gynaecological Nursing
Sri Devaraj Urs College of Nursing
Tamaka, Kolar-563103

ENDORSEMENT BY THE HOD, PRINCIPAL/HEAD OF THE INSTITUTION

This is to certify that the dissertation entitled, **"A STUDY TO ASSESS THE PREVALENCE OF ANEMIA & EVALUATE THE EFFECTIVENESS OF FRESH CURRY LEAVES TO IMPROVE HAEMOGLOBIN AMONG ADOLESCENT GIRLS AT SELECTED HOSTELS, KOLAR, KARNATAKA".**is bonafide research done by Mrs. Srilakshmi.G. G under the guidance of Mrs. Gayathri K.V**,** Associate professor Department of **Obstetrics and Gynaecological Nursing**, Sri Devaraj Urs College of Nursing Tamaka, Kolar-563013.

Signature of Guide

Mrs. Gayathri K.V
Associate professor
Obstetrics and Gynaecological Nursing
Sri Devaraj Urs College of Nursing
Sri Devaraj Urs College of Nursing
Tamaka, Kolar-563103

Place: Tamaka, Kolar
Date:

Signature of the Principal

Dr. G Vijayalakshmi
Principal
Sri Devaraj Urs College of Nursing
Tamaka, Kolar-563103

Place: Tamaka, Kolar
Date:

ACKNOWLEDGEMENT

I wish to acknowledge my heartfelt gratitude to the Lord Almighty for all the wisdom, knowledge, guidance, strength, protection, shield and support throughout the conduction until the successful completion of the study. He has offered me throughout this endeavour and given me courage to overcome the difficulties and thus to complete this study successfully.

I have no words to express my gratitude towards my guide, **Mrs. Gayathri K.V Associate professor Department of OBG Nursing, Sri Devaraj Urs College of Nursing,** Tamaka, Kolar for her valuable suggestions, love, constant support, interactions & concern during the entire course of my project.

I am extremely grateful to **Dr. G Vijayalakshmi,** Principal of **Sri Devaraj Urs College of Nursing** for giving me an opportunity to conduct my study in this esteemed institution and supporting me in all the ways and means to complete this study.

I express my sincere thanks to **Prof.Punitha.M, HOD Department of OBG Nursing, Sri Devaraj Urs College of Nursing**, for the motivation, love, concern, during my study.

I extend my gratitude to **Mrs. Uma devi. T Assoc Prof department of Medical surgical Nursing, Sri Devaraj Urs College of Nursing** who has guided as a good mentor and for his valuable suggestions, motivation and guidance throughout this dissertation.

My heartfelt thanks to all **HODs and MSc (N) teaching faculty of Sri Devaraj Urs College of Nursing** for their guidance, suggestions and support throughout this dissertation.

I am glad to convey my profound thanks to **Prof. Mr. Ravi Shankar, Statistician, Dept. of Community medicine of Sri Devaraj Urs Medical College** for his excellent guidance, expert suggestions throughout my study.

I am very much obliged to all my **Study Experts** who have contributed their valuable suggestions and form of constructive criticism to formulate my tool

I honestly express my sincere gratitude to all the **study participants** who extended their co-operation throughout my study period.

My heartfelt thanks to all **Teaching and Non-Teaching Staff of Sri Devaraj Urs College of Nursing** for their constant help and encouragement throughout my study.

I take this golden opportunity to thank my husband **Mr. Anil Kumar T.H** who gave the foundation for my success in my educational endeavour.

With grateful heart----------

Place: Tamaka, Kolar

Date:

Signature of the Candidate

(Mrs. Srilakshmi.G)

ABSTRACT

TITLE: "A STUDY TO ASSESS THE PREVALENCE OF ANEMIA AND EVALUATE THE EFFECTIVENESS OF FRESH CURRY LEAVES TO IMPROVE HAEMOGLOBIN AMONG ADOLESCENT GIRLS AT SELECTED HOSTELS, KOLAR, KARNATAKA".

Background and objectives

Nutrition is one of the significant indicators of the health and overall status of adolescents, now a days most adolescent girls have beauty conscious. So that they neglect food more over hostel girls improper diet pattern & they are more exposed to junk foods. Adolescent girls have become poor concentration, are not attentive, low level of haemoglobin levels. One of the most haematological abnormalities in adolescent females is anaemia, and this time period is critical since these are the formative years of a person's life, during which time significant physical, psychological, and behavioural changes occur. Compared to any other stage of life, adolescence has higher nutritional needs. At this age, inadequate nutrition consumption causes stunted growth and delayed sexual maturation. Adolescent anaemia sufferers can benefit most from fresh curry leaves because they help to raise blood's haemoglobin level. Therefore, a study was carried out to determine whether fresh curry leaves were efficient in raising haemoglobin levels in adolescent girls residing in the chosen Kolar dormitories. By comparing the pre-test and post-test haemoglobin levels, the primary goal of this study is to determine if fresh curry leaves have any effect on adolescent girls haemoglobin levels.

PROBLEM STATEMENT

"A Study to Assess the Prevalence of Anemia & Evaluate the Effectiveness of Fresh Curry leaves to Improve Hemoglobin among late Adolescent Girls at Selected Hostels, Kolar, Karnataka".

OBJECTIVES OF THE STUDY

1. To assess the Hemoglobin level among Hostel Inmates girls at selected hostel by using Tall Quist paper\ Hemoglobin color scale & Hemometer.
2. To determine the prevalence of anemia among hostel inmates at selected hostels.
3. To evaluate the effectiveness of Fresh curry leaves in improving hemoglobin level among anemic girls in experimental group compared to control group.
4. Find out the association between post test score with selected demographic variable

HYPOTHESIS

H_1- There will be statistically significant difference in the postintervention Hemoglobin compared to preintervention Hemoglobin level at 0.05 level of significance among adolescent girls.

H_2- There will be statistically significant association between the hemoglobin level with selected demographic variables.

METHODOLOGY

For the present study, true experimental design was adopted. The dependent variables are hemoglobin level & Independent variables are Fresh curry leaves. The subjects

consist of 100 (50 Experimental and 50 control) adolescents' girls from student nurses hostel of Sri Devaraj Urs College of Nursing by simple random sampling technique. The feasibility of the study refinement. The blood hemoglobin level among adolescent girls was assessed by using Hemoglobin color scale test. A fresh Curry leaves was given for experimental group for 02 Months in the early morning. Posttest was done after intervention period in both experimental and control group. The data gathered was analyzed by descriptive and inferential statistical method.

RESULTS

Study findings revealed that, in Experimental group majority 21 (42%) of the adolescent were in the age of group of 18 years Minority 07(14%) of the adolescent girls were in the age of group of 20 years, in religion Maximum 28(56%) of adolescent girls belongs to Hindu religion, Minimum 22(44%) of adolescent girls belongs to Christian, Regarding Educational Program Majority 37(74%) of adolescent girls were studying in B.sc Nursing, Minor 13(26%) of adolescent girls were Studying GNM program, in year of studying Majority 16(32%) of adolescent girls were studying is I year B.sc Nursing , Minority 03 (6%) of adolescent girls were studying in III Year GNM,in type of family Maximum 32(64%) of adolescent girls were belongs to Nuclear family, Minimum 18(36%) of adolescent girls were belongs to joint family, in family income 31(62%) Majority of adolescent girls family income was Rs.10, 001 -20,000/ month, Minority 03(6%) of adolescent girls had family income was More than Rs.30,001/month ,Regarding Diet pattern More 32(64%) of the adolescent girls were Non vegetarian ,18(36%) few adolescent girls were vegetarian, about frequency of eating Maximum 18(36%) of adolescent girls were eating 2times/day , Minimum 01 (02%) of adolescent girls were belongs to eating

5times/day, in type of Eating Major 20(40%) adolescent girls were fuel type of eating, minor 08(16%) of adolescent girls were fog eating pattern, regarding to history of medical condition & recently intake of tab.Albendazole majority 50(100%) of the adolescent girls were not taken tab.Albendazole and they don't have any history of medical conditions.

In control group Majority 16(32%) of the adolescent girls were in the age of group of 18 years ,Minority 10 (20%) of the adolescent girls were in the age of group of 21 years, in religion Maximum 27 (54%) of adolescent girls were belongs to Hindu religion, Minimum 23 (46%) of adolescent girls were belongs to Christian, in Educational Program 32 (64%) adolescent girls were in B.sc Nursing, few 18 (36%) of adolescent girls were in GNM program, in year of studying Majority 09 (18%) of adolescent girls were studying is I year B.sc Nursing& in IV year B.sc Nursing , Minority 05 (10%) of adolescent girls were studying in II Year GNM,in type of family Maximum 28(56%) of adolescent girls belongs to Nuclear family, Minimum 22 (44%) adolescent girls belongs to joint family, in family income Majority 32 (64%) of adolescent girls family income was Rs.10, 001 -20,000/ month, Minority 04 (8%) of adolescent girls family income was More than Rs.30,001/month ,in Diet pattern 38 Majority (76%) of the adolescent girls were Non vegetarian , few 12 (34%) adolescent girls were vegetarian, in frequency of eating Maximum 34(68%) of adolescent girls were eating 3times/day , Minimum 08 (16%) of adolescent girls were eating 2 to 4 times/day, in type of Eating major 15 (30%) adolescent girls were fun type of eating, minor 10 (20%) of adolescent girls were fuel type of eating, regarding to history of medical condition & recently intake of tab.Albendazole, all 50(100%) adolescent girls didn't taken tab.albendazole and they don't have any history of medical conditions.

Findings related to the prevalence rate of anemia in SDUCON showed that among 366 participants 104 (28.4%) hostel inmates adolescent girls had anemia. Prevalence of anemia according to the categorization of hemoglobin levels, (159) Adolescents girls were in Normal ≥ 12gm%, (72) Adolescents girls were in Mild Anemia 10-11.9gm, (30) Adolescents girls were in Moderate Anemia 9.9-7 gm% (00) None were in Severe anemia < 7gm/dl.

Findings related to pretest & posttest distribution of participants according to the level of Hemoglobin level in Experimental group showed that 0 (0%) had Normal level of hemoglobin, 29 (58%) had mild level of hemoglobin, 21 (42%) had Moderate level of hemoglobin, 0 (0%) had severe level of hemoglobin & in posttest Experimental group 09(18%) had Normal level of hemoglobin, 08 (16%) had mild level of hemoglobin, 00(0%) had Moderate level of hemoglobin, 0(0%) had severe level of hemoglobin.

In Control group, pretest 0 (0%) had Normal level of hemoglobin, 42(84%) had mild level of hemoglobin, 08 (16%) had Moderate level of hemoglobin, 00(0%) had severe level of hemoglobin& in posttest0(0%) had Normal level of hemoglobin, 40(80%) had mild level of hemoglobin, 10 (20%) had Moderate level of hemoglobin, 00(0%) had severe level of hemoglobin.

In experimental group, pre intervention values are as follows, the mean value of pretest 10.2 and posttest was 11, the median of pretest 10.8 and posttest was 9.8, standard deviation of pretest 1.4 and posttest was 2.9, range of pretest 1.4 and posttest was 2.9. this showed that difference between pre and post examination that the intervention was effective in improving the hemoglobin levels among adolescent girls.

In control group, pre intervention values are as follows, the mean value of pretest 6.26 and posttest was 10.38, the median of pretest 10.8 and posttest was 10.6, standard deviation of pretest 3.26 and posttest was 0.48, range of pretest 1.4 and posttest was 2.1. this showed that difference between pre and posttest hemoglobin levels among adolescent girls.

The study findings in experimental grouping pre- and post-intervention showed that the mean difference was 0.8, standard error was 0.11 and paired 't' test value in experimental group was (t_{cal}) was 0.71 and (t_{tab}) was 2.660.

The study findings in control group revealed that in control group the mean difference was 4.12, standard error was 0.06 and paired 't' test value in experimental group was (t_{cal}) was 1.88 and (t_{tab}) was 2.660.

The comparison of experimental and control group showed that, standard error was 0.133, the calculated unpaired 't' $_{(98)}$ was 4.76 at df $_{(98)}$ =1.98. this showed that, the calculated value is greater than the tabulated value. Hence it was statistically proved that, fresh curry leaves are effective in improving the hemoglobin levels in adolescent girls a level of 0.05significance.

CONCLUSION

The overall finding study revealed that utilization of fresh curry leaves is significantly effective in improving the hemoglobin levels among adolescent girls

Key words: Hostel inmate Adolescent girls, anemia, haemoglobin, effectiveness

LIST OF ABBREVATION

SL NO	ABBREVATION
1	WHO: World health organization
2	NFHS: National family health survey
3	F: Frequency
4	%: Percentage
5	SD: Standard Deviation
6	DF: Degree of freedom
7	NS: Not significant
8	SS: Statistically significant

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXURES

CHAPTER - I

INTRODUCTION

"Adolescents represents the next generation of adults and addressing their health issues now is essential to protecting health and productivity into the future"

Anemia is one of the most prevalent hematological disorders in adolescent girls. It can be described as a decrease in the body's red cell mass or as a decrease in its ability to deliver oxygen. [1]

Anemia and iron deficiency reduce individuals' wellbeing, cause fatigue and lethargy, and impair physical capacity and work performance. Failure to reduce anemia worldwide consigns millions of women to impaired health and quality of life, generations of children to impaired development and learning, and communities and nations to impaired economic productivity and development. Iron deficiency [due to nutritional deficiency, blood loss and helminth infestation], nutritional deficiencies of folate and vitamins B12, A and C], teenage pregnancy and malaria are the possible cause and factors for Anemia.[2]

According to WHO anemia is classified into three degrees: mild, moderate and severe. Hb cut-off values of anemia were 10.0-11.9 g/dl (mild), 7.0-9.9 g/dl (moderate) and <7.0g/dl (severe).[3]

Anemia is one of the most prevalent and unsolvable nutritional issues in the world, posing serious risks to human health as well as social and economic development in both developing and wealthy nations. All phases of life are affected by iron deficiency anemia, but pregnant women and small children are particularly

susceptible. Teenagers, particularly girls, are especially susceptible to iron deficiency.[4]

In developing countries, the adolescent group is more exposed to nutritional challenges and adolescent girls are more vulnerable to the disease. Studies showed that adolescent anaemia was the greatest nutritional problem encountered in developing countries. India had reported a high prevalence of anaemia among adolescent girls, which is higher when compared with the other developing nations.[5]

According to WHO, Globally, anaemia affects 1.62 billion people (95% CI: 1.50–1.74 billion), which corresponds to 24.8% of the population (95% CI: 22.9–26.7%). The highest prevalence is in preschool-age children (47.4%, 95% CI: 45.7–49.1), and the lowest prevalence is in men (12.7%, 95% CI: 8.6–16.9%). However, the population group with the greatest number of individuals. [6]

According to the National Family Health Survey 2019, prevalence of anemia in adolescents was 43.9% in rural & 50.3% in an urban area of Karnataka and Kolar 34.8%, The major risk factors identified from the above were socio-economic status, blood loss during menstruation, nutritional status, hand hygiene, and worm infestation.[7]

A high prevalence of anemia among adolescent girls was found to be higher in low economic strata. It was seen that anemia affects the overall nutritional status of adolescent girls. The problems of adolescence are multidimensional and require a holistic approach. [8]

Anemia is one of the most important health problems throughout the world. Adolescent girls are one of the major risk groups for anemia.[9]

It is one of the most pervasive public health issues, especially in developing nations like India, and it has serious negative effects on health, welfare, and the social

and economic system. These effects include impaired cognitive development, reduced physical activity, and, in severe cases, a higher risk of mortality, especially during pregnancy. Additionally, there is proof that anemia may inhibit growth and raise morbidity.[10]

The most common causes of anemia include nutritional deficiencies, particularly iron deficiency, though deficiencies in folate, vitamins B12 and A are also important causes haemoglobinopathies and infectious diseases, such as malaria, tuberculosis, HIV and parasitic infections.[11]

More broadly speaking, adolescence is the stage of human development that includes the passage from childhood to maturity. Since these are a person's formative years, when significant physical, psychological, and behavioral changes occur, this time frame is extremely important. Compared to any other stage of life, adolescence has higher nutritional needs. At this age, inadequate dietary intake causes stunted growth and delayed sexual maturation. [12]

Due to their rapid growth and developmental processes, which increase their needs for both micro and macronutrients, adolescent girls are more likely to develop anemia. Menarche, hormonal changes, and insufficient dietary iron intake, which causes anemia, are all linked to this time period. Poor nutrition during adolescence can have major repercussions on a person's ability to reproduce and beyond, leading to anorexia nervosa. Nutritional counselling and frequent screening help lessen these problems. [13]

Nutrition is one of the significant indicators of the health and overall status of adolescents. Adolescents is a period of transition between childhood and adulthood, is a golden period of dreams and a period of dreams and a period to live out their role

models, a time of rapid physical, cognitive, social, and emotional maturation as the boy prepares for manhood and the girl prepares for womanhood. In this period adolescence begins with the gradual appearance of secondary sex characteristics at about 11 -12 years and cessation of body growth occurs at 18-20 years.[14]

A cross-sectional study conducted in Tamil on Prevalence of Anemia Among Adolescent Girls in a Rural Area of Tamil Nadu. the Prevalence of anemia (52.24%) was high among the late adolescents and those belonging to low socioeconomic class. The study emphasis on There is a significant relationship between anemia and socioeconomic status, dietary modification, nutritional supplementation, and helminthic control in addition, compliance with consumption of iron and folic acid tablets will prevent anemia to a great extent among adolescent girls.[15]

Thus, emphasizing the need to address this problem to ensure the health and well-being of women of childbearing age particularly adolescent girls (the future mothers). It is a matter of great concern that despite the huge growing adolescent girl population, the health needs of adolescents have neither been researched nor addressed adequately.

NEED FOR THE STUDY

Adolescence is also a sensitive period, particularly for girls. Most of them are having poor access to proper health care, nutrition and education. Adolescence is a time of intensive physical growth. Girls typically start puberty around the age of 10-12 and achieve their full adult height. Inadequate nutrition during late childhood and adolescence can therefore have a significant impact on a women's adult health and the health of her children.[16]

According World Health Organization (WHO) Adolescence is defined as a stage of development that lasts from 10 to 19 years old and as an age range. There are three distinct periods of adolescence.

- Early adolescence: 9–13 years
- Mild adolescence: 14–15 years
- Late adolescence: 16-19 years[17]

An adolescent's growth is more dependent on adequate nourishment. Particularly undernutrition, obesity, anorexia, and a delay in the onset of puberty are caused by poor nutrition, which results in micronutrient deficiencies.[18]

Adolescent girls are particularly prone to iron deficiency anemia because of the increased demands for iron by the body. During this period, the iron requirement increases dramatically and the overall iron requirement increase from a pre-adolescent level of approximately 0.7-0.9mg fe/d to as much as 2.2mg fe/d or perhaps more in heavily menstruating young women.[19]

According to WHO has defined adolescence as the age period between 10 to 19 years of age for both sexes. There are about 1.2 billion adolescents in the world, which is equal to 1/5th of the world's population and their numbers are increasing.[20]

There are 1.2 billion adolescents in the world [4]. India has the largest adolescent population in the world, 250 million, and every fifth person is between 10 to 19 years. They are the future of the nation.[21]

In developing countries, the adolescent group is more exposed to nutritional challenges and adolescent girls are more vulnerable to the disease. Studies showed that adolescent anaemia was the greatest nutritional problem encountered in developing countries. India had reported a high prevalence of anaemia among adolescent girls, which is higher when compared with the other developing nations.[22]

A good diet is essential for the proper growth and development of adolescents, for boosting their immunity and preventing conditions like anaemia. Vitamin D and calcium in the diet and weight-bearing exercises build up the bone mass at this age. [23]

Now a days most adolescent girls have beauty conscious. So that they neglect food more over hostel girls improper diet pattern & they are more exposed to junk foods. Adolescent girls have become poor concentration, are not attentive, low level of haemoglobin levels.

Hence the ideal dosage of curry leaves ,8 to 10 fresh Curry leaves per day,1/2 to 1 teaspoon of Curry leaf powder per day,1 to 2 Curry leaves capsules per day.[24]consumption helps in improving the haemoglobin & also the curry leaves are affordable & cost effective for the students based on the ayurvedic doctors suggestions & as per the review of literature this study planned to be conducted.

Adolescent age is the perfect period to correct the nutritional status, if the intervention is done correctly during this period, then future consequences of nutritional deficiencies can be prevented to a large extent. [25]

A Descriptive Study conducted on to Assess the Prevalence of Anemia among the Adolescent Girls at Selected Schools in Thiruvallore District, Chennai ,294 adolescent school girls aged 9years to 18 years were enrolled, venous blood of the study participants were taken and analyzed by SLS method to confirm anemia& the study results showed that 18.3% of the adolescent girls were having severe anemia, their HB level is <8gm/dl and 57.4% of them were having moderate level of anemia, their HB level is 8.1gm 10 gm/dl. Only 18.7% of them were having normal level of HB, that is 12gm/dl and above. There was no significant association between the demographic, dietary and menstrual variables and the level of hemoglobin the study concluded that prevalence of anemia was higher among the adolescent girls, which is a matter of concern, relevant intervention strategy and constant monitoring are needed while providing nutritional supplementation program to eradicate anemia. Education also must focus on the promotion of cheap available of community dietary resources.[26]

The objective of this study was to determine the prevalence and contributing factors to anaemia among adolescent girls residing in the hostels at Kolar, Karnataka assumed that the less nutrient intake of adolescent girls who reside in the hostels of Kolar. Thus, these adolescent girls may not obtain nutrients to meet the requirement of the body and were likely to have a higher risk of developing anaemia. In turn, nutrient deficiency anaemia may reduce these adolescents work capacities and that will adversely affect their academic performances.

Hence the investigator felt to correct the current dietary habit in a vulnerable group of adolescent girls which may result in dietary changes that can ultimately improve their iron status. Hence this has motivated me to conduct the study to assess the effectiveness of Fresh curry leaves in improving Haemoglobin levels among late adolescent girls in selected hostel Kolar.

CHAPTER - II

OBJECTIVES

This chapter deals with the statement of the problem, objectives of the study, hypothesis, operational definitions, and limitation of the study and conceptual framework, which provides a frame of reference. The statement of the problem and objectives of this study are as follows.

STATEMENT OF THE PROBLEM

"A Study to Assess the Prevalence of Anemia & Evaluate the Effectiveness of Fresh Curry leaves to Improve Hemoglobin among late Adolescent Girls at Selected Hostels, Kolar, Karnataka".

OBJECTIVES OF THE STUDY

5. To assess the Hemoglobin level among Hostel Inmates girls at selected hostel by using Tall Quist paper\ Hemoglobin color scale & Hemometer.
6. To determine the prevalence of anemia among hostel inmates at selected hostels.
7. To evaluate the effectiveness of Fresh curry leaves in improving hemoglobin level among anemic girls in experimental group compared to control group.
8. Find out the association between post test score with selected demographic variable

HYPOTHESIS

H_1- There will be statistically significant difference in the postintervention Hemoglobin compared to preintervention Hemoglobin level at 0.05 level of significance among adolescent girls.

H_2- There will be statistically significant association between the hemoglobin level with selected demographic variables.

ASSUMPTIONS

1. Late Adolescent girls will be having decreased Hemoglobin level.
2. There will be improvement in Hemoglobin level after implementing Fresh curry leaves among adolescent anemic girls.

OPERATIONAL DEFINITION

1. Prevalence

Prevalence is the proportion of a particular population found to be affected by a medical condition at a specific time, in this study prevalence refers to number of adolescent girls affected with anemia.

2. Effectiveness

It means producing an intended result, in this study it refers to determine the extent to which the nutritional intervention has brought about the intended result in increasing Hb level which will be measured in terms of statistical measurements.

3. Anemia

Anemia is condition in which the hemoglobin concentration is lower than normal, reflects the presence of fewer than normal RBCs with in the circulation, which characterized into mild (10.0-11.9 g/dl), moderate (7.0-9.9 g/dl) & sever (<7.0g/dl) in this study Anemia means girls having Hb less than 11% which will be measured by using Tall Quist paper/ Hemoglobin color scale & Hemometer.

5. Adolescence

Adolescence has been defined by the world health organization as the period of life spanning the ages between 12- 22 years.

- Early adolescence: 9–13 years
- Mild adolescence: 14–15 years
- Late adolescence: 16-19 years[15]

In this study the age adolescent group is from 18-22 years.

9. Fresh curry leaves

Curry leaves (Murray koenigii) or sweet neem leaves are extensively used in India for culinary and medicinal purposes., curry leaves are rich in folic acid is primarily responsible for transporting and assisting the body's absorption of iron, and because it is a rich supply of both molecules, it is a one-stop natural cure for anemia.

Nutritional Value of Curry Leaves are:

100 grams of curry leaves provide around 108 calories of energy. They are rich in carbohydrates, proteins, fiber, calcium, phosphorus, iron and other minerals. They also contain vitamins like vitamin A, vitamin B, vitamin C, vitamin E, etc.

DELIMITATIONS OF THE STUDY

1. The study is limited to 100 participants
2. The study limited to physiological anemia
3. The study does not cover above of age participant
4. Pathological anemia participants are not included
5. Age group is restricted to 18-22years
6. The study intervention is limited to 2months

CONCEPTUAL FRAMEWORK

A conceptual framework represents the researcher's synthesis of literature on how to explain a phenomenon. It maps out the actions required in the course of the study given his previous knowledge of other researcher's point of view and his observations on the subject of research.

Conceptual frame work for this study is based on Betty numen theory. the study aims at evaluating the effectiveness of fresh curry leaves in improving haemoglobin levels among late adolescent girls.

According to Betty Neuman describes the Neuman Systems Model as "a unique, open-system-based perspective that provides a unifying focus for approaching a wide range of concerns. A system acts as a boundary for a single client, a group, or even several groups it can also be defined as a social issue, client system in interaction with the environment delineates the domain of nursing concerns.

Open System

A system in which there is a continuous flow of input and process, output and feedback. It is a system of organized complexity, where all elements are in interaction.

Basic Stricture and Energy Resources

The basic structure, or central core, comprises those basic survival factors common to the species. These factors include the system variables, genetic features, and strengths and weaknesses of the system parts.

Client Variables: Neuman views the individual client holistically and considers the variables simultaneously and comprehensively.

Flexible line of defense: A protective accordion-like mechanism that surrounds and protects the normal line of defense from invasion by stressors.

Normal line of defense: An adaptational level of health developed over time and is considered normal for a particular individual client or system; it becomes a standard for wellness-deviance determination.

Lines of resistance: Protection factors are activated when stressors have penetrated the normal line of defense, causing reaction symptomatology.

Sub concepts of Neuman Systems Model

Stressors: A stressor is any phenomenon that might penetrate both the flexible and normal lines of defense, resulting in either a positive or negative outcome.

Intrapersonal stressors are those that occur within the client system boundary and correlate with the internal environment.

Interpersonal stressors occur outside the client system boundary, are proximal to the system, and impact the system.

Extra personal stressors also occur outside the client system boundaries but are at a greater distance from the system than are interpersonal stressors. An example is a social policy.

Stability: A state of balance or harmony requiring energy exchanges as the client adequately copes with stressors to retain, attain, or maintain an optimal health level, thus preserving system integrity.

Degree of Reaction: The amount of system instability resulting from stressor invasion of the normal line of defense.

Input/Output: The matter, energy, and information exchanged between the client and environment entering or leaving the system at any point in time.

Reconstitution: Following treatment of stressor reaction, the return and maintenance of system stability may result in a higher or lower wellness level.

Prevention as Intervention: Intervention modes for nursing action and determinants for both client and nurse entry into the health care system.

In this study the prevention of anaemia done by giving the fresh curry leaves in improving the haemoglobin levels of the late adolescent staying in the SDUCON Hostel.

Primary prevention

It occurs before the system reacts to a stressor; it includes health promotion and wellness maintenance. Primary prevention focuses on strengthening the flexible line of defense through preventing stress and reducing risk factors. This intervention occurs when the risk or hazard is identified but before a reaction occurs. Strategies that might be used include immunization, health education, exercise, and lifestyle changes.

In this study, Primary prevention focuses in assessing the prevalence of anaemia hostel inmate adolescent girls.

Secondary prevention

It occurs after the system reacts to a stressor and is provided in terms of existing symptoms. Secondary prevention focuses on strengthening the internal lines of resistance and, thus, protects the basic structure through appropriate treatment of symptoms. The intent is to regain optimal system stability and conserve energy in doing so. If secondary prevention is unsuccessful and reconstitution does not occur, the basic structure will be unable to support the system and its interventions, and death will occur.

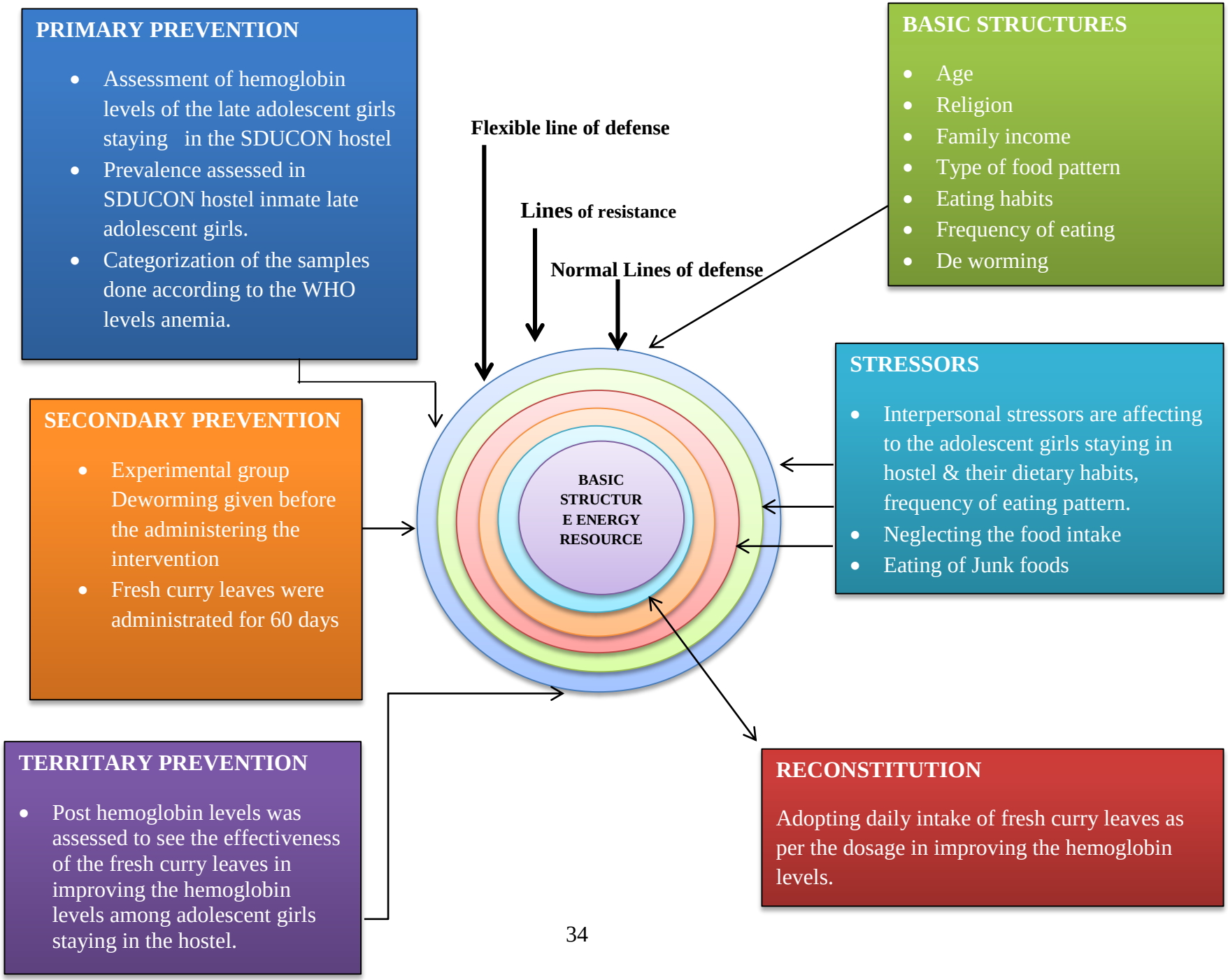
In the study, secondary prevention focusing on deworming the anaemic adolescent girls in experimental group by giving tab. albendazole 500mg & the

intervention as a fresh 8 curry leaves given in a empty stomach which helps in improving the haemoglobin levels.

Tertiary prevention

It occurs after the system has been treated through secondary prevention strategies. Its purpose is to maintain wellness or protect the client system reconstitution by supporting existing strengths and preserving energy. Tertiary prevention may begin at any point after system stability has begun re-established (reconstitution has begun). Tertiary prevention tends to lead back to primary prevention. (Neuman, 1995)[27]

In this study, tertiary prevention focuses on assessing the effectiveness of fresh curry leaves in improving in haemoglobin levels among hostel inmate adolescent


PRIMARY PREVENTION
Assessment of hemoglobin levels of the late adolescent girls staying in the SDUCON hostel
Prevalence assessed in SDUCON hostel inmate late adolescent girls.
Categorization of the samples done according to the WHO levels anemia.
Flexible line of defense
Lines of resistance
Normal Lines of defense
BASIC STRUCTURES
Age
Religion
Family income
Type of food pattern
Eating habits
Frequency of eating
De worming
SECONDARY PREVENTION
Experimental group Deworming given before the administering the intervention
Fresh curry leaves were administrated for 60 days
BASIC STRUCTURE ENERGY RESOURCE
STRESSORS
Interpersonal stressors are affecting to the adolescent girls staying in hostel & their dietary habits, frequency of eating pattern.
Neglecting the food intake
Eating of Junk foods
TERRITARY PREVENTION
Post hemoglobin levels was assessed to see the effectiveness of the fresh curry leaves in improving the hemoglobin levels among adolescent girls staying in the hostel.
RECONSTITUTION
Adopting daily intake of fresh curry leaves as per the dosage in improving the hemoglobin levels.

CHAPTER III

REVIEW OF LITERATURE

A review of literature is an essential component of the research process. It is the critical examination of a publication related to a topic of interest. The review should be comprehensive and evaluative. A review of literature helps to plan and systematically conduct the study.

For the present study, literature is reviewed and organized, under three broad headings

- **Studies related to the prevalence of Anaemia**
- **Studies related to the Effectiveness of Fresh curry leaves on improving Haemoglobin.**

STUDIES RELATED TO PREVALENCE OF ANEMIA

A Community based cross sectional study conducted Telangana Narketpally on Prevalence of anemia in adolescent girls and its association with certain demographic variables. Among adolescent girls aged 10 to 19 years, permanently residing in the rural field practice area study Results is Majority of families belong to upper lower socio-economic status (57.7%) Age-wise prevalence of anemia shows that prevalence of anemia was highest (69%) in 18 to 19 years age group and least (37.5%) in the age group of 16 to 17 years. Majority of subjects with anemia were having mild anemia (80.2%) followed by moderate anemia (19.2%) and severe anemia (0.6%) respectively. Highest prevalence (68.1%) was found in joint or extended and least prevalence (56.1%) was found in nuclear families. Highest prevalence (75.0%) in subjects belonging to large family and least (54.5%) with small family. Study Concluded that Prevalence of anemia was 59% with majority of study

subjects having mild to moderate anemia. Prevalence of anemia in these girls had a significant association with socioeconomic status of the family.[26]

A community-based cross-sectional study was conducted. On nutritional status of adolescent girls in Rural Area at Kolar. Among 230 adolescent girls of age 10–19 years.by using random sampling technique the Data was collected by interviewing using pre designed and pre tested Preform. the analysis of the data used in Percentiles, Mean, Standard deviation and Proportions. The study result shows that prevalence of thinness was found to be 73.5% as per Indian standards. Prevalence of Anemia was 34.8% percent and it was more among menstruating girls than compared to non-menstruating girls. The study suggested that Anemia prevalence was less among adolescent girls using footwear during defecation than girls not using foot wear. these results suggest that adolescent girls in the rural area of the selected villages. Health education and nutrition interventions are needed on priority basis.[28]

A community-based cross-sectional study was conducted in Haryana on anemia among urban and rural adolescent girls at government & private schools of district Ambala., among 300 adolescent girls, 10–16 years of age by using purposive sampling technique, The blood samples were taken from the students and hemoglobin was measured. Data collected by interviewing using a self-designed, pre-tested semi-structured questionnaire. Results of the study revealed that the prevalence of anemia was found to be 69.7%, the results suggested that the prevalence of anemia was very high among adolescent girls. This indicates a need to educate them about anemia and its risk factors. Regular screening of school students to rule out anemia is the need of the hour.[29]

A cross sectional study was conducted in Kerala. On Prevalence of anemia among female undergraduate students among 183 female undergraduates of Kottayam Medical college. by using purposive sampling technique Data was collected by using a pretested interview, 3 ml of blood was collected for complete blood count. The study results show that the prevalence of anemia was 19.13%. Among determinants of anemia recurrent infection was found to be statistically significant (p0.03). Pallor was present in 73.9% of anemic subjects whereas normal subjects showed only 11.2% (COR 24.35) with a p value of 0.001. On multivariate analysis pallor, (adjusted odds ratio (AOR) of 23.57 with p value of 0.001) and duration of menstrual flow (AOR of 4.35 with p 0.005) were found to be predictors of anemia. The results suggested that Anemia is a mild public health problem among female undergraduate medical students of Government medical college Kottayam with a prevalence rate of 19.13%.[30]

A cross-sectional study conducted in Tamil on Prevalence of Anemia Among Adolescent Girls in a Rural Area of Tamil Nadu. Among 255 adolescents girls.by using purposive sampling technique the Blood samples were collected and analyzed. The study Results shows that Overall prevalence of anemia was found to be 48.63% (n = 124). The majority of the anemic girls (55.64%, n = 69) were having mild degree of anemia. Among 255 girls, 188 (73.73%) were from the early adolescent age group (10-14 years). Prevalence of anemia (52.24%) was high among the late adolescents and those belonging to low socioeconomic class. The study suggested There is a significant relationship between anemia and socioeconomic status, dietary modification, nutritional supplementation, and helminth control in addition, compliance with consumption of iron and folic acid tablets will prevent anemia to a great extent among adolescent girls.[31]

A Descriptive Study conducted on to Assess the Prevalence of Anemia among the Adolescent Girls at Selected Schools in Thiruvallore District, Chennai ,294 adolescent school girls aged 9years to 18 years were enrolled,venous blood of the study participants were taken and analyzed by SLS method to confirm anemia& the study results showed that 18.3% of the adolescent girls were having severe anemia, their HB level is & 8gm/dl and 57.4% of them were having moderate level of anemia, their HB level is 8.1gm 10 gm/dl. Only 18.7% of them were having normal level of HB, that is 12gm/dl and above. There was no significant association between the demographic, dietary and menstrual variables and the level of hemoglobin the study concluded that prevalence of anemia was higher among the adolescent girls, which is a matter of concern, relevant intervention strategy and constant monitoring are needed while providing nutritional supplementation program to eradicate anemia. Education also must focus on the promotion of cheap available of community dietary resources.[32]

A cross sectional study was conducted by Akramipour et al., (2009) to determine the prevalence of iron deficiency anemia among adolescent school girls aged 14-20 years from 20 different high schools located in three educational areas of Kermanshah, Western Iran. The prevalence of anemia (Hb<12mg/dl) among adolescent girls was 21.4%. There were 47 girls (`12.4%) with iron deficiency anemia (Hb<12g/dl and ferritin <20 microg/I). Around 57.3% anemic girls were iron deficient. The findings showed that there was no significant difference between the presence of anemia and level of education of parents. The programs of health system and supplementation of a weekly iron dose is recommended.[33]

A cross sectional study to know the prevalence of anemia among adolescent girls was conducted in Guntur, Andhra Pradesh. A total 150 adolescent girls were

selected by simple random sampling. The study showed that the prevalence of anemia was77.33% (with that of severe anemia being 12.06%, that of moderate anemia being 50.86% and that of mild anemia being 37.06%. majority of the girls had the moderate anemia. The prevalence of anemia was considerably high among the adolescent girl who belongs to the lower socio-economic status. The studied concluded that anemia to be a major public health problem among adolescents. A high prevalence of anemia was found among the adolescent girls, which was considerably high in the late adolescents. There was a significant association of anemia with the socio-economic status.[34]

A cross sectional survey on prevalence of anemia was conducted in selected Anganwadi centers of rural area of Hassan district. Sample size was fourteen adolescent's girls (10-19 yrs. Old) by sampling technique. The Prevalence of anemia was found to be 45.2%. A statically significant association was found with iron deficiency anemia, weight loss and anemia, pallor and anemia. In the present study it was seen that among the 45.2% of anemic adolescent girls 40.1% had mild anemia, 54.92% had moderate anemia and 4.92% had severe anemia. The study concluded that high prevalence of anemia among adolescent girls was found, which was higher in low economic strata. It was seen that anemia affects overall nutritional status of adolescent girls.[35]

A study conducted in India on Prevalence of Anemia among Pregnant Women and Adolescent Girls in 16 districts of 11 states of India. Data gathered by two-stage random sampling method was used to select 30 clusters on the basis of probability proportional to size. Anemia was diagnosed by estimating the hemoglobin concentration in the blood with the use of the indirect cyanmethemoglobin method, the study results showed that the survey data showed that 84.9% of pregnant women

(n = 6,923) were anemic (hemoglobin < 110 g/L); 13.1% had severe anemia (hemoglobin < 70 g/L), and 60.1% had moderate anemia (hemoglobin ≥ 70 to 100 g/L). Among adolescent girls (n = 4,337) from 16 districts, the overall prevalence of anemia (defined as hemoglobin < 120 g/L) was 90.1%, with 7.1% having severe anemia (hemoglobin < 70 g/L) & the study concluded that Any intervention strategy for this population must address not only the problem of iron deficiency, but also deficiencies of other micronutrients, such as B12 and folic acid and other possible causal factors.[36]

An analytical cross-sectional study conducted at Sri Lanka on Anemia among Female Undergraduates Residing in the Hostels of University of Sri Jayewardenepura, among 313 female undergraduates residing in hostels, during year 2011. Data collected by using Hemoglobin concentration was cyanmethemoglobin method. The collected data analyzed by using Descriptive statistical methods, chi-square test, and independent sample t-test were used to analyze data. of the 302 females, 17.5% had mild anemia and 7.9% had moderate anemia. Severely anemic individuals were not observed. Participants' dietary habits and personal factors were not significantly associated with prevalence of anemia (whether a participant is a vegetarian or not, drinking tea within one hour of a meal, frequency of consumption of red meat, fish, and eggs, anthelminthic treatment within past year and menorrhagia. & The study concluded that Anemia in the study population is below the average for Sri Lankan data. Diet and selected medical conditions were not a causative factor for anemia in this population.[37]

A descriptive cross-sectional study was conducted among public hostels in Khartoum on Prevalence and Determinants of Anemia Among University Student Living in Public Hostels, the data gathered by collecting the blood samples of 810

university students for the estimation of hemoglobin level & the results of the study showed that overall prevalence of anemia was 26.2% most of which was mild to moderate, severe case. High prevalence of anemia was associated with infections (typhoid, intestinal worms) the study Concluded that the Prevalence of anemia among university students living in public hostels was high (26.2%). Anemia was more prevalent among females, groups, those having infections and of the lower economic status. [38]

A descriptive cross-sectional study conducted and Teaching Hospital on Prevalence of anemia among medical students of Nobel medical college and correlation with body mass index, among 150 MBBS students (male=95, female=55), age 18-25 years were participated in the study by using convenient sampling technique, the hemoglobin estimated by using Sahil's acid hematin method & the study results shows that 42.1% of total were mild anemic and 11.6 % were moderately anemic. Among female, 1.8% were severely anemic, 9.1% were moderately anemic and 41.8% were mild anemic. Compared to male, anemia in female medical students was found to be more extensive & the study concluded that mild anemia is highly prevalent among medical students regardless of gender. Though the subjects are not severely affected, it is a concerned issue since the cause might be inappropriate food habit or the food facilities available at hostels.[39]

A cross-sectional study conducted at Pakistan on Prevalence and determinants of anemia among resident female university students from Southern Punjab among 1,541 female resident university students participated in this study & the Hemoglobin led screening was performed followed by nutritional assessment and structured questionnaire-based & the data were analyzed using independent t-test, Chi-square,

and response surface regression models & the prevalence of anemia in FRUS was 38 percent with mean Hb levels 10.5 g/dL. With a significant effect ($p = .001$) of participants' weight on anemia prevalence, 22.45 percent of the sample population was recorded as underweight. & The study concludes high prevalence rate of anemia among FRUS to strongly relate with student's low monthly stipend, little daily food expenditure, and substandard dietary quality.[40]

A study conducted at Maharashtra on prevalence of anemia amongst nursing students-a survey among 200 nursing students were participated in this study under aseptic precautions 2 ml of venous blood was drawn in EDTA Bulb, hematology analyzer for taking complete blood count & the results of the study shows that Among 200 nursing students 40 were males and 160 were females 88 out of 200 students were anemic so, the overall prevalence rate was 44% Males & also found out the correlation between hostel stay or home stay and anemia. It was observed that almost 60 % of anemic females were boarding in the hostel& the study concluded that the students suffered from mild anemia and female students were predominantly affected our results show that anemia constitutes a prominent health problem among female nursing students. The reason could be low intake of iron, menstrual loss and improper eating schedules. Another confounding factor was hostel stay which may have contributed as students usually avoid hostel food and order junk food from outside.[41]

STUDIES RELATED TO THE EFFECTIVENESS OF FRESH CURRY LEAVES ON IMPROVING HAEMOGLOBIN.

A Comparative Study conducted at Bangalore on anti-anemic activity of Murraya koenigii Spring leaves and its combination with Emblica officinalis in aluminum chloride induced anemia using rodents Rats were divided into 7 groups of 6

each. Group 1 was given normal saline and served as control and all other groups were given 0.5 mg/kg b.w of AlCl3 for 30 days to induce anemia. Group 2 served as positive control and Group 3 was treated with synthetic iron (40mg/kg) and served as standard. Group 4 and 5 were treated with different doses (200 and 400 mg/kg b.w.) of aqueous extracts of curry leaves respectively. Whereas Group 6 and 7 were treated with combination of aqueous extract of curry leaves and amla fruit (200 and 400 mg/kg b.w.) respectively. All the treatments were given orally and continued up to 30 days. On 0- and 31-day blood samples were collected by retroorbital puncture and hematological parameters such as hemoglobin (Hb) concentration, RBC count, Mean Hemoglobin Volume (MHV), serum iron, ferritin, and antioxidant parameters such as lipid peroxidation (LPO), superoxide dismutase (SOD) and catalase (CAT) were estimated & the study concluded that both curry leaves and its combination with amla showed significant anti anemic and antioxidant activity but compared to curry leaf extract alone, its combination with amla showed better activity. This may be due to synergistic action of herbs when used in combination and this combination may be an alternative to synthetic iron therapy in anemia.[42]

An experimental study conducted at Chennai, on a study to assess the effectiveness of curry leaves in reducing blood sugar among type ii diabetes clients in selected rural areas among 60 Type-II Diabetic adults in which 30 clients were in experimental and 30 were selected in the control group, by using simple random sampling technique using lottery method Pretest of post-prandial blood glucose level was assessed by glucometer for both experimental and control group, same instrument was used for both the group and then for the experimental group 10gm of curry leaves powder was given with food , morning/ daily in person for 14 days post assessment was conducted on the 15th day for both experimental and control group & the results

of the study relieved that by comparing the pre and post blood glucose level among Type II Diabetic patients in experimental group and control group, the obtained mean difference were 10.44% and 0.76% & this study concluded that significant reduction in blood sugar level of clients in experimental group who were given 10gms of curry leaves powder for 14 days along with their food.[43]

SUMMARY

This chapter has outlined on the statement of the problem, objectives operational definitions, hypothesis, assumptions, conceptual framework and projected outcome of the present study. The investigator found that the Pender's Health Promotion model was significant in the present study as the hemoglobin level among adolescent girls will be improved and protected them from causing anemia

CHAPTER IV

RESEARCH METHODOLOGY

RESEARCH METHODOLOGY

A problem can be solved systematically using research technique. It is the science of learning how to conduct research. Research methodology is the general term used to describe the processes researchers use to describe, explain, and forecast events. It can also be described as the study of knowledge acquisition techniques. Its purpose is to provide the research work plan.[44]

The research approach, research design, study environment, description of the population, sample, sample size, sampling technique, development and testing of the tool, method of data collecting, and data analysis strategy are all included in the methodology of this study.

SOURCE OF DATA

- The source of data for this study was late adolescent girls who are staying at Sri Devaraj Urs student nurses' hostel, Tamaka, Kolar.

RESEARCH APPROACH AND DESIGN

A research approach is a strategy that includes phases from general hypotheses to specific methods of data collecting, analysis, and interpretation. The two main categories of research approach are approach to data collection and. Method of thinking or data analysis.

The research design is the overall strategy outlining the approaches and steps to take in order to gather and analysis the necessary data for a research study. The researcher's overall strategy for addressing the research questions or putting the research hypotheses to the test is known as the research design.

In this study, methodology for the investigation was quantitative. True experimental design (one group Pretest Posttest control group design) was used as the research strategy for this study.

Diagrammatic presentation of the research design

Randomly Selected Samples	Pre-test	Intervention	Post-test
Experimental group	01	X	02
Control group	03	-	04

01 - Pre-test of Hemoglobin level among Experimental group

02 - Post-test of Hemoglobin level among Experimental group

X - Administration of intervention Fresh curry leaves

03 - Pre-test of hemoglobin level among Control group

04 - Post-test of hemoglobin level among Control group

VARIABLES:

Independent variables:

The independent variables in this study are Fresh curry leaves.

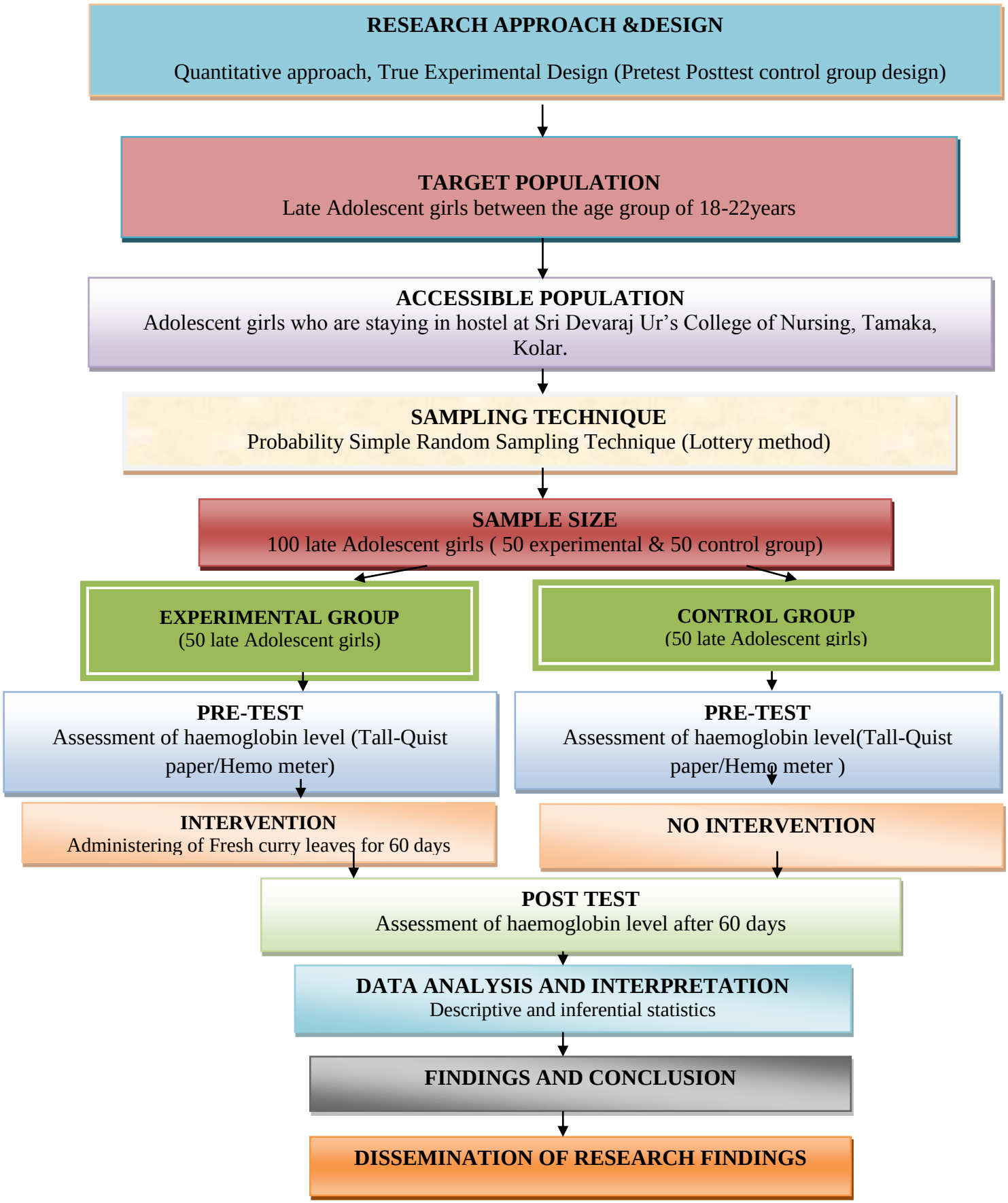
Dependent variables:

The dependent variable in this study is hemoglobin level of adolescent girls.

Extraneous variables:

In this study, it refers to the selected socio demographic variables like Age of Hostel Inmate Adolescent Girls, Religion, Program, Year of Studying, Type of Family, Family Income, Diet Pattern, Frequency of food intake, Type of eating habits, Have you Taken Tab.Albendazole Recently, History of Any Medical Condition.

FIG: 2 SCHEMATIC REPRESENTATION OF RESEARCH



SETTING

Setting is the location where a study is conducted for the present study.[41]

The setting was selected based on acquaintance of the investigator with the institution, feasibility of conducting the study, availability of the sample, permission and proximity of the setting to investigation. The study was conducted at student nurses' hostel of Sri Devaraj Urs college of Nursing; the College is situated at Sri Devaraj Urs Academy of Higher Education and Research, Deemed University campus, Tamaka, Kolar. There are 350 late adolescent girls with the age group of 18-22 years staying in the hostel. Keeping in mind, the time & available of students in the hostel for data collection and familiarity to the area, the investigator has chosen these settings.

POPULATION

Population is referred as the target population which represents the entire group of all elements like individuals or objects that need certain criteria for instruction on the study.[41]

In this present study, the target populations are the late adolescent girls who are in the age group of 18-22 years

SAMPLE

Sample refers to a portion of the population which represents the entire population.[43]

In this study the sample size consists of 2 sets of samples (50 experimental & 50 control) and the total of 100 late adolescent girls sample with the age group of 18-22 years.

SAMPLE SIZE

The sample size was 100 (50 Experimental, 50 Control group) who are the inmates of SDUCON.

SAMPLING TECHNIQUE

Probability Simple random sampling technique (lottery method) was adopted to collect the data for the study.

SAMPLING CRITERIA

Inclusion criteria

- The late adolescent girls who are 18 to 22 years with Hemoglobin <11gm/dl.
- Who are willing to participate in the study
- Who are available at the time of data collection.

Exclusion criteria:

- Adolescent girls who are having hemoglobin level >12 grams.
- Who are under anemia treatment
- Who are with pathological anemia
- Who are having any medical or surgical disorders
- Who are allergic to curry leaves

DATA COLLECTION TOOL

The tool was developed which will have the following sections.

Section – A

It consists of Socio Demographic Variables such as Age of hostel inmate Adolescent Girls, Religion, Program, Year of Studying, Type of Family, Family Income, Diet Pattern, Frequency of food intake, Type of eating habits, Have you Taken Tab.Albendazole Recently, History of Any Medical Condition.

Section – B

Clinical assessment of hemoglobin level estimation of adolescent girls before and after administering of Fresh curry leaves in both Experimental and control group

WHO/UNICEF/ UNU graded the hemoglobin level

- 10- 11.9 g/dl is considered as mild anemia,
- 7g/dl to 9.9 g/dl is considered as moderate anemia and
- Less than 7 g/dl is considered as severe anemia.
- 12 g/ dl is considered as Non anemic

DESCRIPTION ABOUT THE VALIDITY

Validity refers to the extent to which an instrument measures on what it actually wanted to measure. Content validity refers to which a measuring instrument provides adequate coverage of the topic under study.

The following methods were used to test the content validity of the tool. The prepared tool along with the statement of the problem, Objectives, Description about the instrument & Nutritive facts about Fresh curry leaves were sent to research experts

The tool consisted of Demographic variables with 11 items and description about the instrument with procedure. The experts were requested to give their opinion

and suggestions regarding the relevance, adequacy and appropriateness of the tool. The suggestions and recommendations given by the experts were accepted and necessary corrections were made for modifying the tool. These modifications were incorporated in the final preparation of the tool.

ETHICAL CLEARANCE

Ethical clearance was obtained from the institutional ethical committee, Sri Devaraj Urs College of Nursing, to conduct the study. Permission was obtained from the principal of college of Nursing, tamaka, Kolar & Informed consent was taken from participants before conducting the study.

METHOD OF DATA COLLECTION

Data will be collected in the following steps.

STEP 1: The ethical clearance was obtained from institutional Ethical committee.

STEP 2: Formal permission was been obtained from the concerned institutional, Hostel authorities.

STEP 3: Study was informed to the hostel inmates.

STEP 4: Whole hostel inmates was checked for hemoglobin levels.

STEP 5: Informed written Consent was taken from study participants before collecting the data by explaining the nature, purposes and duration of the study.

STEP 6: The Prevalence anemia was assessed.

STEP 5: Anemic paricipants,100 study samples were randomly divided in to 50 experimental & 50 control group & the grouping done by using lottery method.

STEP 6: Experimental group and Control group was dewormed with Albendazole 400mg.After 24hrs, Fresh curry leaves was administered for 2months in Experimental group.

STEP 7: No intervention was given to control group.

STEP 8: Curry leaves given early morning with empty stomach to experimental group to check effectiveness.

STEP 9: Post hemoglobin level was assessed for Experimental group and control group by using the same hemoglobin color scale / hemo-meter of hemoglobin level estimation after 60 days.

PLAN OF STATISTICAL ANALYSIS OF DATA

Data was analyzed on the basis of objective and hypothesis by using descriptive and inferential statistics.

1. Descriptive statistics was used to analyze the frequency, percentage, mean and standard deviation of demographic variables.

2. Inferential statistical was used to determine the comparison and association.

a. 't' test was used to find out the effectiveness of Fresh curry leaves by comparing pre and post hemoglobin level in experimental group.

b. Unpaired 't' was test used between experimental and control group.

Chi square was used to find out the association between demographic variables in experimental & control group.

Summary

The study approach, research design, setting, population, sample, sample size, sampling procedure, development and description of the tool, and plan for data analysis were all covered in this chapter of methodology.

CHAPTER –V

THE SAMPLE SIZE ESTIMATION PROCESS

STATEMENT OF THE PROBLEM

"A Study To Assess The Prevalence Of Anemia And Evaluate The Effectiveness Of Fresh Curry Leaves To Improve Hemoglobin Among Adolescent Girls At Selected Hostels, Kolar, Karnataka".

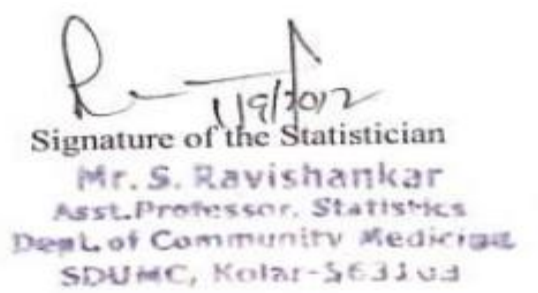
Research approach: Quantitative approach

Research design: True Experimental Research design

Sampling technique: Random Sampling Technique (lottery method)

Sampling size: 100 (50 Experimental, 50 Control group) who are the inmates of SDUCON.

Sample size estimation: Sample size was estimated based on nutritional status of adolescent girls in Rural Area at Kolar. Among 230 adolescent girls of age 10–19 years.by using random sampling technique the Data was collected by interviewing using pre designed and pre tested Preform



CHAPTER –VI

RESULTS

The most critical phase of any research is the data analysis. Data analysis condenses gathered information. It entails the analysis of acquired data using logical and analytical reasoning to spot trends, correlations, or patterns.[41]

This chapter deals with the analysis and interpretation of data collected from 100 late adolescent girls in between the age group of 18-22 years studying at selected nursing colleges at Kolar, to assess the effectiveness of Fresh curry leaves in improving the haemoglobin level among hostel inmate adolescent girls at selected hostel. The purpose of analysis was to reduce the collected data to an intelligible and interpretable form so that the relation of the research problem can be studied and tested.

OBJECTIVES OF THE STUDY

1. To assess the Hemoglobin level among Hostel inmate's girls at selected hostel by using Tall Quist paper\ Hemoglobin color scale
2. To determine the prevalence of anemia among hostel inmates at selected hostels, Kolar
3. To evaluate the effectiveness of Fresh curry leaves in improving hemoglobin level among anemic girls in experimental group compared to control group.
4. Find out the association between post test score with selected demographic variable

HYPOTHESIS

H_1- There will be statistically significant difference in the post intervention hemoglobin level compared to pre intervention hemoglobin level at 0.05 level of significance.

H_2- There will be statistically significant association between the hemoglobin levels with selected demographic variables.

ORGANIZATION OF THE STUDY FINDINGS

The analysed data is organized and presented under the following sections.

SECTION: A

Distribution of demographic variables of Hostel inmate adolescent girls in experimental group and control group.

SECTION: B

To determine the prevalence of anaemia among hostel inmates at selected hostels.

SECTION: C

Estimation of pre-test and post-test level of hemoglobin level among adolescent girls at selected hostel by using Tall Quist paper\ Hemo meter in both experimental group and control group.

SECTION: D

To evaluate the effectiveness of Fresh curry leaves in increasing haemoglobin level among late adolescent girls in experimental group.

SECTION: E

Find out the association between post-test level of haemoglobin among adolescent girls with their selected socio demographic variables in experimental and control group.

SECTION –A

This section deals with data pertaining to socio-demographic characteristics of late adolescent girls assessed for socio demographic variables before Intervention.

Table 1: Distribution of Socio- Demographic Variables of the Late Adolescent girls in Experimental and Control group.

N=100

Sl No	Demographic variable	Experimental group n=50		Control group n=50	
		f	%	f	%
1	**Age in years**				
	1.1) 18 years	21	42%	16	32%
	1.2) 19 years	14	28%	13	26%
	1.3) 20 years	07	14%	11	22%
	1.4) 21years	08	16%	10	20%
2	**Religion**				
	2.1) Hindu	28	56%	27	54%
	2.2) Christian	22	44%	23	46%
	2.3) Muslim	–	–	–	–
3	**Program**				
	3.1) B.Sc. nursing	37	74%	32	64%
	3.2) GNM	13	26%	18	36%
4	**Year of studying**				
	4.1) I- year B.sc Nursing	16	32%	09	18%
	4.2) II- year B.sc Nursing	06	12%	07	14%
	4.3) III- year B.sc Nursing	07	14%	07	14%
	4.4) IV- year B.sc Nursing	07	14%	09	18%
	4.5) I-GNM	07	14%	07	14%
	4.6) II-GNM	04	08%	05	10%
	4.7) III-GNM	03	06%	06	12%

5	**Type of family**				
	5.1) Joint Family	18	36%	22	44%
	5.2) Nuclear family	32	64%	28	56%
6	**Family income**				
	6.1) Less than Rs.10000/month	11	22%	-	-
	6.2) Rs.10, 001 -20,000/ month	31	62%	32	64%
	6.3) Rs. 20,001 -30,000/month	05	10%	13	26%
	6.4) More than Rs.30,001/month	03	06%	04	08%
7	**Diet pattern**				
	7.1) Vegetarian	18	36%	12	24%
	7.2)Non vegetarian	32	64%	38	76%
8	**Frequency of Eating**				
	8.1) 2 Times / per day	18	36%	08	16%
	8.2) 3 Times / per day	16	32%	34	68%
	8.3) 4 Times / per day	15	30%	08	16%
	8.4) 5 Times /per day	01	02%	-	-
9	**Type of Eating**				
	9.1) Fuel eating; when you are eating foods that support your body & its needs.	20	40%	10	20%
	9.2) Fun Eating: Eating any foods that you love to eat that don't necessarily give you anything back.	10	20%	15	30%
	9.3) Strom eating: Eating any foods that you love to eat that don't necessarily give you anything back	12	24%	12	24%
	9.4) Fog eating: Any time you eat without awareness	08	16%	13	26%
10	**Have you taken Tab.Albendazole in recently**				

	10.1) Yes	-	-	-	-
	10.2) No	50	100%	50	100%
11	**Do you have any history of medical conditions**				
	11.1) Yes	-	-	-	-
	11.2) No	50	100%	50	100%

Table: 1 Findings related to sociodemographic variables in Experimental group

It showed that the 21 (42%) Majority of the adolescent were in the age of group of 18 years 07(14%) Minority of the adolescent girls were in the age of group of 20 years, in religion 28(56%) Maximum of adolescent girls were belongs to Hindu religion, 22(44%) Minimum of adolescent girls were belongs to Christian, in Educational Program 37(74%) More of adolescent girls were in B.sc Nursing,13(26%) few of adolescent girls were in GNM program, in year of studying 16(32%) Majority of adolescent girls were studying is I year B.sc Nursing ,03 (6%) Minority of adolescent girls were studying in III Year GNM,in type of family 32(64%) Maximum of adolescent girls were belongs to Nuclear family, 18(36%) Minimum of adolescent girls were belongs to joint family, in family income 31(62%) Majority of adolescent girls family income was Rs.10, 001 -20,000/ month,03(6%) minority of adolescent girls family income was More than Rs.30,001/month ,in Diet pattern 32(64%) More of the adolescent girls were Non vegetarian ,18(36%) few adolescent girls were vegetarian,in frequency of eating 18(36%) Maximum of adolescent girls were eating 2times/day ,01 (02%) Minimum of adolescent girls were eating 5times/day, in type of Eating 20(40%) major of adolescent girls were fuel type of eating,08(16%)minor of adolescent girls were fog eating pattern, regarding to history of medical condition & recently in take of tab.Albendazole 50(100%) majority

of the adolescent girls were not taken tab.albendazole and they don't have any history of medical conditions.

Findings related to sociodemographic variables in Control group

It showed that the 16(32%) Majority of the adolescent were in the age of group of 18 years 10 (20%) Minority of the adolescent girls were in the age of group of 21 years, in religion 27 (54%) Maximum of adolescent girls were belongs to Hindu religion, 23 (46%) Minimum of adolescent girls were belongs to Christian, in Educational Program 32 (64%) More of adolescent girls were in B.sc Nursing,18 (36%) few of adolescent girls were in GNM program, in year of studying 09 (18%) Majority of adolescent girls were studying is I year B.sc Nursing& in IV year B.sc Nursing ,05 (10%) Minority of adolescent girls were studying in II Year GNM,in type of family 28(56%) Maximum of adolescent girls were belongs to Nuclear family, 22 (44%) Minimum of adolescent girls were belongs to joint family, in family income 32 (64%) Majority of adolescent girls family income was Rs.10, 001 -20,000/ month,04 (8%) minority of adolescent girls family income was More than Rs.30,001/month ,in Diet pattern 38 (76%) More of the adolescent girls were Non vegetarian ,12 (34%) few adolescent girls were vegetarian, in frequency of eating 34(68%) Maximum of adolescent girls were eating 3times/day ,08 (16%) Minimum of adolescent girls were eating 4 to 2 times/day, in type of Eating 15 (30%) major of adolescent girls were fun type of eating,10 (20%) minor of adolescent girls were fuel eating pattern, regarding to history of medical condition & recently intake of tab.Albendazole 50(100%) majority of the adolescent girls were not taken tab.albendazole and they don't have any history of medical conditions.

Figure No:3 Bar diagram showing findings related to Age in years

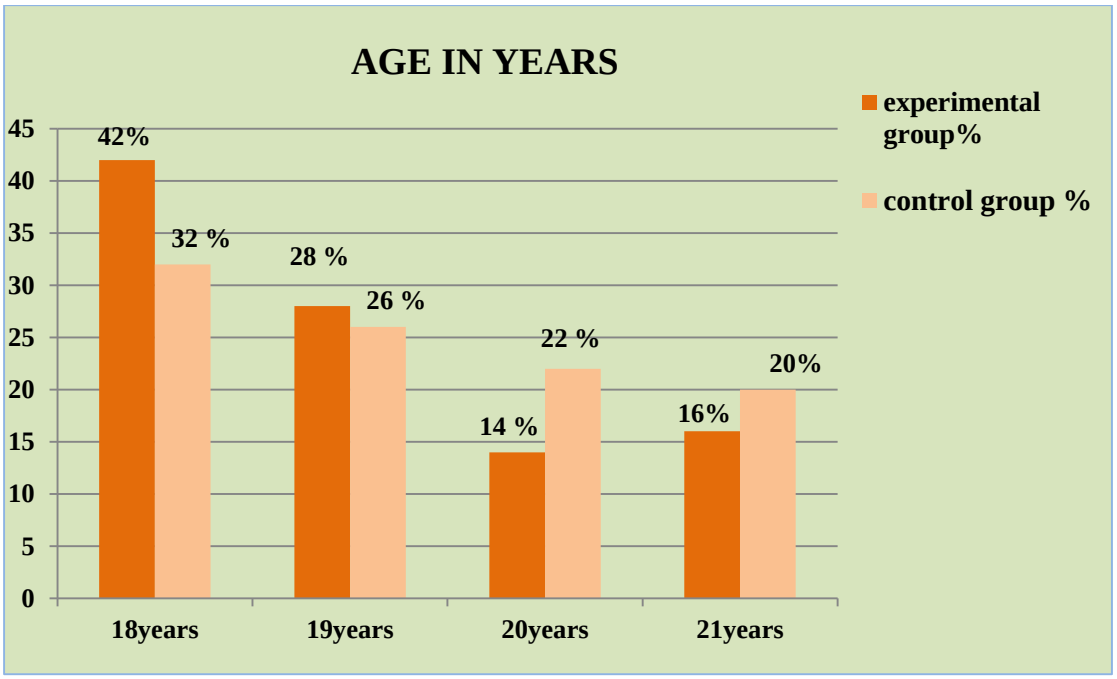


Figure No:4 Cluster diagram showing findings related to Religion

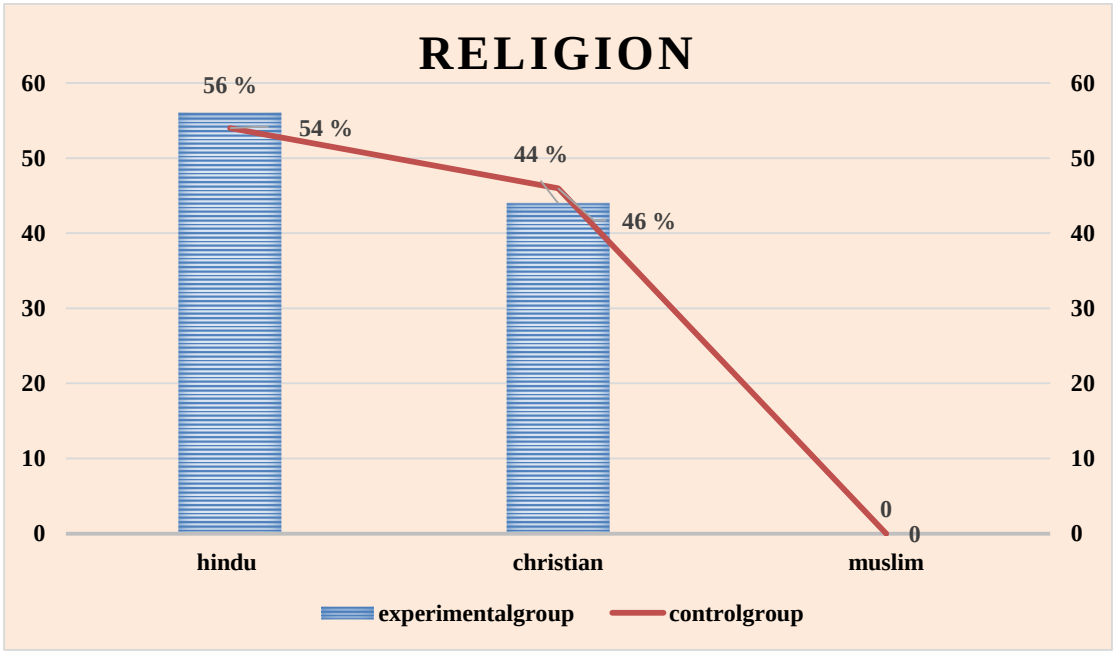


Figure No:5 Bar diagram showing findings related to Educational Program

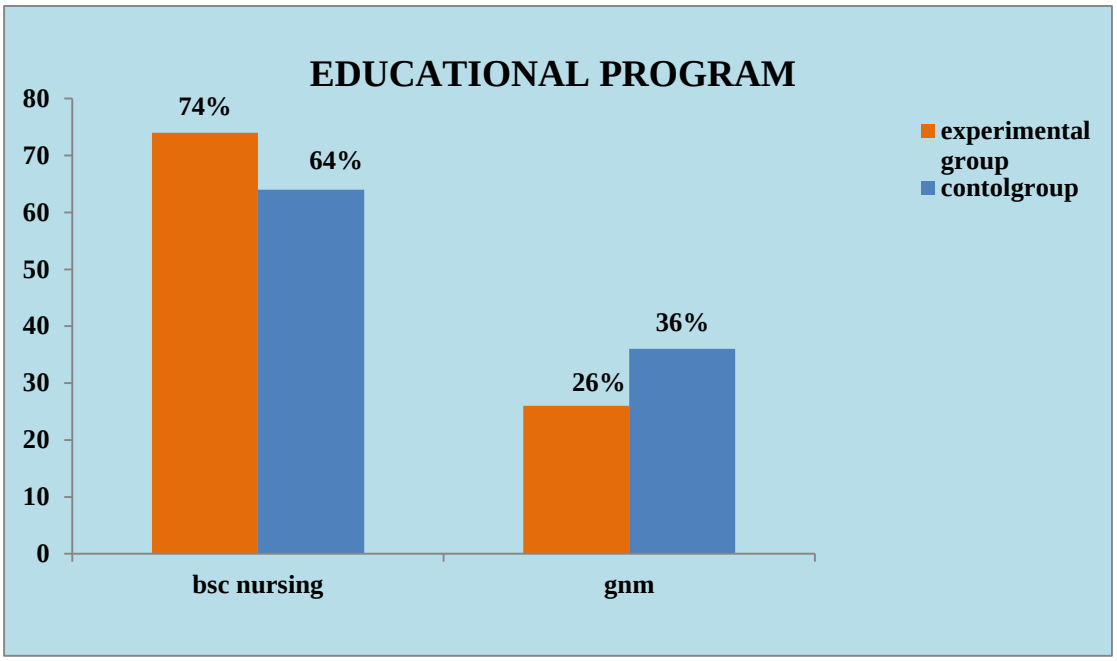


Figure No: 6 Pyramid diagram showing findings related to Educational Program

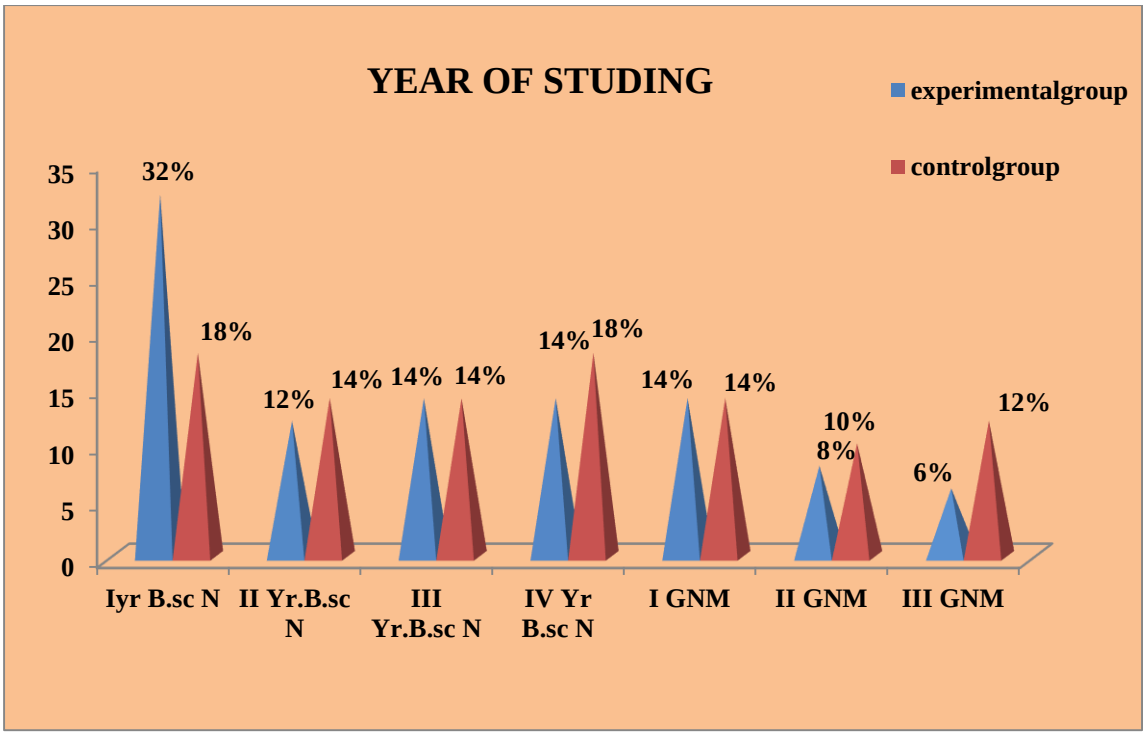


Figure No: 7 Bar diagram showing findings related to Type of Family

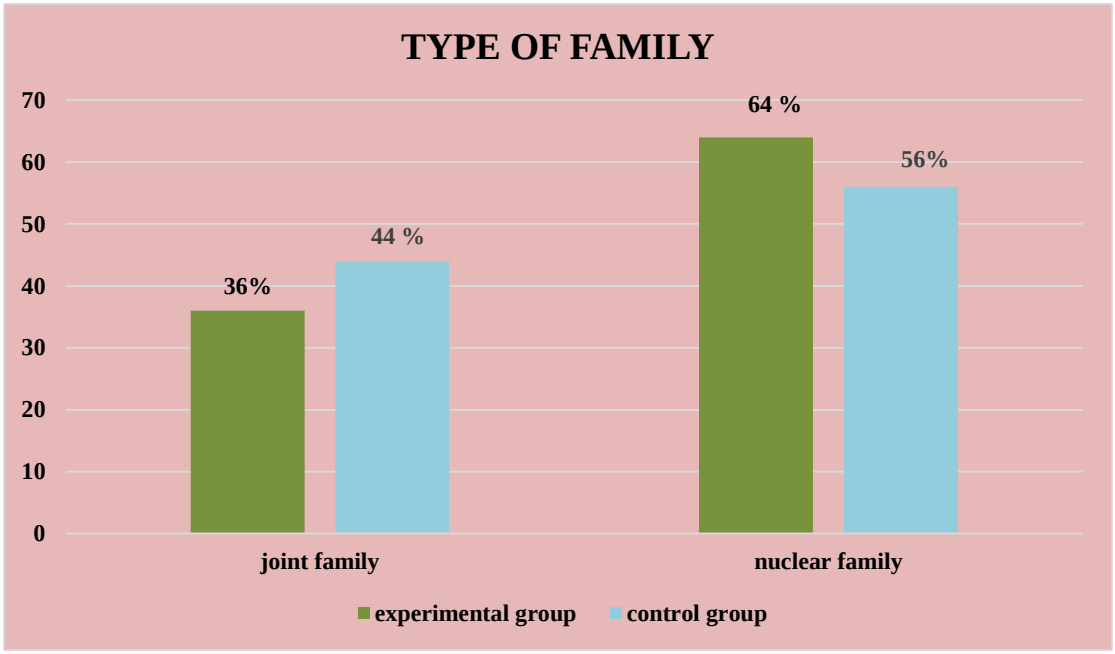


Figure No: 8 Bar diagram showing findings related to Family Income

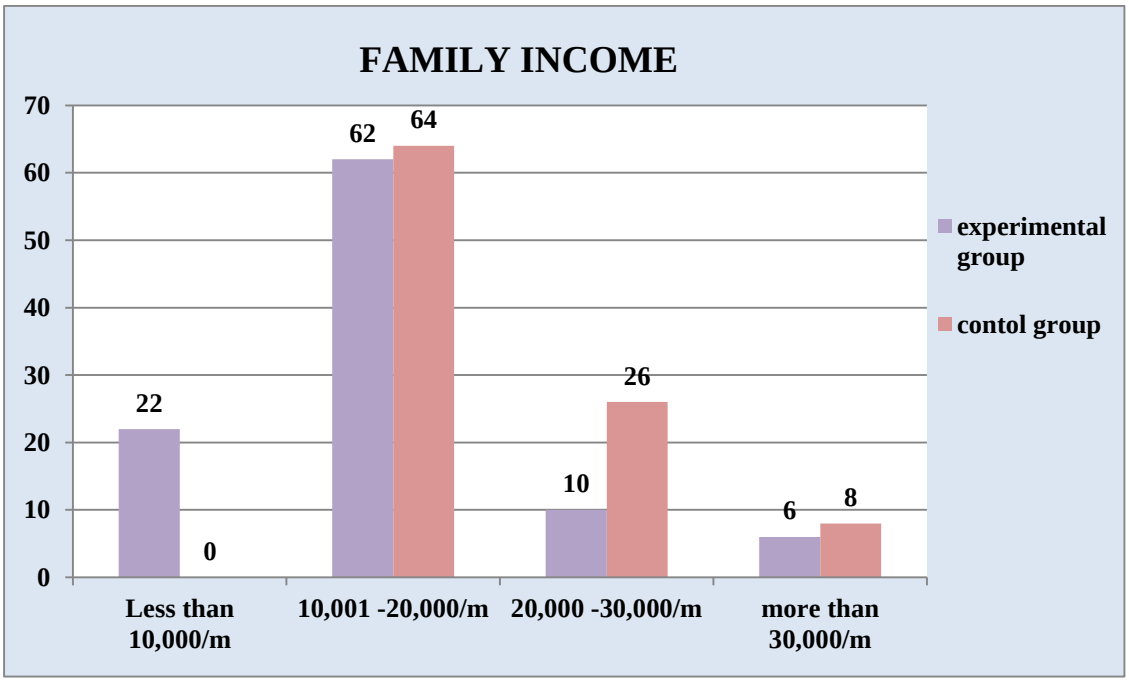


Figure No:9 Cylinder diagram showing findings related to diet pattern

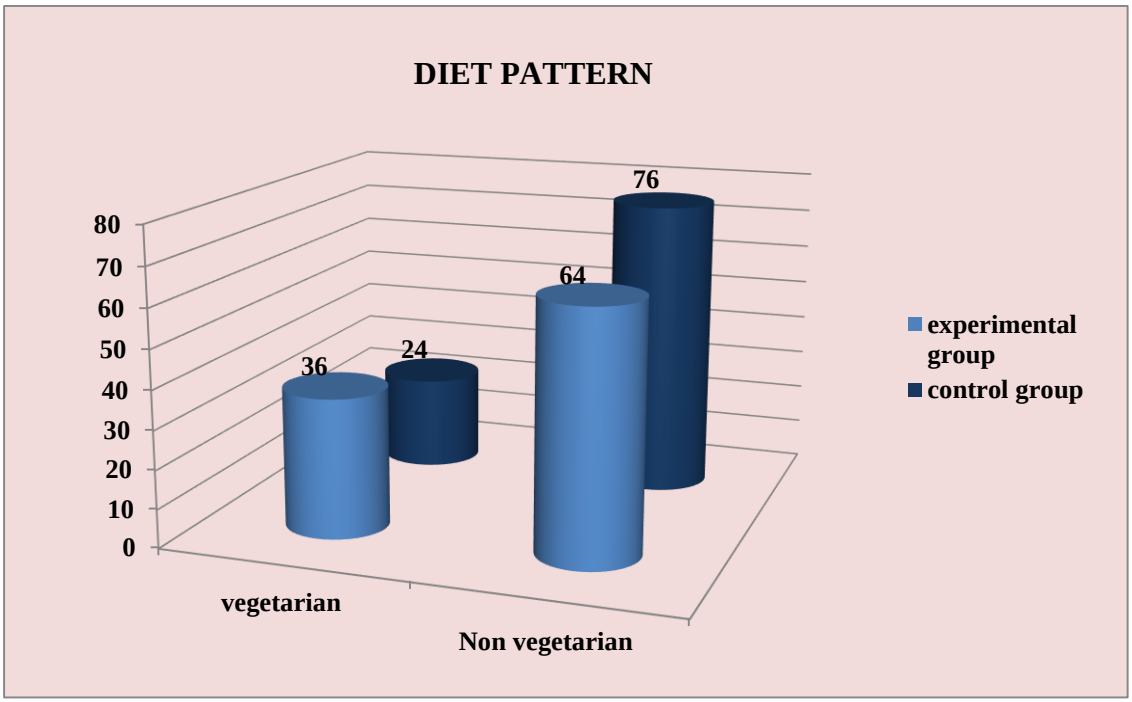


Figure No:10 Line diagram showing findings related to Frequency of eating

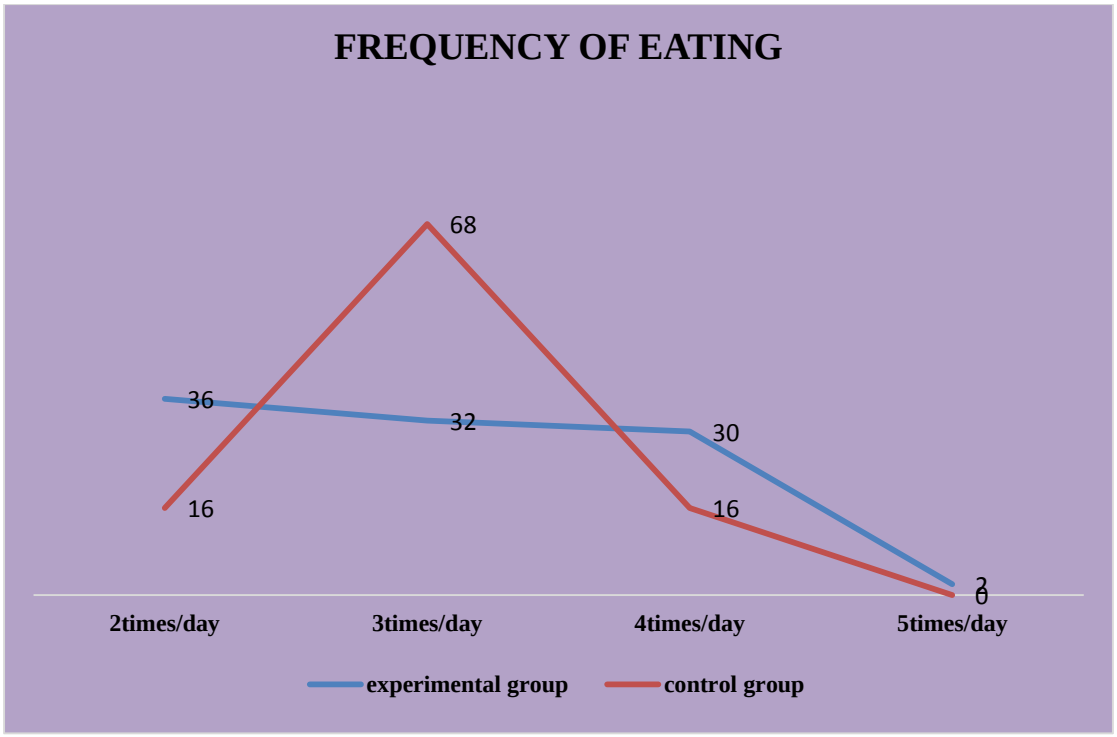


Figure No:11 Line diagram showing findings related to Type of eating habits

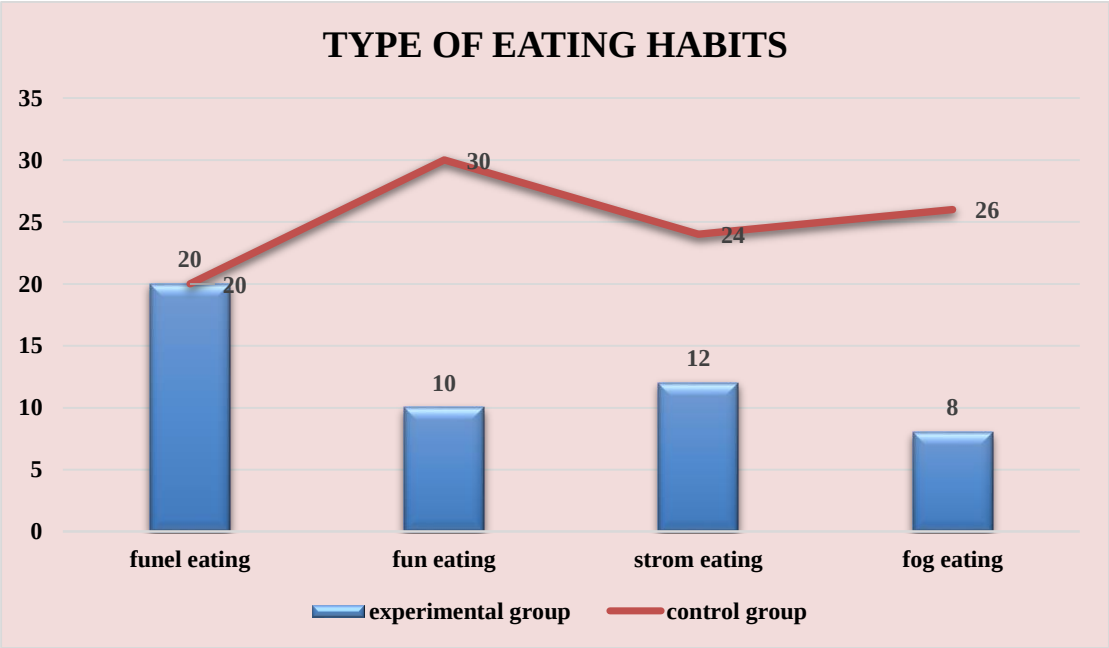


Figure No: 12 Bar diagram showing findings related to Have you taken Tab. Albendzole recently

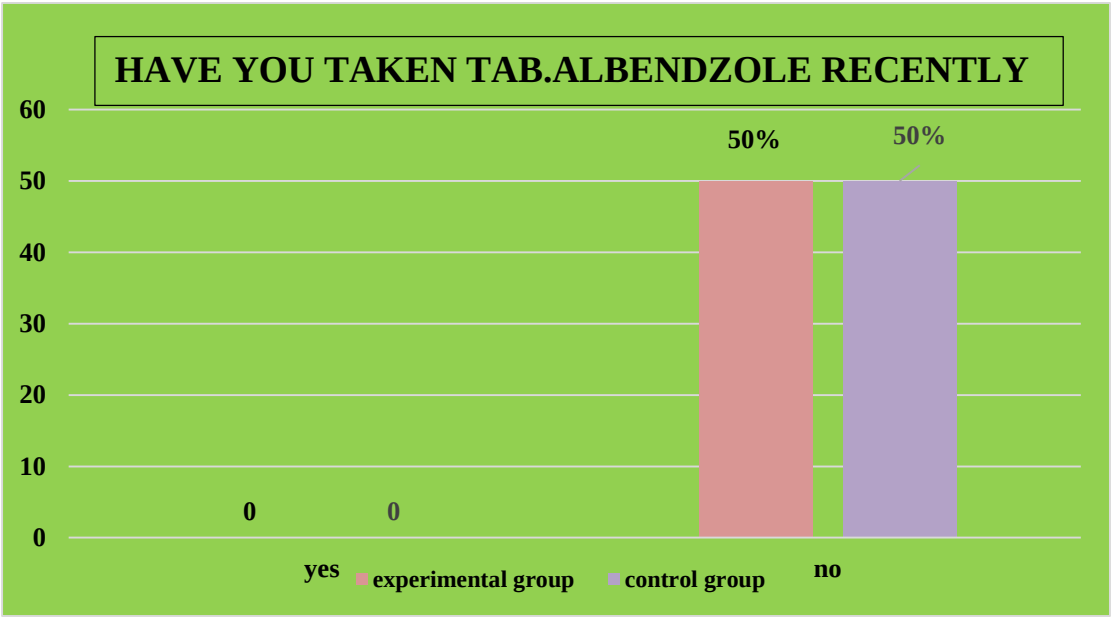
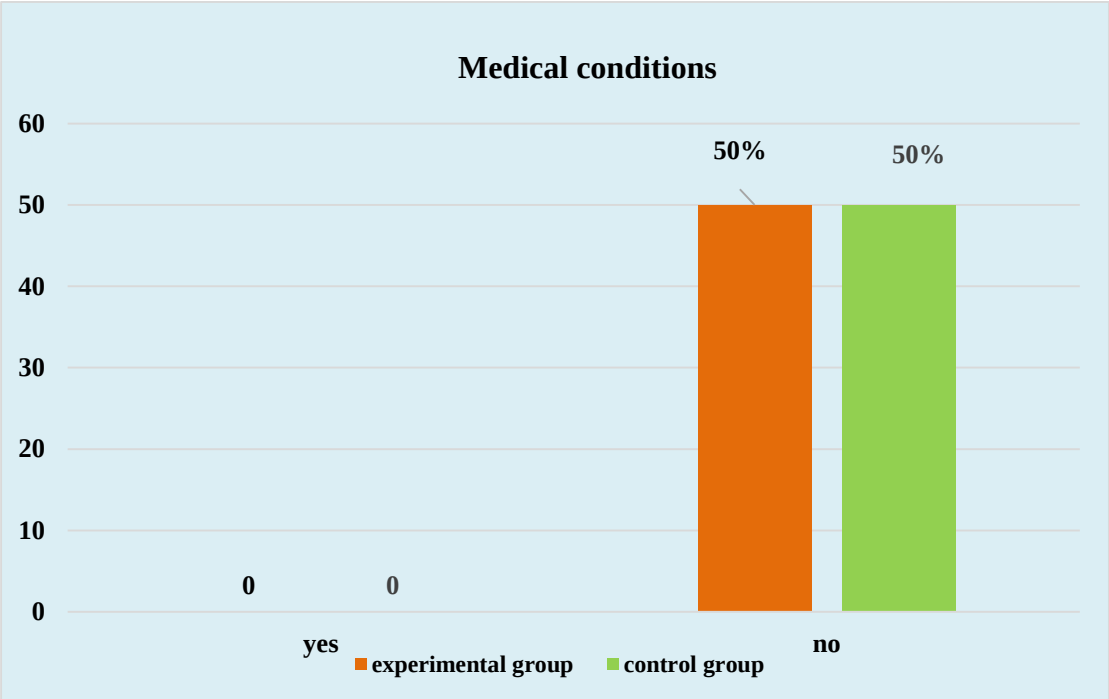


Figure No: 13 Bar diagram showing findings related to medical conditions



SECTION –B

This section deals with the Second objective of the study that was to assess the Prevalence of anemia among hostel inmate late adolescent girls.

Table: 2 Prevalence of anemia among late adolescent girls staying in SDUCON hostel, Kolar, Karnataka.

N=366

	Total no samples	**Prevalence of anaemia**	**Percentage**
Adolescent girls	**366**	**104**	**28.4%**

Table: 2 Findings related to the prevalence rate of anemia in SDUCON showed that among 366 participants 104 (28.4%) hostel inmates adolescent girls had anemia.

Table:3 Prevalence of anemia according to the WHO categorization of hemoglobin levels

N=366

Haemoglobin According to WHO	**Normal ≥12gm%**	**Mild Anaemia 10-11.9gm**	**Moderate Anaemia 9.9-7gm%**	**Severe anaemia<7gm/dl**
	159	**72**	**30**	**-**

Table: 3 Findings related to the prevalence of anemia according to the categorization of hemoglobin levels, (159) Adolescents girls were in Normal ≥ 12gm%, (72) Adolescents girls were in Mild Anemia 10-11.9gm, (30) Adolescents girls were in Moderate Anemia 9.9-7 gm% (00) Adolescents girls were in Severe anemia < 7gm/dl.

SECTION –C

This section deals with the Third objective of the study that was Estimation of pre-test and post-test level of hemoglobin level among adolescent girls at selected hostel by using Tall Quist paper\ Hemo meter in both experimental group and control group.

Table: 4 Frequency and percentage distribution of participants according to the level of hemoglobin in Experimental group and Control group.

N=100

Haemoglobin According to WHO	Experimental group n=50				Control group n=50			
	Pre-test		Post-test		Pre-test		Post-test	
	f	%	F	%	f	%	f	%
Normal ≥ 12gm%	00	00	09	18%	0	0	0	0
Mild Anaemia 10-11.9gm%	29	58%	23	46%	42	84%	40	80%
Moderate Anaemia 7-9.9gm%	21	42%	08	16%	08	16%	10	20%
Severe anaemia<7gm/dl	00	00	00	00	00	00	00	00

Table :4 Findings related to pretest & posttest distribution of participants according to the level of Hemoglobin level in Experimental showed that 0 (0%) had Normal level of hemoglobin, 29 (58%) had mild level of hemoglobin, 21 (42%) had Moderate level of hemoglobin, 0 (0%) had severe level of hemoglobin & in posttest Experimental group 09(18%) had Normal level of hemoglobin, 08 (16%) had mild level of hemoglobin, 00(0%) had Moderate level of hemoglobin, 0(0%) had severe level of hemoglobin.

In Control group, pretest 0 (0%) had Normal level of hemoglobin, 42(84%) had mild level of hemoglobin, 08 (16%) had Moderate level of hemoglobin, 00(0%) had severe level of hemoglobin& in posttest0(0%) had Normal level of hemoglobin, 40(80%) had mild level of hemoglobin, 10 (20%) had Moderate level of hemoglobin, 00(0%) had severe level of hemoglobin.

SECTION - D

This section deals with the third objective of the study to evaluate the effectiveness of Fresh Curry leaves administration among the hostel inmate adolescent girls in experimental group and control group.

Table: 5 The mean, standard deviation, and mean percentage of the hemoglobin of the hostel inmate adolescent girls before and after the intervention were distributed between the experimental and control groups.

N=100

Sl.no	Areas	Experimental group $n_{1(50)}$			Control group $n_{2(50)}$		
		Mean	**SD**	**Mean%**	**Mean**	**SD**	**Mean%**
1	**Pre- intervention**	10.2	0.69	1.2	6.26	3.26	6.2
2	**Post -intervention**	11	0.81	1.1	10.38	0.48	1.4

Table :5 The study findings revealed that in experimental group, the mean value for pre-test was 10.2 and post-test was 11, the standard deviation for pretest was 0.69 and posttest was0.81, the mean percentage for pretest was 1.2% and posttest was 1.1%. In control group**,** the mean value for pre-test was 6.26 and post-test was 10.38, the standard deviation for pretest was 3.26 and posttest was 0.48, the mean percentage for pretest was 6.2% and posttest was 1.4%.

Table; 6 Pre-test and post-test scores of hemoglobin of the hostel inmate adolescent girls in experimental group

N=50

Group	Mean	Median	SD	Range
Preintervention	10.2	10.8	0.69	1.4
Postintervention	11	9.8	0.81	2.9
Difference	**0.8**	**01**	**0.12**	**1.5**

Table:6 Revealed that in Experimental group, the mean value of pretest 10.2 and posttest was 11, the median of pretest 10.8 and posttest was 9.8, standard deviation of pretest 1.4 and posttest was 2.9, range of pretest 1.4 and posttest was 2.9. this showed that difference between pre and post examination that the intervention was effective in improving the hemoglobin levels among adolescent girls.

Table; 7 Pre-test and post-test scores of hemoglobin of the hostel inmate adolescent girls in control group.

N=50

Group	Mean	Median	SD	Range
Pre test	6.26	10.8	3.26	1.40
Post test	10.38	10.6	0.48	2.1
Difference	**4.12**	**0.2**	**2.78**	**1**

Table:7 Revealed that in control group, the mean value of pretest 6.26 and posttest was 10.38, the median of pretest 10.8 and posttest was 10.6, standard deviation of pretest 3.26 and posttest was 0.48, range of pretest 1.4 and posttest was 2.1. this showed that difference between pre and posttest hemoglobin levels among adolescent girls.

Table; 8 Mean difference, standard error & paired 't' test of hemoglobin levels in Experimental group.

N=50

Mean difference	**SE**	**Paired 't' Test**	
		Paired 't' test calculated (t_{cal})	**Tabulated value (t_{tab})**
0.8	0.11	0.71	2.660
(p<0.05) , df =49			

Table; 8 Revealed that the mean difference was 0.8, standard error was 0.11 and paired 't' test value in experimental group was (t_{cal}) was 0.71 and (t_{tab}) was 2.660.

Table; 9 Mean difference, standard error & paired 't' test of hemoglobin levels in control group.

N=50

Mean difference	**SE**	**Paired 't' Test**	
		Paired 't' test calculated (t_{cal})	**Tabulated value (t_{tab})**
4.12	0.06	1.88	2.660
(p<0.05) , df=49			

Table; 9 Revealed that the mean difference was 4.12, standard error was 0.06 and paired 't' test value in experimental group was (t_{cal}) was 1.88 and (t_{tab}) was 2.660

Table: 10 Standard error and unpaired 't' value to find out the effectiveness of fresh curry leaves between experimental and control group.

N=100

Standard error	**Unpaired 't' test**	
	Calculated value (t_{cal})	**Tabulated value (t_{tab})**
0.133	4.76	1.660
(p<0.05), df=98		

Table 10: The findings regarding the effectiveness of fresh curry in improving the hemoglobin levels among adolescent girls between experimental and control group showed that, the standard error was 0.133, the calculated unpaired $t'_{(98)}$ was 4.76 at 0.05 level of significance. This showed that the fresh curry leaves were effective in improving hemoglobin level among late adolescent girls. Hence H_1 hypothesis was accepted.

SECTION - E

Association between the posttest level of hemoglobin with their selected socio demographic variables

This section deals with the fourth objective of the study that was to determine the association between the hemoglobin levels with selected socio demographic variables among hostel inmate adolescent girls.

Table-11

Association of posttest level of hemoglobin of the participants with selected socio demographic variables in Experimental group.

N=50

Demographic variables		**Experimental group(n_1=50)**		χ^2	**df**	**P value**	**Inference**
		Median level					
		Below Median 9.8	**Above Median 9.8**				
Age of Adolescent	a) ≤ 19yrs b) >19yrs	02 03	31 14	-	1	0.32	NS
Religion	a) Hindu b) Christian	07 00	21 22	6.39	1	0.01	SS
Programme	a) B.sc Nursing b) GNM	02 05	35 08	8.73	1	0.03	SS

Year of studying	a) I -IV B.sc Nursing b) I-III GNM	02 05	35 09	-	1	0.03	SS
Type of Family	a) Joint family b) Nuclear family	04 02	15 29	-	1	0.18	NS
Family Income	a) > 20,000/month b) < 20,000/month	03 02	39 06	-	1	0.17	NS
Diet pattern	a) Vegetarian b) Nonvegetarian	02 04	11 33	-	1	0.07	NS
Frequency of eating pattern	a) 2-3 times/day b) 4-5 times/day	04 03	31 12	-	1	0.41	NS
Type of eating	a) Fuel -fun eating b) Strom-fog eating	07 04	23 16	0.07	1	0.78	NS
Have you taken tab. albendazole recently	a) Yes b) No	00 28	00 22	-	1	1.00	NS
History of any medical condition	a) Yes b) No	00 28	00 22	-	1	1.00	NS

Table-12

Association of posttest level of hemoglobin of the participants with selected socio demographic variables in control group.

N=50

Demographic variables		Experimental group(n_1=50)		χ^2	df	P value	Inference
		Median level					
		Below Median	Above Median				
Age of Adolescent	a) ≤ 19yrs b) >19yrs	18 17	13 02	5.53	1	0.08	SS
Religion	a) Hindu b) Christian	17 17	10 06	0.68	1	0.40	NS
Programme	a) B.sc Nursing b) GNM	20 19	08 03	1.60	1	0.20	NS
Year of studying	a) I -IV B.sc (N) b) I-III GNM	22 11	09 08	0.89	1	0.34	NS
Type of Family	a) Joint family b) Nuclear family	15 18	05 12	1.20	1	0.27	NS
Family Income	a) >20,000/month b) <20,000/month	08 11	24 07	1.40	1	0.23	NS
Diet pattern	a) Vegetarian b) Nonvegetarian	08 23	05 14	0.02	1	0.96	NS

Frequency of eating pattern	a) 2-3 times/day b) 4-5 times/day	28 05	13 04	0.53	1	0.46	NSS
Type of eating	a) Fuel -fun eating b)Strom-fog eating	13 22	09 06	3.93	1	0.04	SS
Have you taken tab. albendazole recently	a) Yes b) No	00 34	00 16	-	1	1.00	NS
History of any medical condition	a) Yes b) No	00 34	00 16	-	1	1.00	NS

CHAPTER- VII

DISCUSSION

The main aim of the study was to assess the prevalence of anemia & evaluate effectiveness of Fresh curry leaves in increasing the hemoglobin level among hostel inmate adolescent girls. The study was conducted by using true experimental study (pretest posttest control group design). The present study was conducted at Sri Devaraj Urs nursing hostel, Tamaka, Kolar District. The sampling technique was simple random sampling technique, using lottery method was used for this study. The total sample size was 100, among them 50 were in the experimental group and 50 were in the control group, the method, Clinical assessment of hemoglobin level estimation was used for data collection. After data collection, data was organized, tabulated, summarized and analyzed. The study findings were discussed in this chapter with reference to the objectives of the study.

OBJECTIVES OF THE STUDY

The objectives of the study are to:

1.To assess the Hemoglobin level among Hostel Inmates girls at selected hostel by using Tall Quist paper\ Hemoglobin color scale & Hemometer.

2.To determine the prevalence of anemia among hostel inmates at selected hostels.

3.To evaluate the effectiveness of Fresh curry leaves in improving hemoglobin level among anemic girls in experimental group compared to control group.

4.Find out the association between post test score with selected demographic variable

RESEARCH HYPOTHESIS

H_1- There will be statistically significant difference in the postintervention Hemoglobin compared to preintervention Hemoglobin level at 0.05 level of significance among adolescent girls.

H_2- There will be statistically significant association between the hemoglobin level with selected demographic variables.

MAJOR FINDING OF THE STUDY

Section A: Socio- demographic data

Distribution of participants according to the socio-demographic variables of both Experimental and control group including Age of Hostel Inmate Adolescent Girls, Religion, Program, Year of Studying, Type of Family, Family Income, Diet Pattern, Frequency of food intake, Type of eating habits, have you taken Tab.Albendazole Recently, History of Any Medical Condition.

A total of 100 samples with anemia out of which 50 in experimental group and 50 in control group were included in the study.

Study findings revealed that in experimental group 21 (42%) Majority of the adolescent were in the age of group of 18 years 07(14%) Minority of the adolescent girls were in the age of group of 20 years, in religion 28(56%) Maximum of adolescent girls were belongs to Hindu religion, 22(44%) Minimum of adolescent girls were belongs to Christian, in Educational Program 37(74%) More of adolescent girls were in B.sc Nursing,13(26%) few of adolescent girls were in GNM program, in year of studying 16(32%) Majority of adolescent girls were studying is I year B.sc Nursing ,03 (6%) Minority of adolescent girls were studying in III Year GNM,in

type of family 32(64%) Maximum of adolescent girls were belongs to Nuclear family, 18(36%) Minimum of adolescent girls were belongs to joint family, in family income 31(62%) Majority of adolescent girls family income was Rs.10, 001 -20,000/ month,03(6%) minority of adolescent girls family income was More than Rs.30,001/month ,in Diet pattern 32(64%) More of the adolescent girls were Non vegetarian ,18(36%) few adolescent girls were vegetarian, in frequency of eating 18(36%) Maximum of adolescent girls were eating 2times/day ,01 (02%) Minimum of adolescent girls were eating 5times/day, in type of Eating 20(40%) major of adolescent girls were fuel type of eating,08(16%)minor of adolescent girls were fog eating pattern, regarding to history of medical condition & recently intake of tab.Albendazole 50(100%) majority of the adolescent girls were not taken tab.albendazole and they don't have any history of medical conditions.

Study findings revealed that in control group 16(32%) Majority of the adolescent were in the age of group of 18 years 10 (20%) Minority of the adolescent girls were in the age of group of 21 years, in religion 27 (54%) Maximum of adolescent girls were belongs to Hindu religion, 23 (46%) Minimum of adolescent girls were belongs to Christian, in Educational Program 32 (64%) More of adolescent girls were in B.sc Nursing,18 (36%) few of adolescent girls were in GNM program, in year of studying 09 (18%) Majority of adolescent girls were studying is I year B.sc Nursing& in IV year B.sc Nursing ,05 (10%) Minority of adolescent girls were studying in II Year GNM,in type of family 28(56%) Maximum of adolescent girls were belongs to Nuclear family, 22 (44%) Minimum of adolescent girls were belongs to joint family, in family income 32 (64%) Majority of adolescent girls family income was Rs.10, 001 -20,000/ month,04 (8%) minority of adolescent girls family income was More than Rs.30,001/month ,in Diet pattern 38 (76%) More of the adolescent

girls were Non vegetarian ,12 (34%) few adolescent girls were vegetarian, in frequency of eating 34(68%) Maximum of adolescent girls were eating 3times/day ,08 (16%) Minimum of adolescent girls were eating 4 to 2 times/day, in type of Eating 15 (30%) major of adolescent girls were fun type of eating,10 (20%) minor of adolescent girls were fuel eating pattern, regarding to history of medical condition & recently intake of tab.Albendazole 50(100%) majority of the adolescent girls were not taken tab.Albendazole and they don't have any history of medical conditions, was seen in the study conducted by Shrivastava S, which showed that students suffered from mild anemia and female students were predominantly affected & the results show that anemia constitutes a prominent health problem among female nursing students. The reason could be low intake of iron, menstrual loss and improper eating schedules. Another confounding factor was hostel stay which may have contributed as students usually avoid hostel food and order junk food from outside.[39]

One more study conducted by Mrs.komala devi which showed that regular practice of beetroot juice could bring out desired increasing in the haemoglobin level among adolescent girls with anaemia. The nurses have to play a vital role in building knowledge and understanding the importance of prevention of anaemia.[47]

Section B

Distribution of participants according to the Prevalence of anemia among late adolescent girls staying in SDUCON hostel, Kolar, Karnataka.

The study findings show that to the prevalence rate of anemia in SDUCON showed that among 366 participants 104 (28.4%) hostel inmates adolescent girls had anemia & the prevalence of anemia according to the categorization of hemoglobin

levels, (159) Adolescents girls were in Normal ≥ 12gm%, (72) Adolescents girls were in Mild Anemia 10-11.9gm, (30) Adolescents girls were in Moderate Anemia 9.9-7 gm%, (00) Adolescents girls were in Severe anemia < 7gm/dl.

In comparable research conducted by Siddharam S M, et.al A total of Sample 45 adolescent's girls (10-19 yrs. Old) by sampling technique. The Prevalence of anemia was found to be 45.2%. A statically significant association was found with iron deficiency anemia, weight loss and anemia, pallor and anemia. In the present study it was seen that among the 45.2% of anemic adolescent girls 40.1% had mild anemia, 54.92% had moderate anemia and 4.92% had severe anemia. The study concluded that high prevalence of anemia among adolescent girls was found, which was higher in low economic strata. It was seen that anemia affects overall nutritional status of adolescent girls.[34]

Section C

Distribution of participants according to the Frequency and percentage distribution of participants according to the level of hemoglobin in Experimental group and Control group.

The study findings revealed that in the experimental group, distribution of participants according to the level of Hemoglobin level in pretest & posttest showed that 0 (0%) had Normal level of hemoglobin, 29 (58%) had mild level of hemoglobin, 21 (42%) had Moderate level of hemoglobin, 0 (0%) had severe level of hemoglobin & in posttest Experimental group 09(18%) had Normal level of hemoglobin, 08 (16%) had mild level of hemoglobin, 00(0%) had Moderate level of hemoglobin, 0(0%) had severe level of hemoglobin.

Study findings shows that in Control group, pretest 0 (0%) had Normal level of hemoglobin, 42(84%) had mild level of hemoglobin, 08 (16%) had Moderate level of hemoglobin, 00(0%) had severe level of hemoglobin& in posttest0(0%) had Normal level of hemoglobin, 40(80%) had mild level of hemoglobin, 10 (20%) had Moderate level of hemoglobin, 00(0%) had severe level of hemoglobin.

Section D

Compare the pre-test and post-test scores of hemoglobin of the hostel inmate adolescent girls in experimental group & Control group.

The study findings revealed that in experimental group, the mean value for pre-test was 10.2 and post-test was 11, the standard deviation for pretest was 0.69 and posttest was0.81, the mean percentage for pretest was 1.2% and posttest was 1.1%. In control group**,** the mean value for pre-test was 6.26 and post-test was 10.38, the standard deviation for pretest was 3.26 and posttest was 0.48, the mean percentage for pretest was 6.2% and posttest was 1.4%.

Section E

Comparison of the Effectiveness of Fresh curry leaves in the experimental group and control group.

The study findings revealed that in Experimental group, the mean value of pretest 10.2 and posttest was 11, the median of pretest 10.8 and posttest was 9.8, standard deviation of pretest 1.4 and posttest was 2.9, range of pretest 1.4 and posttest was 2.9. this showed that difference between pre and post examination that the intervention was effective in improving the hemoglobin levels among adolescent girls.in control group the mean value of pretest 6.26 and posttest was 10.38, the

median of pretest 10.8 and posttest was 10.6, standard deviation of pretest 3.26 and posttest was 0.48, range of pretest 1.4 and posttest was 2.1. this showed that difference between pre and posttest hemoglobin levels among adolescent girls.

In experimental group, the mean difference was 0.8, standard error was 0.11 and paired 't' test value (t_{cal}) was 0.71 and (t_{tab}) was 2.660 & in control group the mean difference was 4.12, standard error was 0.06 and paired 't' test value in experimental group was (t_{cal}) was 1.88 and (t_{tab}) was 2.660.

The study results showed that the effectiveness of fresh curry in improving the hemoglobin levels among adolescent girls between experimental and control group showed that, the standard error was 0.133, the calculated unpaired 't' $_{(98)}$ was 4.76 at 0.05 level of significance. This showed that the fresh curry leaves were effective in improving hemoglobin level among late adolescent girls. Hence H_1 hypothesis was accepted.

There were no reviews to support this study findings.

Summary

This discussion chapter dealt with statistical analysis regarding effectiveness of fresh curry leaves by comparing post-test level of haemoglobin between experimental and control group participants. This chapter also described that there was a significant increase in haemoglobin level among participants with hostel inmate late adolescent girls in experimental and control group and there was significant association between post-test level of haemoglobin with selected socio demographic variables.

CHAPTER- VIII

CONCLUSION

This chapter deals with conclusion, limitation and recommendation of the study. Further it includes implications for the Nursing Practice, Nursing Education, Nursing Administration and Nursing Research.

The main aim of the study was to evaluate the effectiveness of Fresh curry leaves in improving the hemoglobin level among hostel inmate adolescent girls. A true experimental, pre-test, post-test, control group design research design was used for the study. The data was gathered from 100 hostel inmate adolescent's girls out of which (50 experimental & 50 control group).

A worth and efficacious Health care regime through the consumption of curry leaves can have positive impact on improving the hemoglobin levels.

Use of the curry leaves in the Indian culture from the accident time from which is carried out from the 21st century, the benefits of consuming curry leaves is not only constricted to increasing the hemoglobin levels, but also to improve hair growth, reducing the blood sugar levels, improve in the metabolization, if we take the curry leaves in appropriate dose as per the purpose of using it.

Especially adolescent girls residence the hostels have a more tendence to consume junk foods neglecting the fact that it has an adverse effect on the health. However, in other hand the curry leaves easily available, accessible & cost-effective about which most of the adolescent are unaware.

Instead of running behind expensive and lavish remedy. We can adopt and recommend our ancient tradition of health care routine to have a health body and mind.

IMPLICATION OF THE STUDY

Nursing implication includes specific information for Nursing practice, Nursing Education, Nursing Administration and Nursing research. Nursing implication for this study is,

NURSING PRACTICE

The outcome of the present study implies that:

- Fresh curry leaves can be introduced as a stimulating mode of intervention for promoting in improving the hemoglobin among adolescent girls suffering from anemia
- Fresh curry leaves can be incorporated into routine nursing intervention.
- Fresh curry leaves play a very effective and non-invasive intervention for treating anemia.
- It will also help the nursing personnel to conduct regular health assessment at community level and outpatient department in pediatric hospital.
- Fresh curry leaves will help the nurse and the nursing students to educate the parents, teachers and adolescent girls about the iron deficiency anemia and its symptoms.
- Instructional module and pamphlets can be distributed in the outpatient department in the community area, PHC, CHC, and hospital on the use of available iron rich foods such as ragi, rice flakes, green leafy vegetables, cabbage and jaggery in improving anemia status.

NURSING EDUCATION

The findings of the study will help the Adolescent girls to gain confidence to health care and to manage further problem associated with anemia by using home remedies.

- ❖ It is important to have educational programme on fresh curry leaves for all nursing students, so that they can apply this technique to increase the hemoglobin experienced by the inpatients in the hospital.
- ❖ Adolescent girls residing in hostels are at greater risk developing anemia.
- ❖ The nursing curriculum must give importance far early detection and prevention of anemia among adolescent girls by using cost effective and pharmacological intervention.
- ❖ Students are to be taught regarding risk assessment on adolescent girls for iron deficiency anemia
- ❖ The study enables the nursing personnel to give more emphasize on physical assessment as an approach to determine the level of iron deficiency anemia among adolescent's girls.
- ❖ The study will help to conduct conference, seminar and panel discussion on dietary management of iron deficiency anemia.
- ❖ The continuing nursing education program needs to be implemented to learn updated information in prevention of anemia.

NURSING ADMINISTRATION

- ❖ Nursing administrator can organize in-service education programmes for staff nurses regarding Fresh curry leaves.
- ❖ Nurse administrator should make the public aware about the nutritional problems among adolescent girls in institutionalized living.

- In service education may be conducted for nurse especially community health nurses regarding various non-pharmacological intervention to treat anemia among adolescent girls.
- Every administration should provide adequate support to conduct prevalence of anemia program periodically.
- The nurse administrator gives more emphasize on conducting health checkup once in six months among adolescents in the school to detect iron deficiency anemia.
- To promote knowledge on detecting and treating iron deficiency anemia for school teachers and village health guides.

NURSING RESEARCH

- Researchers should focus on non-pharmacological interventions to increase hemoglobin level.
- The findings should be disseminated through conferences, seminars and publications in professional, national and international journals.
- Extensive research can be done to identify the risk factors and methods of primary prevention.
- Meta-analysis needs to be conducted to find out appropriate evidence-based interventions, measures to control and prevent the morbidity of iron deficiency anemia.
- Collaborative research could be initiated to try various preventive measures to control iron deficiency anemia.
- Epidemiological studies can be conducted in primary care settings to prevent iron deficiency anemia and its complications.

LIMITATION

- The setting of the study was single area.
- The study is limited to adolescent girls between the age group of 18-21 years.
- Estimation of hemoglobin level was said to be invasive procedure

RECOMMENDATIONS

Recommendations include;

- Similar study can be done in larger samples.
- Comparative study can be done between rural and urban hostel inmate adolescent girls.
- Similar study can be done for antenatal mothers.
- Longitudinal study can be conducted to assess iron deficiency anemia.
- A similar study can be conducted with other age groups.

CHAPTER- IX

SUMMARY

Anemia is a reduction in the oxygen carrying capacity of the blood; this may be caused by a decrease in red blood cell (RBC) production, or reduction in hemoglobin content of the blood, or combination of these.

It is also a contributing factor to women developing health problems and dying during pregnancy and childbirth. In order to help to prevent anemia in hostel inmate adolescent girls, the nurse must help them to understand the medical problems that affect in future. The fresh curry leaves contribute to improve the hemoglobin in the blood. The cost of the fresh curry leaves is low when compared with other iron rich resources and it can be stored easily.[35]

So, the researcher took the present study to show the effectiveness of fresh curry leaves on improving hemoglobin level among hostel inmate adolescent girls in selected hostels at Kolar.

The aim of this study is to increase the hemoglobin level among hostel in mate adolescent girls.

OBJECTIVES OF THE STUDY

The objectives of the study are to:

1.To assess the Hemoglobin level among Hostel Inmates girls at selected hostel by using Tall Quist paper\ Hemoglobin color scale & Hemometer.

2.To determine the prevalence of anemia among hostel inmates at selected hostels.

3.To evaluate the effectiveness of Fresh curry leaves in improving hemoglobin level among anemic girls in experimental group compared to control group.

4.Find out the association between post test score with selected demographic variable

RESEARCH HYPOTHESIS

H_1- There will be statistically significant difference in the postintervention Hemoglobin compared to preintervention Hemoglobin level at 0.05 level of significance among adolescent girls.

H_2- There will be statistically significant association between the hemoglobin level with selected demographic variables.

As the present study is aimed in evaluating the effectiveness of fresh curry leaves in increasing the hemoglobin level among hostel inmate adolescent girls, the conceptual framework adopted for this study was Pender's health promotion model. In this study various literature is reviewed which includes, studies related to prevalence of anemia, studies related to nutritional supplementation in increasing the haemoglobin & studies related to effectiveness of fresh curry leaves on hemoglobin.

The research design selected for the study is true experimental research design. A Quantitative research approach was selected to determine the effectiveness of fresh curry leaves in increasing the hemoglobin level among hostel inmate adolescent girls. The study was conducted at Sri Devaraj Ur's student nurses' hostel, Tamaka, Kolar. Simple random sampling technique was used for selection of the 100 subjects. (50 experimental and 50 control group). The researcher used hemoglobin color scale for assessment of hemoglobin level estimation to evaluate the effectiveness of Fresh curry leaves in increasing the hemoglobin level among hostel inmate adolescent girls.

Content validity of the developed tool was established by expert's agreement in the field of medicine, Nursing, and Nutrition.

The analysis was done by applying descriptive and inferential statistics. The difference pretest level and posttest level of hemoglobin and chi-square value was used to assess the association with demographic variables at 0.05 level of significance. The data obtained are presents in tabular and graphical form.

MAJOR FINDINGS OF THE STUDY:

Table:1 Distribution of the samples between the experimental and control groups based on the frequency and proportion of the socio demographic characteristics of Late adolescent girls.

The major findings of the studies are as follows: -

Study findings revealed that in experimental group 21 (42%) Majority of the adolescent were in the age of group of 18 years 07(14%) Minority of the adolescent girls were in the age of group of 20 years, in religion 28(56%) Maximum of adolescent girls were belongs to Hindu religion, 22(44%) Minimum of adolescent girls were belongs to Christian, in Educational Program 37(74%) More of adolescent girls were in B.sc Nursing,13(26%) few of adolescent girls were in GNM program, in year of studying 16(32%) Majority of adolescent girls were studying is I year B.sc Nursing ,03 (6%) Minority of adolescent girls were studying in III Year GNM,in type of family 32(64%) Maximum of adolescent girls were belongs to Nuclear family, 18(36%) Minimum of adolescent girls were belongs to joint family, in family income 31(62%) Majority of adolescent girls family income was Rs.10, 001 -20,000/ month,03(6%) minority of adolescent girls family income was More than Rs.30,001/month ,in Diet pattern 32(64%) More of the adolescent girls were

Non vegetarian ,18(36%) few adolescent girls were vegetarian, in frequency of eating 18(36%) Maximum of adolescent girls were eating 2times/day ,01 (02%) Minimum of adolescent girls were eating 5times/day, in type of Eating 20(40%) major of adolescent girls were fuel type of eating,08(16%)minor of adolescent girls were fog eating pattern, regarding to history of medical condition & recently intake of tab. Albendazole 50(100%) majority of the adolescent girls were not taken tab. albendazole and they don't have any history of medical conditions.

Study findings revealed that in control group 16(32%) Majority of the adolescent were in the age of group of 18 years 10 (20%) Minority of the adolescent girls were in the age of group of 21 years, in religion 27 (54%) Maximum of adolescent girls were belongs to Hindu religion, 23 (46%) Minimum of adolescent girls were belongs to Christian, in Educational Program 32 (64%) More of adolescent girls were in B.sc Nursing,18 (36%) few of adolescent girls were in GNM program, in year of studying 09 (18%) Majority of adolescent girls were studying is I year B.sc Nursing& in IV year B.sc Nursing ,05 (10%) Minority of adolescent girls were studying in II Year GNM,in type of family 28(56%) Maximum of adolescent girls were belongs to Nuclear family, 22 (44%) Minimum of adolescent girls were belongs to joint family, in family income 32 (64%) Majority of adolescent girls family income was Rs.10, 001 -20,000/ month,04 (8%) minority of adolescent girls family income was More than Rs.30,001/month ,in Diet pattern 38 (76%) More of the adolescent girls were Non vegetarian ,12 (34%) few adolescent girls were vegetarian, in frequency of eating 34(68%) Maximum of adolescent girls were eating 3times/day ,08 (16%) Minimum of adolescent girls were eating 4 to 2 times/day, in type of Eating 15 (30%) major of adolescent girls were fun type of eating,10 (20%) minor of adolescent girls were fuel eating pattern,

regarding to history of medical condition & recently intake of tab.Albendazole 50 (100%) majority of the adolescent girls were not taken tab.Albendazole and they don't have any history of medical conditions.

Table: 2 Prevalence of anemia among late adolescent girls staying in SDUCON hostel, Kolar, Karnataka.

Findings related to the prevalence rate of anemia in SDUCON showed that among 366 participants 104 (28.4%) hostel inmates adolescent girls had anemia.

Table:3 Prevalence of anemia according to the WHO categorization of hemoglobin levels

The study results related to the prevalence of anemia according to the categorization of hemoglobin levels, (159) Adolescents girls were in Normal ≥ 12gm%, (72) Adolescents girls were in Mild Anemia 10-11.9gm , (30) Adolescents girls were in Moderate Anemia 9.9-7 gm%,(00) Adolescents girls were in Severe anemia < 7gm/dl.

Table: 4 Frequency and percentage distribution of participants according to the level of hemoglobin in Experimental group and Control group.

The study findings related to pretest & posttest distribution of participants according to the level of Hemoglobin level in Experimental & control group showed that 0 (0%) had Normal level of hemoglobin, 29 (58%) had mild level of hemoglobin, 21 (42%) had Moderate level of hemoglobin, 0 (0%) had severe level of hemoglobin & in posttest Experimental group 09(18%) had Normal level of hemoglobin, 08 (16%) had mild level of hemoglobin, 00(0%) had Moderate level of hemoglobin, 0(0%) had severe level of hemoglobin.

In Control group, pretest 0 (0%) had Normal level of hemoglobin, 42(84%) had mild level of hemoglobin, 08 (16%) had Moderate level of hemoglobin, 00(0%)

had severe level of hemoglobin& in posttest0(0%) had Normal level of hemoglobin, 40(80%) had mild level of hemoglobin, 10 (20%) had Moderate level of hemoglobin, 00(0%) had severe level of hemoglobin.

Table: 5 The mean, standard deviation, and mean percentage of the hemoglobin of the hostel inmate adolescent girls before and after the intervention were distributed between the experimental and control groups.

The study findings revealed that in experimental group, the mean value for pre-test was 10.2 and post-test was 11, the standard deviation for pretest was 0.69 and posttest was0.81, the mean percentage for pretest was 1.2% and posttest was 1.1%. In control group**,** the mean value for pre-test was 6.26 and post-test was 10.38, the standard deviation for pretest was 3.26 and posttest was 0.48, the mean percentage for pretest was 6.2% and posttest was 1.4%.

Table: 6 Pre-test and post-test scores of hemoglobin of the hostel inmate adolescent girls in experimental group

The study findings show that in Experimental group, the mean value of pretest 10.2 and posttest was 11, the median of pretest 10.8 and posttest was 9.8, standard deviation of pretest 1.4 and posttest was 2.9, range of pretest 1.4 and posttest was 2.9. this showed that difference between pre and post examination that the intervention was effective in improving the hemoglobin levels among adolescent girls.

Table; 7 Pre-test and post-test scores of hemoglobin of the hostel inmate adolescent girls in control group

This table findings revealed that in control group, the mean value of pretest 6.26 and posttest was 10.38, the median of pretest 10.8 and posttest was 10.6, standard deviation of pretest 3.26 and posttest was 0.48, range of pretest 1.4 and

posttest was 2.1. this showed that difference between pre and posttest hemoglobin levels among adolescent girls.

Table; 8 Mean difference, standard error & paired 't' test of hemoglobin levels in Experimental group.

This revealed that the mean difference was 0.8, standard error was 0.11 and paired 't' test value in experimental group was (t_{cal}) was 0.71 and (t_{tab}) was 2.660.

Table; 9 Mean difference, standard error & paired 't' test of hemoglobin levels in control group.

The study findings revealed that the mean difference was 4.12, standard error was 0.06 and paired 't' test value in experimental group was (t_{cal}) was 1.88 and (t_{tab}) was 2.660

Table: 10 Standard error and unpaired 't' value to find out the effectiveness of fresh curry leaves between experimental and control group.

The findings shows that regarding the effectiveness of fresh curry in improving the hemoglobin levels among adolescent girls between experimental and control group showed that, the standard error was 0.133, the calculated unpaired $t'_{(98)}$ was 4.76 at 0.05 level of significance. This showed that the fresh curry leaves were effective in improving hemoglobin level among late adolescent girls. Hence H_1 hypothesis was accepted.

REFERENCES

1. https://www.mayoclinic.org/diseases-conditions/anemia/symptoms-causes/syc-20351360
2. World Health Organization. Regional Office for South-East Asia. (2011). Prevention of iron deficiency anaemia in adolescents. WHO Regional Office for South-East Asia. https://apps.who.int/iris/handle/10665/205656.
3. Kalaivani K, Ramachandran P. Time trends in prevalence of anaemia in pregnancy. The Indian journal of medical research. 2018 Mar;147(3): 268.available at:https://dhsprogram.com/pubs/pdf/fr130/12chapter12.pdf
4. Prevention of iron deficiency anaemia in adolescents. WHO Regional Office for South-East Asia. https://apps.who.int/iris/handle/10665/205656.
5. WHO Anemia. Global anemia prevalence and number of affected WHO[Internet] individuals 2018.[cited2019MARCH20].Available fromhttps://www.who.int/vmnis/anaemia/prevalence/summary/anaemia_data_status_t2/en
6. Government of India. National family health survey 5- key indicators: 2019-2020. National Family Health Survey 2019;4:1-4.available in http://rchiips.org/nfhs/factsheet_NFHS-5.shtml
7. Government of India. National family health survey 5- key indicators: 2019-2020. National Family Health Survey 2019;4:1-4.available in http://rchiips.org/nfhs/factsheet_NFHS-5.shtml

8. Shantidevi, et.al, a study on nutritional status of adolescent girls, Available at http://www.cibtech.org/journal_of_medical_sciences/publications/_2015/vol_5_no_1/17.
9. World Health Organization. Geneva: WHO; 1991. National Strategies for Overcoming Micronutrient Malnutrition.
10. Kawaljit Kaur B. D., Anemia 'a silent killer' among women in India: Present scenario, Arya Girls College, Jalandhar Cantt., Punjab, India, Scholars Research Library European Journal of Zoological Research, 2014, 3 (1):32-36.
11. https://www.who.int/health-topics/anaemia.
12. Chauhan AK, Bhardwaj A, Mittal A,Singh S. A cross-sectional study of anemia among urban and rural adolescent girls in district Ambala, Haryana. Int J Med Sci Public Health 2019;8(7):494-497.
13. Patil, Nagaraj et al. Prevalence of anemia among adolescent girls in a North Karnataka school: a cross sectional study. International Journal Of Community Medicine And Public Health. [S.l.], v.5, n.12, p.5360-5364,nov.2018.ISSN2394-6040.Available at: <https://www.ijcmph.com /index.php/ijcmph/article/view/3854>.Dateaccessed:05july2021.
doi: http://dx.doi.org/10.18203/2394-6040.ijcmph20184817.
14. https://www.vinayakamission.com/userfiles/phd/J863600005kalai.pd
15. Chandrakumari AS, Sinha P, Singaravelu S, Jaikumar S. Prevalence of anemia among adolescent girls in a rural area of Tamil Nadu, India. Journal of family medicine and primary care. 2019 Apr;8(4):1414.
16. https://www.vinayakamission.com/userfiles/phd/J863600005kalai.pdf
17. World Health Organization. Geneva: WHO; 1991. National Strategies for Overcoming Micronutrient Malnutrition.

18. https://mohfw.gov.in/sites/default/files/56987532145632566578.pdf
19. UNICEF.Adolescent development and participation; https://www.unicef.org/india/what-wdo/adolescent-development-participation
20. WHO|Anemia. Global anaemia prevalence and number of affected WHO[Internet] individuals 2018.[cited2019MARCH20].Available fromhttps://www.who.int/vmnis/anaemia/prevalence/summary/anaemia_data_status_t2/en
21. Dhivakar M, Iswariya M, Jobin PC. The knowledge and attitude towards anemia amongst adolescent girls. Indian Journal of Continuing Nursing Education .2020Jan1; 21(1):100. Available from: https://www.jfmpc.com/text.asp?2019/8/4/1414/257069
22. J Stang, M Story. Guidelines for adolescent nutrition services. 2005;190:p21–34. University of Minnesota Chapter 3, Nutrition needs of adolescents.
23. https://www.medindia.net/patients/lifestyleandwellness/curry-leaves-health-benefits.htm
24. Sakthibalan M Evaluation of efficacy of jaggery and raisins as supplements in iron deficiency anemia among medical undergraduate students in South India, National Journal of Physiology, Pharmacy and Pharmacology, Vol 8 | Issue 10 July 20, 2018 PP-1432-1436.
25. Vadapalli K, Nishitha BS, Bhargava DV, David MA. Determinants of Anaemia among Adolescents in Rural Nalgonda. International Journal of Physiology. 2018 Jan;6(1):51.
26. https://nurseslabs.com/betty-neuman-systems-model-nursing-theory/

27. Shivaramakrishna HR, Deepa AV, Sarithareddy M. Nutritional status of adolescent girls in rural area of kolar district-a cross-sectional study. Al Ameen J Med Sci. 2011;4(3):243-6.
28. Manjula VD, Parameshwari P, Pothen L, Sobha A. Prevalence of anemia among female undergraduate students of Government Medical College Kottayam, Kerala. International Journal of Medical and Health Sciences. 2014;3(2):133-8.
29. Koushik NK, Bollu M, Ramarao NV, Nirojini PS, Nadendla RR. Prevalence of anaemia among the adolescent girls: a three months cross-sectional study. World Journal of Pharmacy and Pharmaceutical Sciences. 2014 Sep 28;3(12):827-36.
30. Chandrakumari AS, Sinha P, Singaravelu S, Jaikumar S. Prevalence of Anemia Among Adolescent Girls in a Rural Area of Tamil Nadu, India. J Family Med Prim Care. 2019 Apr;8(4):1414-1417. doi: 10.4103/jfmpc.jfmpc_140_19. PMID: 31143731; PMCID: PMC6510068.
31. Helen M, Janakiraman L. A Descriptive Study to Assess the Prevalence of Anemia among the Adolescent Girls at Selected Schools in Thiruvallore District, Chennai. International Journal of Nursing Education. 2018 Apr 1;10(2).
32. Sadeghian M, Fatourechi A, Lesanpezeshki M, Ahmadnezhad E. Prevalence of anemia and correlated factors in the reproductive age women in rural areas of tabas. Journal of family & reproductive health. 2013 Sep;7(3):139.
33. Nalluri. Kranthi Koushik, world journal of pharmacy and pharmaceutical science SJIF impact factor 2...786 volume 3,, issue 12,, 827-836.

34. Siddharam S M, et.al, A Study of Anemia Among Adolescent Girls in Rural Area of Hassan district, Karnataka, South India. International Journal of Biological & Medical Research International Journal Biological Medical Research. 2011; 2(4): 922 – 924.
35. Toteja GS, Singh P, Dhillon BS, Saxena BN, Ahmed FU, Singh RP, Prakash B, Vijayaraghavan K, Singh Y, Rauf A, Sarma UC. Prevalence of anemia among pregnant women and adolescent girls in 16 districts of India. Food and Nutrition Bulletin. 2006 Dec;27(4):311-5.
36. Chathuranga G, Balasuriya T, Perera R. Anaemia among female undergraduates residing in the hostels of University of Sri Jayewardenepura, Sri Lanka. Anemia. 2014 Jan 1;2014.
37. Medani KA, Elkarim MA, Sami W, Abdalla SM, Elsadig YM. Prevalence and Determinants of Anaemia Among University Student Living in Public Hostels, Khartoum State, Sudan. Int J Pharmasi. 2014;2(2):34-7.
38. Yadav R, Ghimire N, Mukhopadhyay S, Yadav SK. Prevalence of anemia among medical students of nobel medical college and correlation with body mass index. Asian Journal of Medical Sciences. 2020 May 1;11(3):62-6.
39. Khokhar J, Akbar A, Akhtar S, Layla A, Lazarte C, Abbas MA, Asif M, Shah ZA, Ismail T. Prevalence and determinants of anemia among resident female university students from Southern Punjab, Pakistan. Women & Health. 2022 Jul 3;62(6):488-501.
40. Shrivastava S, Bhattacharjee M, Panchmahalkar Prevalence of anaemia amongst nursing students-a survey. Epra International Journal of Research and Development (IJRD). 2022 Mar 7;7(3):44-7.

41. Maran CM. Evaluation of Anti-Anaemic Activity of Phyllanthus Emblica Linn., on Streptozotocin Induced Rats (Doctoral dissertation, College of Pharmacy, Madras Medical College, Chennai).
42. Gomathi KN. A study to assess the effectiveness of curry leaves in reducing blood sugar among type II diabetes clients in selected rural areas at Medavakkam, Chennai (Doctoral dissertation, College of Nursing, Madras Medical College, Chennai).
43. Polit DF Beck CT. Nursing research: Principles and methods. 7th ed. Philadelphia: Lippincott and Williams and wilkins;2007
44. https://pharmeasy.in/blog/health-benefits-of-curry-leaves/
45. https://www.healthline.com/nutrition/curry-leaves-benefits
46. Minerva M. Effectiveness of Beetroot Juice in Increasing the Hemoglobin level among adolescent girls in Selected Colleges at Kolar. RGUHS Journal of Nursing Sciences. 2020;10(1).

ANNEXURE-I

ETHICAL COMMITTEE CLEARANCE CERTIFICATE

	SRI DEVARAJ URS COLLEGE OF NURSING TAMAKA, KOLAR – 563 103.	Format No.	IEC 01
		Issue No.	02
	INSTITUTIONAL ETHICS COMMITTEE	Rev No.	01
		Date	01-09-18

Ref. No. SDUCON/IEC/66 /2021-22 Date: 25-09-2021

From

The Institutional Ethics Committee,
Sri Devaraj Urs College of Nursing.
Tamaka, Kolar-563 101.

To

Mrs.Srilakshmi. G
IM.Sc(N)
OBG Nsg.
SDUCON, Tamaka

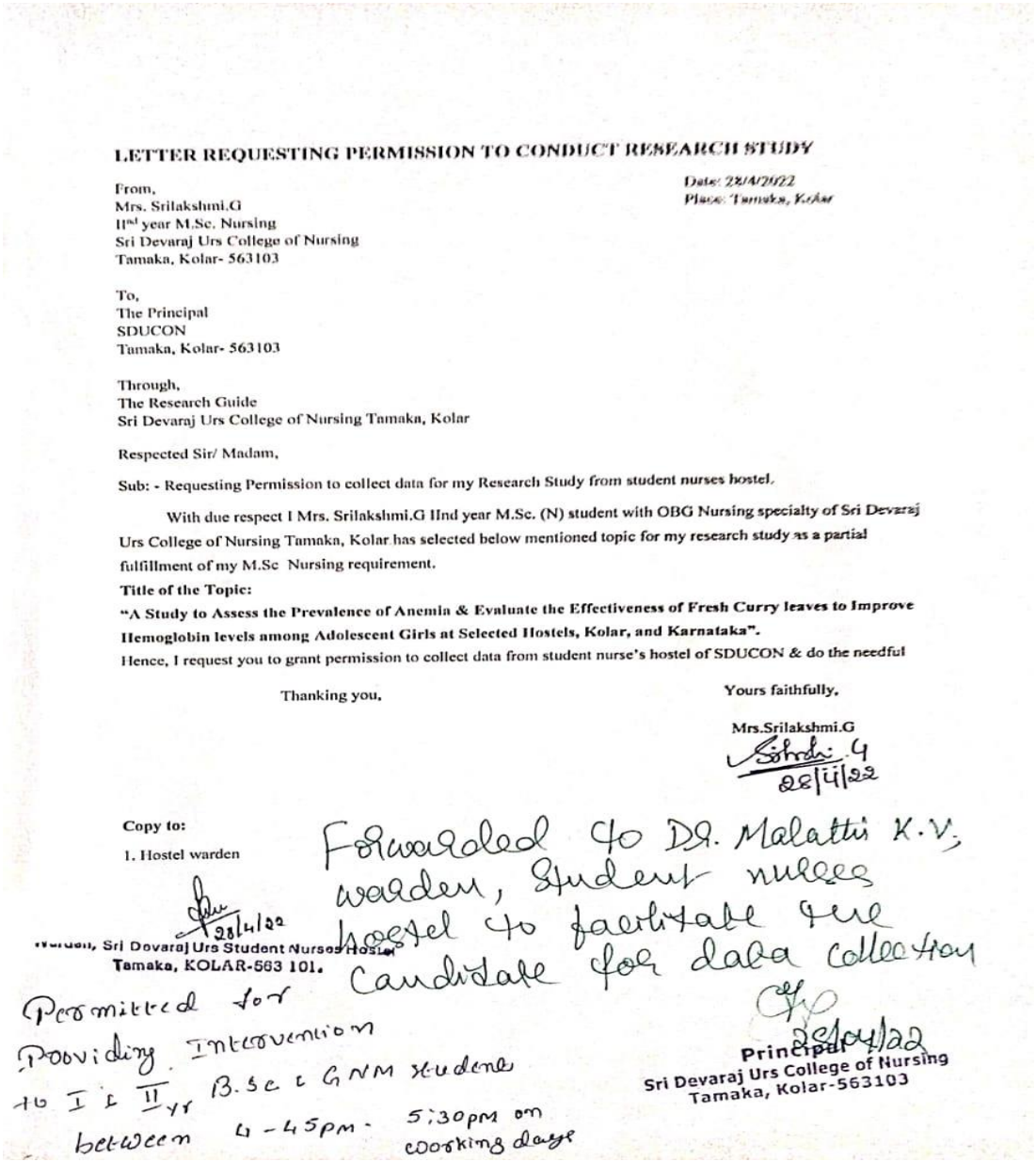
This is to certify that the institutional ethics committee of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has examined and unanimously approved the M.Sc(N) Topic *"A STUDY TO ASSESS THE PREVALENCE OF ANEMIA &EVALUATE THE EFFECTIVENESS OF IRON RICH NUTRITIONAL INTERVENTION PACKAGE TO IMPROVE HEMOGLOBIN AMONG ADOLESCENT GIRLS AT SELECTED HOSTELS, KOLAR, KARNATAKA."* of Mrs.Srilakshmi. G, under guidance of Mrs. Gayathri KV, Sri Devaraj Urs College of Nursing Tamaka, Kolar.

Member Secretary
MEMBER SECRETARY
ETHICS COMMITTEE
SRI DEVARAJ URS COLLEGE OF NURSING
TAMAKA KOLAR - 563103.

Chairperson
CHAIR PERSON
ETHICS COMMITTEE
SRI DEVARAJ URS COLLEGE OF NURSING
TAMAKA KOLAR - 563103.

ANNEXURE-II

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY



LETTER REQUESTING PERMISSION TO CONDUCT RESEARCH STUDY

Date: 28/4/2022
Place: Tamaka, Kolar

From,
Mrs. Srilakshmi.G
IInd year M.Sc. Nursing
Sri Devaraj Urs College of Nursing
Tamaka, Kolar- 563103

To,
The Principal
SDUCON
Tamaka, Kolar- 563103

Through,
The Research Guide
Sri Devaraj Urs College of Nursing Tamaka, Kolar

Respected Sir/ Madam,

Sub: - Requesting Permission to collect data for my Research Study from student nurses hostel.

With due respect I Mrs. Srilakshmi.G IInd year M.Sc. (N) student with OBG Nursing specialty of Sri Devaraj Urs College of Nursing Tamaka, Kolar has selected below mentioned topic for my research study as a partial fulfillment of my M.Sc Nursing requirement.

Title of the Topic:

"A Study to Assess the Prevalence of Anemia & Evaluate the Effectiveness of Fresh Curry leaves to Improve Hemoglobin levels among Adolescent Girls at Selected Hostels, Kolar, and Karnataka".

Hence, I request you to grant permission to collect data from student nurse's hostel of SDUCON & do the needful

Thanking you,

Yours faithfully,

Mrs.Srilakshmi.G
28/4/22

Copy to:

1. Hostel warden

Forwarded to Dr. Malathi K.V, warden, Student nurses hostel to facilitate the candidate for data collection

28/4/22

Warden, Sri Devaraj Urs Student Nurses Hostel
Tamaka, KOLAR-563 101.

Permitted for Providing Intervention to I & II yr B.Sc & GNM students between 4-45pm - 5:30pm on coorking days

28/4/22

Principal
Sri Devaraj Urs College of Nursing
Tamaka, Kolar-563103

ANNEXURE-III

LIST OF HB VALUE OF EXPERIMENTAL GROUP

SLNO	EXPERIMENTAL GROUP	PRE HB%	POSTHB%
I BSC NURSING			
1	Agna James	9.4%	12.1%
2	Aishwarya Raju	10.8%	11.3%
3	Aleena Chacko	10.8%	10.9%
4	Aleena P.B.	10.8%	12.5%
5	Alent Jomy	9.4%	11%
6	Angel Siby	10.8%	11.1%
7	Devika S. Nair	10.8%	11.7%
8	Dhiya Alias	10.8%	10.9%
9	Meenu K. Mathew	10.8%	11.4%
10	Megha Saji	10.8%	10.9%
11	Nandana B	10.8%	11.2%
512	Rose Mary George	10.8%	11.6%
13	Sneha Babu	10.8%	12.4%
14	Stani K.D.	10.8%	11.8%
15	Thamburu Baby	10.8%	10.9%
16	Kripa Santosh	10.8%	11.1%
II BSC NURSING			
17	Angel Mariya Shaji	10.8%	11.1%
18	Anitha Mathew	10.8%	12.4%
19	Bristi Mitra	10.8%	12.1%
20	Christeena Thankachan	10.8%	11.1%
21	Devika S.	10.8%	11.7%
22	Jesnamol Martin	10.8%	12.4%
	III BSC NURSING		
23	Arachanamol	9.4%	10.9%
24	Bhargavi	9.4%	10.2%
25	Anjana Joshy	10.8%	11.5%
26	Ann Sara Joby	9.4%	9.8%
27	Anumol Joseph	10.8%	11%
28	Salu Prasad	9.4%	10.6%
29	Vinaya Anand	10.8%	11.0%
IV BSC NURSING			
31	Aien Bobby	9.4%	10.7%
32	Arya Jayan	9.4%	9.8%
33	Chinju M	9.4%	11.7%
34	Megha Raj	9.4%	12.2%
35	Sini Joseph	9.4%	9.6%
36	Sreelakshmi K.R	10.8%	11.4%
37	Sreevidhya V. S	9.4%	10.2%
I GNM			
38	Anwesha Sen	10.8%	11.5%

39	Barsha Ruj	10.8%	11.4%
40	G. Soumya	9.4%	10.0%
41	Ishita Malakar	10.8%	11.0%
42	Mamamita Maitay	9.4%	9.6%
43	Riya Pramanik	10.8%	11.1%
44	Suchana Quila	9.4%	10.5%
II GNM			
45	Aprana Bhakta	9.4%	9.8%
46	Barsha Maikup	9.4%	9.9%
47	Bishakha Adhikary	9.4%	10.1%
48	Sumana Rout	9.4%	9.8%
III GNM			
49	Ambika Paira	9.4%	9.8%
50	Athira P S	9.4%	10%

ANNEXURE-IV

LIST OF HB VALUE OF CONTROL GROUP

SLNO	CONTROL GROUP	PRE HB%	POST HB%
	I BSC NURSING		
1	Allendeena Mariya Dimble	10.8%	10.5%
2	Alna Sara Eldhose	10.8%	10%
3	Ann Mariya Biju	10.8%	10.5%
4	Angelin Lee Regi	10.8%	10.6%
5	Angelmariya Shaju	10.8%	10.9%
6	Ashley Mariam Sebastian	10.8%	9.4%
7	Gopika B. Nair	10.8%	10.1%
8	Nikhitha Mathew	10.8%	10.9%
9	Sneha A.R.	10.8%	11.0%
	II BSC NURSING		
10	Keerthy S Mathew	10.8%	11.0%
11	Livyamol C Joseph	10.8%	10.6%
12	Rincymol philip	10.8%	9.9%
13	Sona k. Shaji	10.8%	10.4%
14	Sona thomas	10.8%	10.2%
15	Anjitha T. Reji	10.8%	10.7%
16	Anajana k. Joseph	10.8%	10.9%
17	Anuja Manoj	10.8%	9.9%
18	Annmaria Tom	10.8%	10.0%
19	Blessy Shiju	10.8%	10.1%
13	Sona k. Shaji	10.8%	10.6%
14	Sona thomas	10.8%	11%
15	Anjitha T. Reji	10.8%	10.6%
16	Blessy Shiju	10.8%	10.3%
	III BSC NURSING		
17	Amrutha G.N.	10.8%	10.6%
18	Athulya C. S	10.8%	10.9%
19	Ayana Joseph	10.8%	10%
20	Rengi Sara Varghese	10.8%	10.4%
21	Selin Samuel	10.8%	9.6%
22	Sruthi S. Nair	10.8%	10.6%
23	Akhila Sajumon	10.8%	11.0%
	IV BSC NURSING		
27	Anjali Krishna P.C.	10.8%	11.1%
28	Athira P. R	10.8%	10.2%
29	Liji Thomas	9.4%	9.6%
31	Maria Somy	9.4%	10.6%
32	Neethu K.S.	10.8%	11%
33	Nirmala Chettri	9.4%	9.9%
34	Sharlet Maria Regi	10.8%	10.7%
35	Saujitha R. Nair	10.8%	10.2%

36	Sweety Varghese	9.4%	11%
I GNM			
37	Ankita Maity	9.4%	10.2%
38	Mandira Bera	10.8%	11.2%
39	Muleena Kotum	10.8%	9.6%
40	Nibedita Maity	10.8%	9.9%
41	Riya Manna	9.4%	9.2%
42	Sanam Bhowmik	9.4%	10.2%
43	Supriya Ranjit	10.8%	10.6%
44	Susmita Guria	9.4%	9.0%
II GNM			
45	Indrani Samanta	10.8%	10.8%
46	Manisha Adak	10.8%	10.6%
47	Shrabanti Mandal	10.8%	10.5%
48	Sumana Maity	10.8%	10.1%
49	Sutrishna Pradan	10.8%	10.8%
III GNM			
50	Priyanaka Magdalina Pradan	10.8%	10.0%

ANNEXURE-V

LETTER REUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH TOOL

From

Mrs. Srilakshmi.G
IInd year M.Sc. Nursing
SDUCON
Kolar- 563103.

To,

…….
…….....

Forwarded through,

(THE PRINCIPAL, SRI DEVARAJ URS COLLEGE OF NURSING, TAMAKA, KOLAR)

Respected Madam/Sir,

Sub: Request for acceptance to validate the research tool

I **Mrs.Srilakshmi. G** is a post graduate student (OBG NURSING) of Sri Devaraj Urs college of nursing, have selected the below mentioned topic for my research project to be submitted to Rajiv Gandhi University of Health Sciences, Karnataka, as a partial fulfillment of university requirement for degree in Master of Nursing.

TITLE: A STUDY TO ASSESS THE PREVALAMCE OF ANEMIA AND EVALUATE THE EFFECTIVENESS OF FRESH CURRY LEAVES IN IMPROVING THE HEMOGLOBIN LEVEL AMONG ADOLESCENT GIRLS IN SELECTED HOSTELS, KOLAR, KARANATAKA."

With regard to this, may I kindly request you to validate my tool (scale) for its appropriateness and relevancy? I am enclosing objectives of the study and scale. I would be highly obliged and thankful to hear from you.

Thanking you,

Enclosures:

- Statement of the problem
- Objectives of the study
- Evaluation criteria check list for Tools
- Content validity certificate

Yours faithfully

(Mrs.Srilakshmi.G)

STATEMENT OF PROBLEM

"A Study to assess the Prevalence of anemia and evaluate the Effectiveness of Fresh curry leaves in improving the hemoglobin level among adolescent girls in Selected hostels Kolar, Karnataka."

OBJECTIVES OF THE STUDY

1. To assess the Hemoglobin level among Hostel Inmates girls at selected hostel by using Tall Quist paper\ Hemoglobin color scale
2. To assess the prevalence of anemia among hostel inmates at selected hostels.
3. To evaluate the effectiveness of Fresh curry leaves to improve hemoglobin among anemic girls in experimental group compared to control group.
4. Find out the association between post test score with selected demographic variable

ANNEXURE-VI

CRITERIA CHECKLIST FOR VALIDATION OF THE TOOL

Respected Madam/ Sir,

Kindly go through the content and place a tick mark [✓] against each item given in the criteria table ranging from relevant to not relevant. When found 'not relevant' or 'needs modification', kindly give your valuable opinion or suggestions in the remark's column.

SECTION - I: DEMOGRAPHIC DATA:

PART-1: DEMOGRAPHIC VARIABLES OF ADOLESCENT GIRLS

Sl. No.	Relevant	Needs modification	Not relevant	Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

ANNEXURE-VII

CONTENT VALIDITY CERTIFICATE

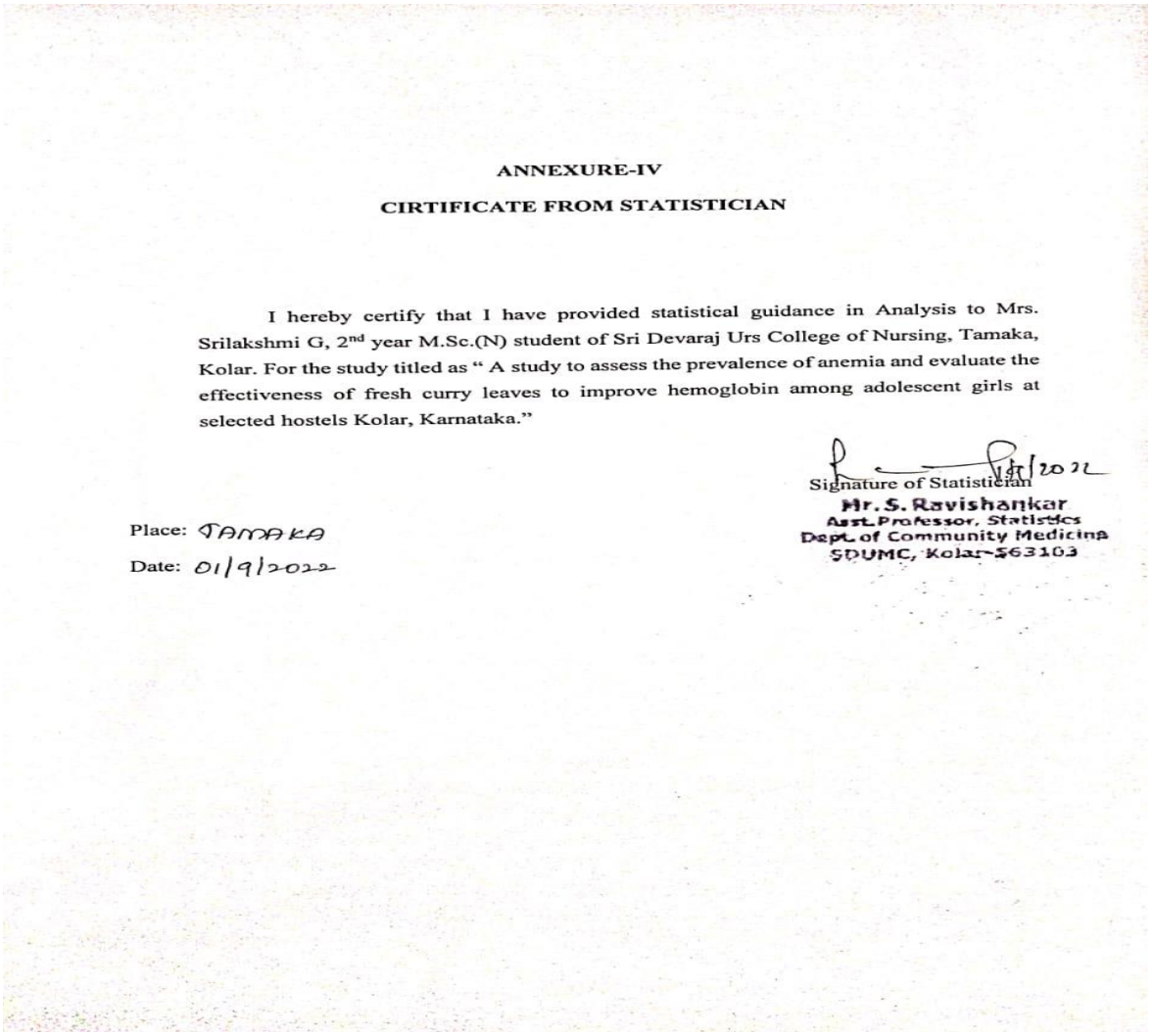
I hereby certify that I have validated the tool of **Mrs.Srilakshmi. G,** II-year M.Sc. in nursing student of Sri Devaraj Ur's College of nursing, Kolar, who is undertaking a research study on **"A Study to assess the Prevalence of Anemia and Evaluate the Effectiveness of Fresh curry leaves in improving the hemoglobin level among adolescent girls at Selected hostels Kolar, Karnataka."**

Place: **Signature of the expert**

Date: **Name and Designation**

ANNEXURE-VIII

CERTIFICATE FROM STATISTICIAN



ANNEXURE-IV

CIRTIFICATE FROM STATISTICIAN

I hereby certify that I have provided statistical guidance in Analysis to Mrs. Srilakshmi G, 2nd year M.Sc.(N) student of Sri Devaraj Urs College of Nursing, Tamaka, Kolar. For the study titled as " A study to assess the prevalence of anemia and evaluate the effectiveness of fresh curry leaves to improve hemoglobin among adolescent girls at selected hostels Kolar, Karnataka."

1/9/2022

Signature of Statistician

Mr. S. Ravishankar
Asst. Professor, Statistics
Dept. of Community Medicine
SDUMC, Kolar-563103

Place: TAMAKA

Date: 01/9/2022

ANNEXURE-IX

CERTIFICATE OF ENGLISH EDITING

ENGLISH EDITING CERTIFICATE

This is to certify that Mrs. Srilakshmi.G, II year M.Sc (N) student of Sri Devaraj Urs college of Nursing, Tamaka, Kolar. Has done a dissertation study on **"A study to assess the prevalence of anemia and evaluate the effectiveness of fresh curry leaves to improve hemoglobin levels among adolescent girls at selected hostels, Kolar, Karnataka."**

This study was edited for English language for its appropriateness by:

H.N. Venkataramaiah

Signature:

ಮುಖ್ಯೋಪಾಧ್ಯಾಯರು
ಸ್ವಾಮಿ ವಿವೇಕಾನಂದ ಪ್ರೌಢಶಾಲೆ
ಹೆಚ್.ಗೊಲ್ಲಹಳ್ಳಿ
ಮುಳಬಾಗಲು ತಾಲ್ಲೂಕು
ಕೋಲಾರ ಜಿಲ್ಲೆ

Date: 03-09-2022

Place: H. Gollahalli

ANNEXURE-X

CONSENT LETTER

Dear Participants,

I am a post graduate nursing student of Sri Devaraj Ur's College of Nursing, tamaka, Kolar, conducting **"A Study to Assess the Prevalence of Anemia & Evaluate the Effectiveness of Fresh Curry leaves to Improve Hemoglobin among Adolescent Girls at Selected Hostels, Kolar, Karnataka".** You will be asked about your demographic information and Screening your Hemoglobin level. I would like you to be as a participant in my study. The study will not cause any harm to you. The information's given by you will be kept confidential and only used for the study purpose. Hope you will co-operate with me for the fulfillment of the research project.

Thank you in advance for your cooperation. Kindly sign the consent from given below.

Signature of the Investigator

I have read the procedure described above and I voluntarily agree to participate in the research study.

CONSENT FORM

I …… here with consent for the above said the investigator would treat study knowing that all the information provided by me with utmost confidentially.

Place: **Signature of the participant**

Date:

Name and address

ANNEXURE-XI

Section – A

It consists of Socio Demographic Variables such as age of adolescent girl, age of menarche, menstrual history, Consumption of green leafy vegetables, source of information.

Demographic Variables

1. **Age in years specify_____**
   a) 18 years
   b) 19 years
   c) 20 years
   d) 21 years
   e) 22 years

2. **Religion**
   a) Hindu
   b) Christian
   c) Muslim
   d) Others Specify_____

3. **Programme**
   a) B.Sc. nursing
   b) GNM

4. **Year of studying**
   a) I year B.sc nursing
   b) II-year B.sc nursing
   c) III-year B.sc nursing
   d) IV-year B.sc nursing
   e) I GNM
   f) II GNM
   g) III GNM

5. Type of family

a) Joint Family
b) Nuclear family
c) Extended

6. Family income

a) Less than Rs. 10000/month
b) Rs.10, 001 -20,000/ month
c) Rs. 20,001 -30,000/month
d) More than Rs. 30,001/month

7. Diet pattern

a) Vegetarian
b) Non vegetarian

8. Frequency of Eating

a) 2 Times/per day
b) 3 Times/per day
c) 4 Times/per day
d) 5 Times/per day

9. Type of eating

a) Fuel eating (Eating foods that support your body and its needs)
b) Fun eating (Eating any foods that you love to eat that don't necessarily give you anything back)
c) Strom eating (Eating is binge eating or eating out of control)
d) Fog eating (Eating anytime you eat without awareness)

10. Have you taken Tab.Albendazole in recently?

a) Yes
b) No

11. Do you have any history of medical conditions?

a) Yes
b) No

ANNEXURE- XII

TABLE:9 NUTRITIONAL INFORMATION ABOUT FRESH CURRY LEAVES [45]

Fresh curry leaves 100grams		
Sl No	**Nutritive facts**	**Grams/mg**
1	Energy	108.000 K cal
2	Carbohydrates	18.700 gram
3	Moisture	63.800 gram
4	Fibre	6.400 gram
5	Protein	6.100 gram
6	Minerals	4.000 gram
7	Fat	1.000 gram
8	Calcium	830.000 mg
9	Phosphorous	57.000 mg
10	Iron	0.930 mg
11	Copper	0.100 mg
12	Manganese	0.150 mg
13	Chromium	0.006 mg
14	Thiamine	0.080 mg
15	Carotene	7560.000 mg
16	Riboflavin	0.210 mg
17	Niacin	2.300 mg
18	Vitamin c	4.000 mg
19	Folic acid free	23.500 mg
20	Folic acid total	93.900 mg

HEALTH BENEFITS OF FRESH CURRY LEAVES

1. Powerful antioxidant

Curry leaves include a lot of plant substances that are potent antioxidants. These substances maintain our health and shield us from many ailments. Consequently, shield us from oxidative damage to stop disorders of the kidneys, mental system, cardiovascular system etc.[46]

2. May reduce the risk of cancer

Curry leaves have the potential to be antimutagenic. They defend our body against various malignancies. Curry leaves contain flavonoids that have anti-cancer properties. They successfully impede the development of breast cancer cells. Curry leaves also guard against colon cancer. Curry leaves are helpful in preventing cervical cancer in our bodies. [46]

3. Reduces risk of heart diseases

Curry leaves shield our hearts from oxidative harm. Curry leaf consumption also lowers cholesterol levels. Additionally, it lowers triglyceride levels. Thus, lowering our risk factors aids in preventing heart ailments. [46]

4. Helps in the management of diabetes

Curry leaf consumption aids in the treatment of diabetes and the issues that are associated to it. Blood glucose levels were shown to be significantly decreased by curry leaves. Curry leaves are full of fiber, which slows down digestion and keeps blood sugar levels from rising suddenly. Additionally assisting diabetes patients, they increase insulin activity. Use the diabetes food chart to locate other foods that can be incorporated into the diabetic diet plan. [46]

5. Help deal with stomach ailments

Constipation and diarrhea are among the stomach disorders that curry leaves are highly efficient at curing. Diarrhea-controlling carbazole alkaloids are found in curry leaves. Curry leaves can be eaten raw or cooked. The juice from the leaves can also be ingested. Additionally, curry leaves have mild laxative characteristics that aid in the treatment of indigestion and constipation issues. [46]

6. Effective against morning sickness

Curry leaf tea can be consumed to effectively treat nausea and morning sickness. To deal with morning sickness, pregnant women can benefit particularly from drinking curry leaf tea. [46]

7. Analgesic

Curry leaves have long been used as an analgesic and have been found to be effective at reducing pain (pain reliever). **[46]**

8. Neuroprotective effects

Curry leaf consumption was found to increase the brain-protecting antioxidants. They were also discovered to be helpful in Alzheimer's disease by preventing oxidative damage to the neurons. Curry leaves have also been reported to be helpful for amnesia (memory loss), which is frequently seen in the elderly as a result of ageing. The 5 Best Foods for the Brain.[46]

9. Kills bacteria

Curry leaf antimicrobial properties. E. coli and Staphylococcus infections can be avoided with their help. **[46]**

10. Hepatoprotective effects

Strong anti-oxidants found in curry leaves shield our liver from oxidative stress-related damage. Additionally, they lessen inflammation and shield our liver from infections. It has been discovered that curry leaves are useful in the treatment of liver cirrhosis. **[46]**

11. Excellent for our hairs

When curry leaves are cooked in coconut oil, it creates a fantastic hair tonic that delays greying and promotes hair growth. They make our hair stronger and stop hair loss. Additionally, they aid in reducing dry scalp and dandruff. [46]

12. Treatment of Anemia

Curry leaves are a good source of folic acid, which is crucial for raising the body's amount of iron. Patients with anemia benefit greatly from this. [46]

13. Good for our eyes

Because curry leaves are high in vitamin A, they are good for our eyes. They aid in keeping clear vision and stop cataracts from forming. [46]

14. Good for our skin

Curry leaves are useful for treating minor burns, bruising, and skin outbreaks. They also guard against infections on our skin. As a result, some soaps also contain curry leaves. **[46]**

15. Good for oral health

In our mouths, curry leaves generate an environment that inhibits the growth of microorganisms. As a result, they aid in preserving oral health and preventing dental disorders. **[46]**

16. Helps in weight loss

Curry leaves contain alkaloids that aid in regulating our body's cholesterol levels. Additionally, curry leaves have a cleansing effect on the body, eliminating impurities and preventing the buildup of fat. Weight loss is aided by this. [46]

17. Heals wounds

Curry leaves may even be rubbed on the skin! To speed up the healing of cuts, minor burns, and rashes, apply curry leaf paste. Curry leaves have antibacterial qualities that can even prevent infections in skin wounds. [46]

Sl no	Age	**Religion**	**Education**	**Batch of studying**	**Type of family**	**Family income**	**Type of food pattern**	**Frequency of eating pattern**	**Have you taken tab. albendzole**	**History of medical condition**
1	b	b	a	a	a	b	b	b	b	b
2	b	a	a	a	b	b	b	b	b	b
3	b	b	a	a	b	b	b	b	b	b
4	c	b	a	a	b	c	b	b	b	b
5	b	b	a	a	a	c	b	b	b	b
6	b	b	a	a	a	b	b	b	b	b
7	b	a	a	a	a	b	b	b	b	b
8	b	b	a	a	b	a	b	b	b	b
9	c	b	a	a	b	b	b	b	b	b
10	b	b	a	a	a	b	b	b	b	b
11	c	a	a	a	b	b	b	b	b	b
12	c	b	a	a	b	b	b	b	b	b
13	b	a	a	a	b	d	b	b	b	b
14	b	b	a	a	b	a	a	a	b	b
15	b	a	a	a	b	a	a	b	b	b
16	b	a	a	a	b	a	a	b	b	b
17	c	b	a	b	b	b	a	a	b	b
18	c	b	a	b	b	b	b	a	b	b
19	c	b	a	b	b	b	b	b	b	b
20	c	b	a	b	a	b	b	b	b	b
21	c	a	a	b	a	b	b	b	b	b
22	c	a	a	b	b	d	b	b	b	b
23	d	a	a	c	a	a	a	a	b	b
24	c	b	a	c	b	a	a	a	b	a

25	d	b	a	c	b	b	b	a	b	b
26	d	b	a	c	b	b	b	b	b	b
27	d	b	a	c	b	b	b	b	b	a
28	d	a	a	c	b	b	b	b	b	a
29	c	a	a	c	a	c	a	a	b	b
30	b	a	b	e	a	b	a	a	b	b
31	b	a	b	e	b	b	a	a	b	b
32	b	a	b	e	b	b	a	c	b	b
33	b	a	b	e	b	b	a	b	b	b
34	b	a	b	e	b	b	b	a	b	b
35	b	a	b	e	a	b	b	c	b	b
36	b	a	b	e	b	b	b	a	b	b
37	e	b	a	d	b	b	b	a	b	b
38	e	b	a	d	b	b	b	b	b	b
39	e	a	a	d	b	b	b	a	b	b
40	e	a	a	d	b	a	b	a	b	b
41	e	b	a	d	a	a	b	b	b	b
42	e	a	a	d	b	b	b	b	b	b
43	e	a	a	d	a	a	b	c	b	b
44	e	a	a	d	a	a	b	c	b	b
45	e	a	b	f	a	b	b	c	b	b
46	c	a	b	f	a	b	b	c	b	b
47	c	a	b	f	b	b	b	b	b	b
48	c	a	b	f	b	a	a	c	b	b
49	d	a	b	g	a	b	b	c	b	b
50	d	b	b	g	a	b	a	a	b	b

Sl no	Age	Religion	Education programme	Year of studying	Type of family	Family income	Diet pattern	Frequency of eating pattern	Have you taken tab. albendzole	History of medical condition
1	b	b	a	a	a	c	b	b	b	b
2	b	b	a	a	b	c	b	b	b	b
3	b	b	a	a	a	c	b	b	b	b
4	b	b	a	a	b	c	b	a	b	b
5	b	b	a	a	a	c	b	b	b	b
6	b	b	a	a	a	b	b	b	b	b
7	b	a	a	a	a	b	b	b	b	b
8	b	b	a	a	a	c	b	b	b	b
9	b	a	a	a	b	c	b	b	b	b
10	c	a	a	b	a	c	a	c	b	b
11	c	a	a	b	b	d	b	c	b	b
12	c	a	a	b	b	d	a	d	b	b
13	c	a	a	b	b	c	b	a	b	b
14	d	b	a	b	a	d	b	a	b	b
15	c	b	a	b	b	c	b	b	b	b
16	c	b	a	b	b	d	b	b	b	b
17	d	a	a	c	a	b	a	b	b	b
18	d	a	a	c	a	c	a	b	b	b
19	d	b	a	c	b	b	b	b	b	b
20	d	b	a	c	b	b	b	b	b	b
21	c	b	a	c	a	b	b	c	b	b
22	e	a	a	c	b	b	b	b	b	b
23	e	b	a	c	a	b	b	b	b	b

24	e	a	a	d	b	b	b	a	b	b
25	e	a	a	d	b	b	a	a	b	b
26	e	b	a	d	b	b	b	a	b	b
27	e	b	a	d	b	b	a	c	b	b
28	e	b	a	d	b	c	b	b	b	b
29	e	b	a	d	b	b	b	b	b	b
30	e	a	a	d	b	b	b	b	b	b
31	e	b	a	d	b	d	a	a	b	b
32	e	b	a	d	a	c	a	a	b	b
33	b	a	b	e	a	b	b	b	b	b
34	b	a	b	e	a	b	b	b	b	b
35	b	a	b	e	a	b	b	b	b	b
36	b	a	b	e	a	b	a	a	b	b
37	b	a	b	e	a	b	b	b	b	b
38	b	a	b	e	a	b	b	b	b	b
39	b	a	b	e	b	b	b	b	b	b
40	c	a	b	f	a	b	a	a	b	b
41	c	a	b	f	b	b	a	a	b	b
42	c	a	b	f	b	b	b	b	b	b
43	c	a	b	f	b	b	b	b	b	b
44	c	b	b	f	a	b	a	a	b	b
45	d	b	b	g	b	b	b	b	b	b
46	d	b	b	g	b	b	b	b	b	b
47	c	a	b	g	b	b	b	b	b	b
48	d	a	b	g	a	b	b	b	b	b
49	d	a	b	g	b	b	a	a	b	b
50	c	a	b	g	b	b	b	b	b	b

ANNEXURE- XIII

PHOTO GALLARY