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A Quasi Experimental Study to Assess Effectiveness of "Peer Tutoring" Method on Knowledge and Attitude regarding Rainbow Diet for Promotion of Health among Early Adolescents of Selected Government School of Durg District (C.G.).

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Abstract: ***Peer tutoring is a cooperative learning technique in which one student act as tutor and other students group member are tutees and help each other to discuss topics. Rainbow Diet means to gather different colour food ingredients especially fruits and vegetables in our daily diet plan and consume daily. adequate and balance nutrition is very important for growing school going children because 11-13 years of age all cognitive, physical, mental development occur very fast. study was quantitative quasi experimental One group pre-test post-test research design was used; 100 adolescents was Government Middle School Godpendri and Government Middle School Devada Block Patan Durg were participated. data was analyzed under 5 sections where major finding was in pre-test 80(80%) were has average knowledge and remaining 20(20%) were has poor knowledge. In post-test majority 54(54%) of students were has good knowledge and remaining 46(46%) were has good knowledge. In pre-test 94(94%) were has neutral attitude and remaining 6(6%) were has negative attitude. In post-test majority 82(82%) of students were has good knowledge and remaining 18(18%) were has neutral. In pre-test mean is 12.74 and SD is 3.02, in post-test mean is 20.62 and SD is 3.53 and total knowledge gain is 26.27%. in pre-test mean is 13.22 and SD is 2.57, in post-test mean is 23.9 and SD is 3.72 and total knowledge gain is 35.6%. knowledge paired "t" value were 14.81 at the level of P=0.05 which shows highly significant and the attitude paired "t" value is 16.23 which is also highly significant. is moderately positive correlation between knowledge and Attitude score of pre-test and post-test knowledge score of the adolescents r=0.60. results of the research study supported colourful and varieties of foods and specific pigments needed to improve the health status and attractive so children eat with own interest and positive towards for consumption of foods. study recommended to conduct more study in different settings and large sample size also need to adopt different cooperative learning techniques.***

Keywords: Rainbow diet, Early adolescents, Peer tutoring, Health Promotion

1. Introduction

Our daily food choices form our diets, which directly influence our physical health and the efficiency of our bodily functions. In children, diet has an even more pronounced effect, as it plays a vital role in growth and development. Poor nutrition can lead to malnutrition, stunted growth, reduced productivity, and impaired mental and social development. Eating a wide range of colorful fruits and vegetables also offers protection against chronic diseases such as cancer. These foods are not only nutritious and tasty but also packed with phytochemicals, natural compounds that help protect the body. Additionally, they are rich in vital nutrients such as fiber, folate, potassium, magnesium, and vitamins A and C.

According to UNICEF, India is home to 253 million adolescents (10 to 19 years) . In India, 40 % of girls are anemic and have nutritional deficiency. [5] Adolescence provides an opportunity to correct nutritional deficiencies that may have occurred in early life and to catch-up on growth, and to establish good dietary behaviors.

A study of Knowledge and Attitude Regarding Rainbow Nutrition among Mothers in the Selected Urban Pocket by Sagar Alwadkar and Pratibha Wankhede suggest that it is important to educate adolescent and healthy eating habits in them as early as in elementary school. Descriptive Study to Assess the Knowledge Regarding Rainbow Diet Among Adolescents in Government Higher Secondary School, Mowa, Raipur (C.G.), recommend that further study can be conducted on benefits and importance of rainbow diet.

Objectives of the study:

1) To assess the pre-test knowledge and attitude regarding rainbow diet for promotion of health among early adolescent of selected government school of Durg district Chhattisgarh.
2) To assess the effectiveness of "peer tutoring" method on rainbow diet for promotion of health among early adolescent of selected government school of Durg district Chhattisgarh.
3) To find out the correlation between knowledge and attitude regarding rainbow diet for promotion of health among early adolescent of selected government school of Durg district Chhattisgarh.
4) To find out the association between knowledge and attitude regarding rainbow diet for promotion of health among early adolescent and selected demographic variables.

Hypotheses:

RH1: There is significance difference in pre- test and post-test knowledge and attitude regarding rainbow diet among early adolescents of Government school of Durg district.

RH2: There is a association between knowledge and attitude score regarding rainbow diet among early adolescent with their selected demographic variables.

RH3: There is significance correlation in knowledge and attitude regarding rainbow diet among early adolescents of Government school of Durg district.

2. Methodology

Study was quantitative quasi experimental One group pre-test post-test research design was adopted; 100 adolescents from Government Middle School Godpendri and Government Middle School Devada Block Patan Durg were participated those are fitted in the inclusion criteria. Sampling technique was purposive sampling techniques used. The reliability value of pilot study is for knowledge questionnaire 0.96 and attitude 0.87 which is accepted reliable of the data and ready for main study. In the present study independent variable was peer tutoring method and dependent variable was knowledge and attitude regarding rainbow diet for promotion of health among early adolescent.

Inclusion and exclusion criteria: Participant were eligible if they were willing to participate, class 10-13 years7th standard resided in rural area and understood hindi and English. those were having health problems and mental illness

Study Procedure: Data collected through questionnaire technique with the help structured knowledge questionnaire. For data collection tool socio demographic profile 12 items, structured knowledge questionnaire total item 24 and attitude 12 items. A structured pre-test questionnaire administered to assess the knowledge and attitude related rainbow diet took 20 minutes time duration. on same day structured teaching administered to peer tutor based on their group allocation, students were divided into small small group, in each group five students allocated and each group one peer tutor allocated based on their academic performance and class teacher's suggestion. on same day study material given to peer tutor and structured teaching administered to peer tutor and given time for self-study. on next day, peer tutor taught and discussed to other allotted group members and clear their doubts. at the end of discussion every one participated in teaching learning activities and researcher observed the whole discussion and group activities. at last researcher organized discussion and taken feedback to every member with questioning technique.

A post test was conducted 7 days after intervention to assess immediate knowledge and attitude with the help of same structured questionnaire and attitude scale.

Outcome measures and data analysis: The primary outcome was improvement of knowledge and secondary outcome was attitude score. Data analyzed using IBM SPSS (Statistical package for the social science) (version 25.0). Descriptive statistics summarized the findings, while Chi-square test and paired t test assessed before and after intervention differences. A p- value< 0.05 was considered statistically significant.

3. Result and Discussion

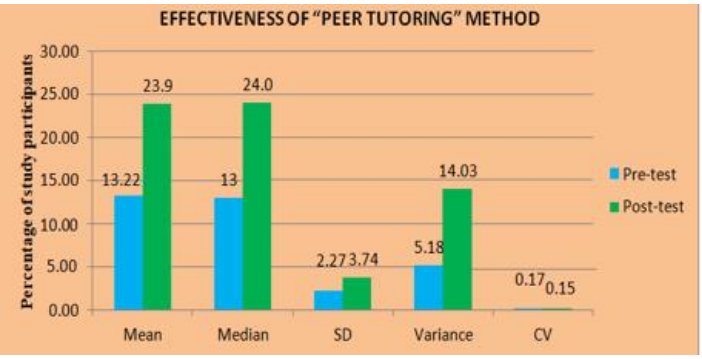
The study included 100 adolescents in pre-test 80(80%) were has average knowledge and remaining 20(20%) were has below average knowledge. In post-test majority 54(54%) of students were has good knowledge and remaining 46(46%) were has average knowledge. In pre-test 94(94%) were has neutral attitude and remaining 6(6%) were has negative attitude. After intervention majority 82(82%) of students were has positive attitude and remaining 18(18%) were has neutral. In pre-test mean is 12.33 and SD is 2.72, in post-test mean is 29.33 and SD is 2.04 and total knowledge gain is 26.27%. in pre-test mean of attitude is 13.22 and SD is 2.27, in post-test mean is 29.9 and SD is 3.74 and total attitude gain is 35.6%. Knowledge assessed by paired "t" value is 5.05 at the level of P=0.05 is 1.6, which shows highly significant and attitude paired "t" value is 4.92 at the level of 0.05 which is higher than table value that is 1.9 at 99 degree of freedom, which signifies that research hypothesis is accepted and null hypothesis rejected. In pre- test correlation was 0.263 and in post- test 0.789 so result depict that there is significant correlation between knowledge and Attitude score after intervention. There was statistically significant association between the pretest knowledge and selected baseline variable of Sample like Type of Family ($\chi2$=13.69, p>0.05), Gender ($\chi2$=36.04, p>0.05), Mother Education ($\chi2$=13.2, p>0.05), Father Education ($\chi2$=20.58, p>0.05), Income ($\chi2$=22.34, p>0.05). There was statistically significant association between the pretest knowledge and selected baseline variable of Sample like Gender ($\chi2$=36.04, p>0.05), Type of Family ($\chi2$=34.95, p>0.05), Mother Education ($\chi2$=29.61, p>0.05), Father Education ($\chi2$=20.58, p>0.05), Father Occupation ($\chi2$=35.04, p>0.05), Mother Occupation ($\chi2$=15.15, p>0.05), Income ($\chi2$=8.96 p>0.05), Any previous knowledge ($\chi2$= 7.5p>0.05). Addressing these challenges requires a multifaceted approach, including policy driven improvement in nutritional requirement of adolescents.

Table 1: Knowledge score preintervention and post intervention

Knowledge Score	Peer tutoring, n=100 Mean	t- value	P
Pre- test	12.33	5.05	1.6
Post- test	29.33		

Table 2: Attitude score pre- intervention and post intervention

Attitude Score	Peer tutoring, n=100 Mean	t- value	P
Pre- test	13.2	4.92	1.6
Post- test	23.9		



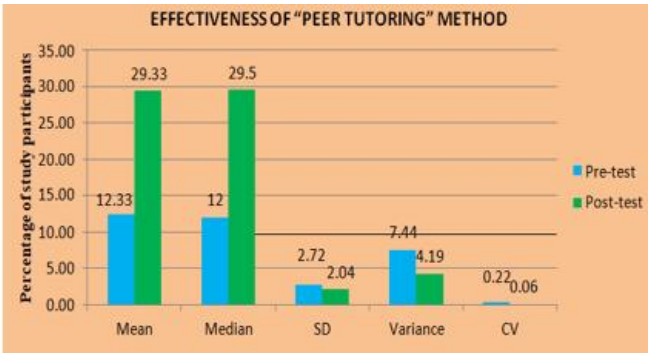


Table 3: Co-relation score before and after intervention with knowledge and attitude of adolescents related to rainbow diet

Correlations		Knowledge	Attitude
Knowledge	Pearson Correlation	1	-0.113
	Sig. (2-tailed)		0.263
	Sum of Squares and Cross-products	1247.56	-148.800
	Covariance	12.602	-1.503
	N	100	100
Attitude	Pearson Correlation	-.113	1
	Sig. (2-tailed)	.263	
	Sum of Squares and Cross-products	-148.800	1389.000
	Covariance	-1.503	14.030
	N	100	100

Table 4: Association with pre- intervention knowledge and attitude score and selected demographic variables

Correlations		Knowledge	Attitude
Knowledge	Pearson Correlation	1	.027
	Sig. (2-tailed)		.789
	N	100	100
Attitude	Pearson Correlation	.027	1
	Sig. (2-tailed)	.789	
	N	100	100

Variable	Below Median	Above Median	Chi Square Value	DF	P Value at 0.05	Level of Significant
Age (Years)						
10 Year	0	0	2.93	3	5.9	Non- Significant
11 Year	10	8				
12 Year	24	12				
13 Year	22	24				
Gender						
Male	40	10	36.04	1	3.8	Significant
Female	10	40				
Class of Student						
5th Student	0	0	0.0625	1	3.8	Non- Significant
6th Student	0	0				
7th Student	40	10				
8th Student	40	10				
Religion						
Hindu	6	12	6.25	3	7.8	Non- Significant
Muslim	19	13				
Christian	19	13				
Sikh	3	6				
Other	3	6				
Type of Family						
Joint	25	18	13.69	3	7.8	Significant
Nuclear	25	20				
Extended	0	6				
Single Parent	0	6				
Dietary Pattern						
Vegetarian	20	36	4.26	2	5.9	Non- Significant
Non-Vegetarian	12	12				
Egg-Vegetarian	4	16				
Education Status of Father						
Primary School	8	6	20.58	4	9.4	Significant

Secondary School	10	6				
Higher Secondary School	10	6				
Graduate	6	16				
Post Graduate	2	8				
Illiterate	2	20				
Education Status of Mother						
Primary School	6	10	13.2	4	9.4	Significant
Secondary School	4	12				
Higher Secondary School	4	12				
Graduate	6	16				
Post Graduate	8	2				
Illiterate	12	10				
Occupation of Father						
Government Employee	2	4	2.28	4	9.4	Non- Significant
Daily Wages	20	16				
Business	2	4				
Private Employee	12	12				
Housework	2	3				
Other	8	11				
Occupation of Mother						
Government Employee	2	14	8.61	4	9.4	Non- Significant
Daily Wages	18	18				
Business	3	3				
Private Employee	4	10				
Housework	10	10				
Other	2	2				
Family Income						
5,000 – 10,000 Rs.	38	18	22.34	3	7.8	Significant
10,001 – 15,000 Rs.	12	18				
15,000 – 20,000 Rs.	0	14				
20001 Above	0	0				

4. Conclusion

On the basis of finding of the study indicate that peer tutoring was effective method in improving knowledge and attitude related to Rainbow diet among adolescents. However, the peer tutoring demonstrated that greater improvement in knowledge retention and attitude shifted. Peer tutoring method of learning fostered a more cooperative and group interaction collaborative learning environment leading to better long term engagement and understanding. This study also highlighted the persistent challenges faced by adolescent including cultural practice, family food habits, cooking practice, financial problems, lack of awareness family members rigidity. Despite its small sample size and there was no follow-up, tough schedule of academic planning of school it was to difficult to conduct follow-up and observe the practice. these study findings recommended to conduct the study in large sample size and follow-up and practice also need to observe.

Ethical clearance: The ethical clearance was taken from the Government college of nursing ethical committee.

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Conflict of Interest: There are no conflict of interest.

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