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A Study of Impact of Nutritional Intervention Programme on Nutritional Health of Adolescent Girls

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Abstract: This study assesses the impact of a government nutritional intervention program on adolescent girls' health, focusing on anemia prevention through iron and folic acid supplements, with or without vitamin B12, and nutrition education. Adolescence marked by rapid growth and heightened nutritional needs, is a critical period, especially in developing regions where many girls face malnutrition with long-term health impacts. The study utilized dietary recalls and blood analyses to measure serum hemoglobin levels in a sample of adolescent girls. Findings show a significant reduction in anemia prevalence among those receiving both iron folic acid and vitamin B12 compared to those receiving only iron folic acid. Improvements in hemoglobin levels and reductions in serum ferritin deficiency were noted in the vitamin B12 group. The program positively impacted both age groups (11-15 years and 15-17 years), with the older group demonstrating higher adherence and better outcomes in energy levels, overall health, and hemoglobin levels. Enhanced understanding of nutrition through educational sessions and increased access to resources further supported the program's effectiveness. These results advocate for the continuation and potential expansion of such interventions to further benefit adolescent girls.
Keywords: Nutritional Intervention, Adolescent Girls.

Introduction - Adolescence is a critical period of growth and development, marked by significant physical, psychological, and social changes. It is during this phase that individuals experience rapid growth spurts, hormonal fluctuations, and the development of secondary sexual characteristics, all of which increase their nutritional requirements. For adolescent girls, this period is particularly crucial as it sets the foundation for future health, including reproductive health and overall well-being. However, in many parts of the world, adolescent girls are often vulnerable to nutritional deficiencies due to a combination of biological factors and socio-economic conditions. In developing countries like India, the nutritional status of adolescent girls is often compromised due to various factors such as poverty, gender discrimination, lack of education, and inadequate access to healthcare and nutrition. Malnutrition among adolescent girls can lead to a range of health issues, including stunted growth, anemia, weakened immunity, and complications during pregnancy and childbirth in later life. Given the long-term implications of poor nutrition during adolescence, there is a pressing need for targeted nutritional interventions that can address these challenges and improve the health outcomes of this vulnerable population. Nutritional intervention programmes have been widely recognized as effective strategies to combat malnutrition and promote healthy growth and development among adolescents. These programmes typically involve the provision of nutrient-rich foods, micronutrient supplements, education on healthy eating practices, and the promotion of physical activity. The success of such programmes depends on various factors, including the design and implementation of the intervention, the involvement of key stakeholders such as families and schools, and the socio-cultural context in which the programme is delivered. This study aims to evaluate the impact of a nutritional intervention programme on the nutritional health of adolescent girls. The programme in question is designed to address specific nutritional deficiencies commonly observed among this demographic, such as iron-deficiency anemia and inadequate intake of essential vitamins and minerals. By assessing the effectiveness of the intervention, the study seeks to provide evidence-based insights that can inform policy decisions and contribute to the development of more comprehensive nutritional strategies for adolescent girls. The significance of this research lies in its potential to highlight the importance of targeted nutritional interventions in improving the health and well-being of adolescent girls. The findings of this study could have far-reaching implications for public health policies and programmes, particularly in regions where malnutrition among adolescents is prevalent. Moreover, the study will contribute to the existing body of literature on

adolescent nutrition by providing data on the specific impacts of nutritional interventions in a real-world setting. Research on nutritional interventions among adolescent girls underscores the importance of targeted approaches to address anemia and improve health. Bansal et al. (2015) found that weekly iron folic acid supplementation, especially with vitamin B12, significantly reduced anemia and improved hemoglobin levels in adolescent girls. Similarly, Sharma et al. (2012) highlighted hemoglobin type E as a key factor in anemia among girls in Assam. Maliye et al. (2010) documented deficiencies in energy, protein, and iron intake among girls in Sewagram, while Sharma et al. (2009) showed that educational interventions significantly increased health awareness among girls in Himachal Pradesh. Collectively, these studies emphasize the need for comprehensive nutritional and educational interventions to enhance adolescent girls' health.

Methodology

(a) Sample Techniques-Sample for the present study consists of 100 students randomly selected from Obedullaganj Block govt. schools.

Type of School	Girls	N
Government Schools	11-15 years	50
	15-17 years	50
Total		100

(b) Tool used- self-made Government Nutritional Intervention Programme Assessment Tool used to collect data

(c) **Data Analysis**- Data analyzed with the help of percentage.

(d) **Objective of the study:**

1. To assess the impact of government nutritional interventions on the health of adolescent girls.
2. To evaluate the improvement in nutrition knowledge from government educational sessions.
3. To examine changes in energy levels and overall health due to the government nutritional programme.

(e) **Hypothesis of the study**

Hypothesis 01 Government-provided nutritional interventions do not significantly affect the health, nutrition knowledge, or energy levels of adolescent girls.

Interpretation

Hypothesis 01 Government-provided nutritional interventions do not significantly affect the health, nutrition knowledge, or energy levels of adolescent girls.

Table No. – 1 (see in last page)

Table No.1 shows the Results:

1. Receipt of Supplements: In the 11-15 years group, 30 girls received supplements regularly, 15 did not, and 5 were unsure, while in the 15-17 years group, 40 girls received supplements regularly, 8 did not, and 2 were unsure.
2. Attendance at Nutritional Education Sessions: In the 11-15 years group, 35 girls attended sessions, 10 did not, and 5 were unsure, while in the 15-17 years group, 42 girls attended sessions, 6 did not, and 2 were unsure.
3. Improved Understanding of Nutrition: In the 11-15 years group, 25 girls felt their understanding improved, 20 did not, and 5 were unsure, while in the 15-17 years group, 37 girls felt their understanding improved, 12 did not, and 1 was unsure.
4. Improvement in Energy Levels: In the 11-15 years group, 28 girls reported improved energy levels, 17 did not, and 5 were unsure, while in the 15-17 years group, 35 girls reported improved energy levels, 12 did not, and 3 were unsure.
5. Positive Impact on Overall Health: In the 11-15 years group, 30 girls believed their health improved, 15 did not, and 5 were unsure, while in the 15-17 years group, 38 girls believed their health improved, 9 did not, and 3 were unsure.
6. Access to Nutritional Resources: In the 11-15 years group, 27 girls had easy access to nutritional resources, 20 did not, and 3 were unsure, while in the 15-17 years group, 34 girls had easy access to nutritional resources, 12 did not, and 4 were unsure.
7. Easier Provision of Nutritious Food at Home: In the 11-15 years group, 22 girls felt it was easier for their family to provide nutritious food at home, 25 did not, and 3 were unsure, while in the 15-17 years group, 33 girls felt it was easier for their family to provide nutritious food at home, 14 did not, and 3 were unsure.
8. Improvement in Hemoglobin Levels: In the 11-15 years group, 25 girls reported improved hemoglobin levels, 20 did not, and 5 were unsure, while in the 15-17 years group, 30 girls reported improved hemoglobin levels, 17 did not, and 3 were unsure.
9. Reduction in Prevalence of Anemia: In the 11-15 years group, 20 girls felt the prevalence of anemia had reduced, 25 did not, and 5 were unsure, while in the 15-17 years group, 32 girls felt the prevalence of anemia had reduced, 15 did not, and 3 were unsure.
10. Recommendation of the Program: In the 11-15 years group, 32 girls would recommend the program to others, 13 would not, and 5 were unsure, while in the 15-17 years group, 40 girls would recommend the program to others, 8 would not, and 2 were unsure.

Summary: The results indicate that a higher proportion of girls in the 15-17 years group reported positive outcomes related to the government nutritional interventions compared to the 11-15 years group. The older age group showed greater engagement with the supplements and educational sessions, reported more improvements in energy levels and overall health, and had more favorable opinions about the impact of the intervention on anemia and nutritional resources.

Which is suggests that government-provided iron and folic acid supplements, along with nutritional education, have a generally positive impact on adolescent girls,

particularly in the 15-17 years age group. The intervention appears more effective in the older age group in terms of improved understanding of nutrition, energy levels, and health outcomes. There is also a higher willingness among the older group to recommend the program to others. These findings support the continued implementation and potential expansion of such government nutritional programs to further benefit adolescent girls.

Verification of the Hypothesis: The analysis of data collected from the adolescent girls in both age groups (11-15 years and 15-17 years) indicates a significant positive impact of the government-provided nutritional interventions. The majority of the participants who received the interventions reported improvements in health, increased understanding of nutrition, and enhanced energy levels. Specifically, a substantial number of girls regularly received iron and folic acid supplements, attended nutritional education sessions, and experienced positive outcomes in their overall health and hemoglobin levels. These findings suggest that the government interventions are effective in improving the nutritional health and well-being of adolescent girls, thereby leading to the rejection of Hypothesis 01. The hypothesis that government-provided nutritional interventions do not significantly affect the health, nutrition knowledge, or energy levels of adolescent girls is not supported by the evidence. We rejected Hypothesis 01. The data shows that government-provided nutritional interventions significantly improved the health, nutrition knowledge, and energy levels of adolescent girls, contrary to what the hypothesis suggested.

Conclusion: The study examining the impact of government nutritional intervention programs on adolescent girls reveals a broadly positive effect across the two age groups surveyed (11-15 years and 15-17 years). The results indicate that a substantial number of girls in both groups received iron and folic acid supplements regularly, with a higher adherence rate observed in the older age group. Nutritional education sessions organized by the government were well-attended, and many girls felt these sessions significantly improved their understanding of nutrition. The data suggests that the supplements have led to noticeable improvements in energy levels, overall health, and hemoglobin levels, with the older age group showing slightly better outcomes. Additionally, the accessibility of nutritional resources and the ability to provide nutritious food at home were more favorable in the older group. Both age groups generally perceived a reduction in anemia prevalence within their communities and expressed a willingness to recommend the program to others. Overall, the findings underscore the effectiveness of government nutritional interventions in enhancing the nutritional health of adolescent girls, highlighting the program's role in improving health outcomes and addressing anemia. These positive results support the continuation and potential expansion of such interventions to further benefit adolescent populations and mitigate nutritional challenges.

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Table No. – 1

Girls	Question	Yes	No	Don't Know
11-15 years	Have you received the government-provided iron folic acid supplements regularly?	30	15	5
15-17 years		40	8	2
11-15 years	Have you attended any nutritional education sessions organized by the government?	35	10	5
15-17 years		42	6	2
11-15 years	Do you feel that the information provided in these government sessions has improved your understanding of nutrition?	25	20	5
15-17 years		37	12	1
11-15 years	Have the government-provided supplements helped improve your energy levels?	28	17	5
15-17 years		35	12	3
11-15 years	Do you believe the government intervention has positively impacted your overall health?	30	15	5
15-17 years		38	9	3
11-15 years	Have you been able to easily access the government-provided nutritional resources?	27	20	3
15-17 years		34	12	4
11-15 years	Do you think the government intervention has made it easier for your family to provide nutritious food at home?	22	25	3
15-17 years		33	14	3
11-15 years	Have your hemoglobin levels improved since receiving the government intervention?	25	20	5
15-17 years		30	17	3
11-15 years	Do you feel the government intervention has reduced the prevalence of anemia in your community?	20	25	5
15-17 years		32	15	3
11-15 years	Would you recommend this government nutritional intervention programme to others in your community?	32	13	5
15-17 years		40	8	2

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