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EFFECT OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING ANEMIA OF CHILDREN AMONG THE TEA GARDEN WORKERS IN UDALGURI DISTRICT, ASSAM

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Abstract:

Background: Anemia is a major problem to global public health, that mostly affects young children, adolescents, pregnant and postpartum women. In Assam the Tea Garden Labourers are make up about 20% of the total population. Different survey conducted in tea garden areas states that that 76.21% of the workers were anaemic, and 96.3% of the adolescent girls of Tea Garden were anaemic. Aim: To assess the effect of structured teaching programme on knowledge regarding anemia of children among the tea garden workers in Udalguri District, Assam. Materials and methods: A quantitative survey approach with a pre experimental one group pre test post test research design was adopted for the study. Total 60 numbers of tea garden workers were selected as sample by using multistage disproportionate systematic random sampling technique. Data were collected by using structured interview schedule, consist of selected sociodemographic variables and questionnaire related to the knowledge regarding anemia of children. Collected data were analysed by descriptive and inferential statistics. Results: Out of 60 tea garden workers in pre test majority 55 (91.67%) had moderately adequate knowledge, 3 (5% had inadequate knowledge and 2(3.33%) had adequate knowledge. While in post test majority 40(66.67%) had moderately adequate knowledge, 20 (33.3%) had adequate knowledge regarding anemia of children. The mean post test knowledge score (15.92) was significantly higher than the mean pre test knowledge score (9.07) with mean difference of 6.85. The obtained mean difference was found to be statistically significant ($p < 0.05$ level of significance). It can be inferred that structured teaching program was effective in providing knowledge to the tea garden workers. Findings revealed that the level of education, monthly family income and history of ingestion of non-nutritive substance in children was having a significant association ($p<0.05$) with level of pre test knowledge. Conclusions: The findings of the study showed that the knowledge of the tea garden workers regarding anemia of children had significantly improved as a result of this structured teaching programme. This study results signified that the structured teaching programme was effective for the tea garden workers in improving the knowledge regarding anemia of children. The investigator recommended a comparative study on knowledge regarding anemia between parents of the tea garden community with other rural community to assess the knowledge regarding anemia of children.

Key words: effect, structured teaching programme, knowledge, tea garden

1. Introduction

Background of the study

Anemia is major threat worldwide, that mostly affects children of early age, adolescents, pregnant and postpartum women. According to WHO, worldwide 40% of children between the age group of 6 to 59 months are affected by anemia.[1] An another study claims that 2.36 billion people around the world suffer from anemia.[2]

When a in a person, haemoglobin concentration drops below a particular threshold point, it is considered to be as anemia. The threshold value depends on different factors such as age, gender, and overall health condition of the population under consideration. According to WHO, anemia in under five children can be defined as haemoglobin concentrations less than 11 g/dl.[3]

Young children are particularly more susceptible to anemia because of high iron needs for their rapid growth and development.[4] In early childhood anemia may occur due to prematurity, low iron intake, inadequate breastfeeding, delayed or early initiation of complementary feeding, poor socio-economic status, dietary constraints, early maternal age, and educational status of the parents. Anemia also can be precipitated by health conditions like helminthiasis, malaria, tuberculosis, HIV, blood loss and some inherited disorders such as sickle cell anemia and thalassemia.[6] Anemia has a detrimental impact on a child's mental, motor, and cognitive development. This can result in learning challenges, attention deficit and social disengagement, stunted growth. These negative effects can be irreversible, particularly in young children even with appropriate treatment.[5] In cases of severe anemia, symptoms such as weakness, exhaustion, lethargy, shortness of breath, chest discomfort, poor exercise tolerance, hypotension, cold skin, pallor of the conjunctiva, and diminished activity tolerance may occur, and ultimately it may lead to heart failure.[7]

The Indian government has also started numbers of programmes to combat anemia throughout the country. For this instance, the Indian government started the Adolescent Anemia Control Programme in 2000, The Weekly Iron Folic Acid Supplementation (WIFA) programme in 2012, Anemia Mukt Bharat (AMB) programme in 2018.[8]

Need of the study

Anemia is a significant public healthcare concern in worldwide.[1] In 2019 WHO disclosed that here were 269 million anaemic children worldwide with 39.8% incidence rate in children aged from 6 month to 59 months. On the other hand, in African continent the rate of anemia among under five children is highest (i.e. 60.2%).[9] Another study in 2022 noted that, globally around 1.62 billion people were affected by anemia, which equivalent to 24.8% of the total population, with the highest prevalence (47.4%) among preschool aged children.[10]

Based on the data of NFHS 4, the occurrence of anemia in India was calculated to be 58.4%. In contrast to this incidence rate, childhood anemia between the age 6-59 months was found to be 72% in Haryana, especially in urban area of district Rohtak.[10] According to IIPS and Macro International (2007) and IIPS and ICF (2017), the percentage children suffering from anemia in India were 69.5% in 2005–06, which declined up to 58.5% by 2015-16. As per the NFHS 5 (2019-21) the prevalence of anemia is 59.1 percent among adolescent girls, 31.1 percent among adolescent boys (15-19 years), and 67.1 percent among children of aged 6-59 months.[11]

In Assam, according to NFHS 5, the burden of anemia in the age group 6-59 months increased to 68.4% from 35.7 percent in the NFHS 4. According to NFHS 5 data, other North Eastern states like Manipur, Mizoram, Nagaland and Tripura had also shown significant rise in prevalence of anemia among under five children; from 23.9%, 46.4%, 42.7%, 64.3% in 2019-2022 to 18.9%, 19.3%, 16.3% and 48.3% respectively in the year of 2015-2020.[12]

In Assam there is a significant percentage of people are below the poverty line. The TGL are also one of those who make up about 20 percent of the total population of Assam, which produces more than 50% of India's tea. According to various reports, still there is a higher prevalence of undernutrition and anemia among the tea garden workers compared to other parts of the states.[13] A survey conducted in a tea garden disclose that 50.6% of the teenagers were stunted and 49.4% were chronically undernourished, 76.21% of them were anaemic.[14] Another study shows that among the teenage females of the Tea Tribe, the incidence of anaemia was 96.3% and the median serum ferritin level was 22.9 ng/ml. The pervasiveness of helminthiasis was 84.20% and sickle cell anaemia was 12%.[15]

Tea garden workers have a number of major challenges, including limited access to social security and healthcare. Many studies confirm that the people that reside in tea gardens has a higher incidence of anaemia. On the other hand, the investigator discovered that fewer studies had been carried out to evaluate

the knowledge of this population regarding anemia in children. This is the reason that the investigator decides to carry out a study, which is designed to assess the knowledge and providing a structured teaching programme regarding anemia of children among the tea garden workers.

Objective of the study

1. To assess the pre test and post test level of knowledge regarding anemia of children among the tea garden workers in Udalguri District, Assam.
2. To evaluate the effectiveness of a structured teaching programme regarding anemia of children among the tea garden workers in Udalguri District, Assam.
3. To determine the association between the pre test knowledge with the selected sociodemographic variables among the tea garden workers in Udalguri District, Assam.

2. Methods and materials

Quantitative research approach and pre-experimental one group pre-test post-test research design was adopted to accomplished the objectives of the study. This research was carried in tea gardens of Udalguri District, Assam. In this investigation, 60 tea garden workers were selected by using multistage disproportionate systematic random sampling technique. In this study, independent variable such as Structured Teaching Programme, dependent variable such as knowledge regarding anemia in children and sociodemographic variables such as type of informant, age of the informant, religion, type of family, numbers of children, level of education, monthly family income, food habits, previous knowledge regarding anemia, family history of anemia, history of blood related disorder in children, history of ingestion of non-nutritive substances in children were used. The tool used for gathering information was a structured interview schedule consisting of two sections; Section-A consist of questionnaire to collect data regarding sociodemographic variables from the tea garden workers and section-B consist of knowledge questionnaire to collect data regarding the knowledge on anemia in children. Ethical permission was granted from Institutional Ethics Committee to conducting the research study. After acquiring data, the data were organized, tabulated and interpreted by using descriptive statistics such as mean, median, mean difference, standard deviation frequency, percentage and inferential statistics such as Chi square test and Fisher's test.

Description of the tool

For this study a structured interview schedule was developed. The structured interview schedule was consisting of two sections. Section-A consist of questionnaire to collect data regarding sociodemographic variables from the tea garden workers and section-B consist of knowledge questionnaires to collect data regarding the knowledge on anemia. Again, this section was divided into 7 domains.

Domain-I: Definition of anemia consisting of 2 numbers of questions.
Domain-II: Causes of anemia consisting of 3 numbers of questions.
Domain-III: Sign and symptoms of anemia consisting of 3 numbers of questions.
Domain-IV: Diagnosis of anemia consisting of only 1 question.
Domain-V: Treatment of anemia consisting of 5 numbers of questions.
Domain-VI: Complication of anemia consisting of 1 question.
Domain-VII: Prevention of anemia consisting of total 7 questions.

Scoring key: The knowledge scores for Section B were allotted as 1 for each correct response and 0 for each incorrect response. Hence, the highest possible score is 22 and the lowest score is 0. So, the score ranges for the interpretation of the knowledge level are as follows,

- Below 25% - Inadequate knowledge
- 25-75% - Moderately adequate knowledge
- Above 75% - Adequate knowledge

Split Half method was implemented to figure out the reliability of the tool and it was determined to be 0.75, indicating that it was both statistically significant and reliable. The tool was also were validated by 7 experts from different field of Nursing, department of Pediatric Medicine and Nutritionist.

Then the structured teaching programme was developed on anemia of children, using different sources to achieve the objectives. It includes definition, causes, signs and symptoms, complication and prevention of anemia. To make the lessons more engaging charts, posters, and flash cards were used.

3. Data collection procedure

The data collection period was from 28-04-2024 to 26-05-2024. Before gathering data, permission was taken from Joint Director of Health Services, Udalguri District, Assam , Labour Inspector of Udalguri District, Assam, Managers of each Tea Garden. Consent was taken from each sample before collecting the data. On 1st day Pre test was done with the help of structured interview schedule and on the next day of pre test structured teaching programme was conducted by using charts, flash cards on anemia of children. 1 week after the pre test, post test was conducted by using same tool.

4. Result and observation

The study findings are classified, organised and represented under four section.

Section I: Sociodemographic attributes of tea garden workers in terms of frequency and percentage.

Table 1: Frequency and percentage distribution of sociodemographic variables of tea garden workers.

n=60

Demographic variables	Frequency	Percentage
Type of informant		
Mother	33	55%
Father	27	45%
Age in years		
19-25	14	23%
26-32	21	35%
33-39	14	23%
40-45	8	13%
>45	3	5%
Religion		
Hinduism	56	93%
Christianity	4	7%
Type of family		
Nuclear	34	57%
Joint	26	43%
Numbers of children		
1	6	10%
2	24	40%
≥3	30	50%
Level of education		
No formal education	7	12%
Primary school	15	25%
Middle school	24	40%
High school	10	17%
Higher secondary school	4	7%
Monthly family income (in rupees)		
≤5000 rupees	1	2%
5001-10000 rupees	14	23%
10001-20000 rupees	28	47%
≥20000 rupees	17	28%
Food habits		
Non vegetarian	58	97%
Vegetarian	2	3%
Previous knowledge regarding anemia		
Yes	37	62%
No	23	38%
Source of information		
Other family member	10	27%

From a health worker	8	22%
Friends	11	30%
Mass media	8	22%
Family history of anemia		
Yes	12	20%
No	34	57%
Do not know	14	23%
History of blood related disorder in children		
Yes	1	2%
No	59	98%
History of ingestion of non nutritive substance by the children		
Yes	34	57%
No	26	43%

Table 1 depicts that a significant number of informants 33 (55%) were mother, and 27 (45%) were father. Almost one third of the tea garden workers 21 (35%) belonged to age group 26-32 years, 56 (93%) were followers of Hinduism, 34 (57%) were from a nuclear family, 30(50 had ≥3 children, 24(40%) had completed middle school, 28 (47%) had a monthly family income of 10001-20000 rupees, 58 (97%) were non vegetarian, 37 (62%) had previous knowledge regarding anemia and out of them majority 11 (30%) the sources of previous knowledge regarding anemia were Friends. Out of them in 34 (57%) there is no family history of anemia, in 59 (98%) there is no history of blood related disorder in children, in 34 (57%) there is a history of ingestion of non-nutritive substance in children.

Section II: Frequency and percentage distribution of pre test and post test level of knowledge regarding anemia of children among the tea garden workers.

Table 2: Frequency and percentage distribution of pre test and post test level of knowledge regarding anemia of children among the tea garden workers.

n=60

Level of knowledge	Score	Pre test		Post test	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Inadequate	0-4	3	5	0	0
Moderately adequate	5 to 16	55	91.67	40	66.67
Adequate	17-22	2	3.33	20	33.33
Total		**60**	**100**	**60**	**100**

Table 2 explores that in pre test more than half of the 55 (91.67%) participants have moderately adequate, 3 (5%) participants have inadequate and 2 (3.33%) have adequate knowledge; while in post test 40 (66.67%) have moderately adequate, 20 (33.3%) have adequate and no one have inadequate knowledge regarding anemia of children.

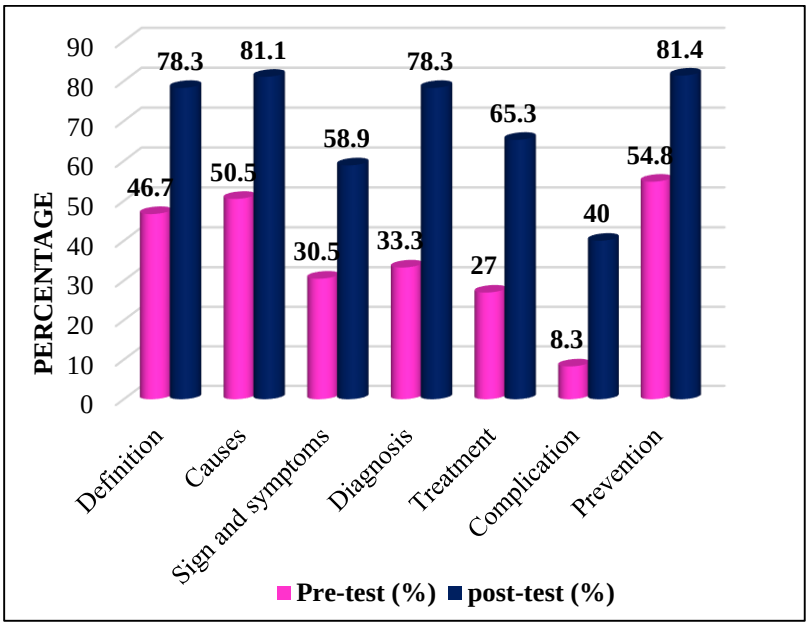

Figure 1: Bar graph describing area wise distribution of mean percentage of pre test and post test knowledge score regarding anemia of children among the tea garden workers.

Figure 1 signifies that in both the pre test and post test the samples got highest scores in the domain VI: Prevention of anemia and lowest score in the domain V: Complication of anemia.

Section III: Effect of structured teaching programme on knowledge regarding anemia of children among the tea garden workers.

Table 3: Effect of structured teaching programme on knowledge regarding anemia of children among the tea garden workers.

n=60

Comparison of level of knowledge	Mean	SD	Mean difference	t value	df	p value
Pre-test	9.07	2.87	6.85	25.01	59	0.001**
Post-test	15.92	2.28				

***p<0.05 level of significance**
****p<0.01 level of significance**

Table 3 shows that the mean score in pre test and post test are 9.07 and 15.92 respectively with a mean difference 6.85. The comparison is tested by paired t test with t=25.01 at df=59 at p<0.01 level of significance. Findings states that structured teaching programme is effective in improving the knowledge regarding anemia of children among the tea garden workers.

Section IV: Assessment of association between pre test knowledge score of the tea garden workers regarding anemia of children with selected sociodemographic variable.

Table 4: Association between pre test knowledge regarding anemia of children with selected demographic variables.

n=60

Sl. No	Demographic variables	Pre test level of knowledge			Fisher's extract value/ X_2 value	df	P value
		Inadequate	Moderately adequate	Adequate			
1	**Type of informant**				0.53	2	1.00
	Mother	2	30	1			
	Father	1	25	1			
2	**Age**				6.642	8	0.567
	19-25 year	1	13	0			
	26-32 years	0	19	2			
	33-39 years	1	13	0			
	40-45 years	1	7	0			
	>45 years	0	3	0			
3	**Religion**				4.632	2	0.117
	Hindu	3	52	1			
	Christan	0	3	1			
4	**Type of family**				0.53	2	1.00
	Nuclear	2	30	1			
	Joint	1	25	1			
5	**No. of children**				3.94	4	0.433
	1	0	5	1			
	2	1	23	0			
	≥3	2	27	1			
6	**Level of education**				16.509	10	0.017*
	No formal education	2	5	0			
	Primary school	1	12	0			
	Middle school	0	24	0			
	High school	0	9	1			
	Higher secondary school	0	4	0			
	Graduation and above	0	1	1			
7	**Monthly family income**				11.482	6	0.017*
	≤5000 rupees	1	0	0			
	5001-10000 rupees	1	13	0			
	10001-20000 rupees	0	27	1			
	≥20000 rupees	1	15	1			
8	**Food habits**				1.841	2	1.00
	Non vegetarian	3	53	2			
	Vegetarian	0	2	0			

9	**Previous knowledge regarding anemia**				1.956	2	0.350
	Yes	1	34	2			
	No	2	21	0			
10	**Family history of anemia**				4.099	4	0.35
	Yes	0	11	1			
	No	1	32	1			
	Do not know	2	12	0			
11	**History of blood related disorder in children**				3.016	2	1.00
	Yes	0	1	0			
	No	3	54	2			
12	**History of ingestion of non nutritive substance in children**				4.098	2	0.034*
	Yes	3	31	0			
	No	0	24	2			

***P<0.05 level of significant**

Table 4 portrays that the sociodemographic variables such as level of education, monthly family income and history of ingestion of non nutritive substance in children has significant association at $p<0.05$ level but other sociodemographic variables such as type of informant, age, religion, type of family, numbers of children, food habits, previous knowledge regarding anemia, family history of anemia and history of blood related disorder in children are statistically non-significant at $p<0.05$ level with pre test knowledge regarding anemia of children.

5. Conclusion

The study outcome demonstrated that the knowledge level of tea garden workers about childhood anemia of children had significantly improved. The knowledge of anemia and its prevalence among children of tea garden workers may alter as a result of this structured teaching programme. The outcomes of the investigation signified that the structured teaching programme was beneficent for the tea garden workers and it revealed a there is a notable association between pretest score with level of educational, monthly family income, and the history of ingestion of non nutritive substance in children.

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