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A Study to Evaluate the Effectiveness of a Computer-assisted Teaching Program on Knowledge About the Distribution and Use of Iron and Folic Acid Tablets During the Antenatal Period Among Primigravida Mothers in Selected Villages of Holenarasipura Taluk, Karnataka

Mahaboobsaheb Ganjal[1,*], M. Ravi Kumbar[2]

Abstract

Pregnancy is a critical period in a mother's life, and proper knowledge about managing pregnancy is essential for maternal and fetal health. This study aimed to evaluate the effectiveness of a computer-assisted teaching program in improving knowledge about the distribution and use of iron and folic acid tablets among primigravida mothers in selected villages of Holenarasipura taluk. A one-group pre-test and post-test pre-experimental design was employed, using non-probability convenience sampling to select 40 primigravida mothers. Data were collected through structured interviews based on specific inclusion and exclusion criteria. A pre-test was conducted, followed by a computer-assisted teaching program, and a post-test was administered seven days later to assess knowledge improvement. Data were analyzed using descriptive and inferential statistics. The results revealed that the mean post-test knowledge score (78.0%) was significantly higher than the pre-test score (43.3%), showing an improvement of 34.7%. This improvement was statistically significant with a calculated 't' value of 25.82 at the 5% level. Demographic variables such as age, age at menarche, age at marriage, gestational age, dietary habits, family type, religion, and husband's education showed a significant association with the pre-test and post-test knowledge scores. However, no significant association was found with the mother's education, occupation, family income, or source of health information. In conclusion, the computer-assisted teaching program was highly effective in enhancing the knowledge of primigravida mothers regarding iron and folic acid supplementation during pregnancy. This study suggests that such educational interventions could play a crucial role in improving maternal health outcomes.

Author for Correspondence
Mahaboobsaheb Ganjal
E-mail: maheboob247@gmail.com

[1]Associate Professor, Department of Medical Surgical Nursing Al Qamar College of Nursing Kalaburagi Karnataka, India.
[2]Nursing Officer, Department of Nursing ESIC Hospital Kolhapur, Maharashtra, India.

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INTRODUCTION

Antenatal care involves the systemic medical supervision of women during pregnancy. The goal is to maintain the physiological aspects of pregnancy and labor while preventing or identifying pathological issues as early as possible. Maternal health is reflected in the rates of maternal morbidity and mortality as well as child morbidity and mortality. Key challenges related to maternal health include malnutrition, infection, and uncontrolled

reproduction. Expectant mothers need to receive guidance on lifestyle, diet, and regular antenatal check-ups until labor begins [1].

Surveys conducted across various regions in India reveal that approximately 50–60 percent of women from low socioeconomic backgrounds experience anemia during the last trimester of pregnancy, primarily due to deficiencies in iron and folic acid. Anemia is associated with a higher risk of premature birth, postpartum hemorrhage, puerperal sepsis, and thromboembolic complications in mothers [2–6].

Blood is vital for sustaining life, as it transports oxygen, nutrients, and other essential substances, including vitamins and medications, to cells and tissues throughout the body. A deficiency in the quantity or quality of blood can significantly impair the quality of life and even jeopardize it. Red blood cells, the most common type of blood cells, contain hemoglobin, which is specifically designed to hold oxygen and deliver it to cells in need. Anemia occurs when there is insufficient hemoglobin or red blood cells in the blood, and one of its most common causes is inadequate dietary iron intake. It is estimated that a total of 840–1210 mg of iron must be absorbed throughout pregnancy. The requirement for absorbed iron rises from 0.8 mg/day in early pregnancy to 6 mg/day in late pregnancy due to increased maternal hemoglobin levels, increased oxygen consumption by both the mother and fetus, fetal growth, and iron deposition in the placenta. This demand also accounts for daily losses through stools, urine, and skin as well as blood loss during birth and the postpartum period, including lactation. Data indicate that typical dietary iron intake is often insufficient to meet these needs for most women, prompting recommendations that all pregnant women should receive daily iron and folic acid supplements [7–10].

Folic acid is crucial for nucleic acid synthesis and the normal development of blood cells in the bone marrow. Because the body's folate stores are limited to approximately 5–10 mg, a deficiency can develop rapidly. Adequate folate intake before conception is important to protect against various congenital malformations.

According to the World Health Organization, if the prevalence of anemia is 4.9% or lower, it is considered a nonpublic health issue for that country. A prevalence between 5.0% and 19.9% indicates a mild public health problem, while 20.0% to 39.9% reflects a moderate issue. A prevalence of 40.0% or higher is classified as a severe public health problem. In response, the Government of India launched a program to distribute 100 mg of elemental iron and 500 mg of folic acid daily to pregnant women for 100 days through antenatal clinics, primary health centers, and their sub-centers.

REVIEW OF LITERATURE

This retrospective study was conducted to determine the use of iron and folic acid tablets. Data were collected by reviewing demographic and health survey data to examine the relationship between Iron and Folic acid (IFA) supplementation and mortality and morbidity rates among 1,072 antenatal mothers from 56 clinics in Indonesia. The study results showed a reduction in the risk of death in 34% of the mothers who consumed iron and folic acid supplements. There was a strong dose response of greater protection from death with increasing numbers of Iron and Folic acid (IFA) supplements [11–14].

A study was conducted to review the literature on evidence-based preventive treatments for iron deficiency anemia in pregnancy, focusing on developing countries. The search included terms such as prevalence, burden, iron deficiency anemia during pregnancy, preventive treatments, and developing countries. The primary sources of information were cross-sectional, observational, and randomized controlled trials published between 2000 and 2011. These studies were sourced from widely used medical databases, such as PubMed, African Journals Online (AJOL), and Google Scholar, while the Cochrane Library provided systematic reviews on the topic. This study specifically examined six randomized and quasi-randomized trials related to preventive treatments for iron deficiency anemia during pregnancy. Iron deficiency remains the leading cause of anemia during pregnancy in developing

countries, significantly contributing to an increased risk of low birth weight, prematurity, and maternal morbidity. Iron supplementation and food fortification have the potential to enhance maternal and child health; however, certain challenges remain [15–18].

Objectives

1. To assess the pre-test knowledge regarding the distribution and utilization of iron and folic acid tablets during the antenatal period among primigravida mothers.
2. To develop and implement computer-assisted teaching programs on the distribution and utilization of iron and folic acid tablets during the antenatal period among primigravida mothers.
3. To evaluate the effectiveness of a computer-assisted teaching program on the distribution and use of iron and folic acid tablets during the antenatal period among primigravida mothers.
4. To examine the relationship between pre-test and post-test knowledge scores and specific demographic variables.

Hypotheses of the Study

H_1: There is a significant difference between pre-test and post-test knowledge scores regarding the distribution and utilization of iron and folic acid tablets.

H_2: There will be a significant association between pre-test and post-test knowledge scores regarding the distribution and utilization of iron and folic acid tablets with the selected demographic variables.

Assumptions

1. Primigravidae mothers may have some knowledge of the distribution and utilization of iron and folic acid tablets.
2. Demographic variables will influence their knowledge regarding the distribution and utilization of iron and folic acid tablets.
3. Computer-assisted teaching programs may enhance knowledge regarding the distribution and utilization of iron and folic acid tablets among primigravida mothers.

MATERIAL AND METHODS

Research approach: The pre-experimental design was considered appropriate for the present study.

Research design: The research design chosen for this study was a pre-experimental design, utilizing a one-group pre-test and post-test approach. In this design, a pre-test was administered, followed by the implementation of a computer-assisted teaching program, and a post-test was conducted for the same group after seven days.

Setting of the study: The conducted in the villages of Holenarasipura taluk. This location was chosen based on geographical proximity, feasibility of conducting the research, and the availability of participants.

Target population: In this study, the population consisted of primigravida mothers.

Sample and sampling technique: The sample for this study included 40 primigravida mothers selected using a non-probability convenience sampling technique.

Criteria for Selection of Sample

Inclusion Criteria

1. Woman who is primigravidae.
2. Women who are willing to participate in the study.
3. Women who are present at the time of the data collection.
4. Women who are residing at selected villages of Holenarasipura taluk.
5. Women who know Kannada to read and write.

Exclusion Criteria

1. Women who are critically ill.

Description of the Tool

The structured interview schedule consisted of two sections:

Section A: Consists of demographic characteristics of respondents seeking information, such as the age of the mother, type of family, age at menarche, age at marriage, gestational age, mother's education, education of husband, occupation, family income, food pattern, and source of health-related information.

Section B: Consists of 30 items pertaining to knowledge regarding the distribution and utilization of iron and folic acid tablets. It comprises seven parts, as mentioned below:

Part I: Introduction to anemia and definitions.
Part II: Physiological changes during pregnancy in the hematologic system.
Part III: Anemia causes, its types, signs, and symptoms.
Part IV: Treatment and prevention of anemia.
Part V: Government of India services for prevention and control of anemia.

There were 30 items. Each item has four options, with one accurate answer. The score for the correct response to each item was "one" and the incorrect response was "zero." Thus, for 30 items, the maximum obtainable score was 30, and the minimum was zero.

Delimitations

1. The study is delimited to the area of Holenarasipura.
2. The sample size is delimited to 40.
3. The data collection period is delimited to 4–6 weeks.
4. The computer-assisted teaching program was designed to select aspects of iron and folic acid tablets.

RESULTS AND DISCUSSION

Table 1 presents the respondents' demographic characteristics.

Table 1. Analysis of demographic characteristics of the respondents (N=40).

Characteristics	**Category**	**Respondents**	
		Number	***Percent***
Age group (years)	15–20	12	30.0
	20–25	13	32.5
	25–30	15	37.5
Total		40	100.0
Age at Menarche	12 years	14	35.0
	13 years	14	35.0
	14 years	12	30.0
Total		40	100
Age at marriage (years)	15–19	9	22.5
	20–24	19	47.5
	25–30	12	30.0
Total		40	100
Gestational age (trimester)	First	9	22.5

	Second	22	55.0
	Third	9	22.5
Total		40	100.0
Food pattern	Vegetarian	7	17.5
	Mixed	33	82.5
Total		40	100.0
Type of Family	Nuclear	26	65.0
	Joint	14	35.0
Total		40	100.0
Religion	Hindu	33	82.5
	Muslim	7	17.5
Total		40	100.0
Education of Mother	Primary	14	35.0
	High school	8	20.0
	PUC	14	35.0
	Graduate	4	10.0
Total		40	100.0
Education of husband	High school	13	32.5
	High school	16	40.0
	Graduate	11	27.5
Total		40	100
Occupation of Mother	Homemaker	18	45.0
	Daily wages	10	25.0
	Government	4	10.0
	Private	5	12.5
Total		40	100.0
Family income/month	Rs.5,001–10,000	16	40.0
	Rs.10.001–15,000	18	45.0
	Above Rs.15,000	6	15.0
Total		40	100.0
Source of Information	Electronic media	10	25.0
	Printed media	14	35.0
	Health personnel	7	17.5
	Friends/neighbors	4	10.0
	Family members	5	12.5
Total		40	100.0

Table 2. Aspect-wise pre-test mean knowledge scores of respondents on the distribution and utilization of iron and folic acid tablets during the antenatal period (N=40).

No.	**Knowledge aspects**	**Statements**	**Max. score**	**Respondents' knowledge**			
				Mean	***SD***	***Mean (%)***	***SD (%)***
I	Introduction to anemia and definitions	4	4	1.63	0.7	40.6	17.4
II	Physiological changes during pregnancy	3	3	1.33	0.6	44.2	21.6
III	Anemia, Causes its types, and Sign and symptoms	4	4	2.05	0.8	41.0	15.5
IV	Treatment and Prevention of anemia	7	7	3.20	0.8	45.7	11.2
V	Government of India services	11	11	4.80	1.1	43.6	10.4
	Combined	30	30	13.00	2.8	43.3	9.4

Table 2 describes the aspect-wise pre-test mean knowledge scores of respondents on the distribution and utilization of iron and folic acid tablets. The highest mean knowledge score of 45.7% was observed in the area of treatment and prevention of anemia, followed by 44.2% for physiological changes in the hematological system during pregnancy. The mean knowledge score for government services for the prevention and control of anemia was 43.6%, while the score for anemia—its causes, types, signs, and symptoms—was 41.0%. The lowest mean knowledge score (40.6%) was recorded in the section on the introduction to anemia and its definition. Overall, the pre-test mean knowledge score was 43.3%, with a standard deviation of 9.4%.

Classification of respondent post-test knowledge level on distribution and utilization of iron and folic acid tablets during the antenatal period.

Table 3. Overall and aspect-wise post-test knowledge scores of respondents on the distribution and utilization of iron and folic acid tablets during the antenatal period (N=40).

Knowledge Level	Category	Respondents	
		Number	***Percent***
Inadequate	≤50% Score	0	.0
Moderate	51–75% Score	16	40.0
Adequate	>75% Score	24	60.0
Total		40	100.0

Table 3 describes the post-test knowledge level on the distribution and utilization of iron and folic acid tablets; it was found that 60% of the respondents had adequate knowledge and 40% had moderate knowledge.

Table 4. Aspect-wise post-test mean knowledge scores of respondents on distribution and utilization of iron and folic acid tablets during the antenatal period (N=40).

No.	Knowledge Aspects	Statements	Max. Score	Respondents Knowledge			
				Mean	***SD***	***Mean (%)***	***SD (%)***
I	Introduction to anemia and definitions	4	4	3.15	0.7	78.8	16.3
II	Physiological changes during pregnancy	3	3	2.43	0.6	80.8	19.6
III	Anemia causes, its types, signs, and symptoms	4	4	3.88	0.7	77.5	14.3
IV	Treatment and prevention of anemia	7	7	5.43	0.8	77.5	11.9
V	Government of India services	11	11	8.53	1.2	77.5	10.6
	Combined	30	30	23.40	2.4	78.0	7.9

Table 4 presents the post-test mean knowledge scores of respondents on the distribution and utilization of iron and folic acid tablets broken down by specific aspects. The highest mean knowledge score of 80.8% was found in the aspect of knowledge on physiological changes during pregnancy in the hematological system, 78.8% in the aspect of introduction to anemia and definitions, 77.5% in the aspect of anemia, causes its types, and sign and symptoms, treatment and prevention of anemia, and Government of India services for prevention and control of anemia, respectively. However, the overall post-test mean knowledge score was 78.0% with an SD of 7.9%.

Overall pre-test and post-test mean knowledge regarding the distribution and utilization of iron and folic acid tablets during the antenatal period.

Table 5. Overall and aspect-wise pre-test and post-test knowledge scores of respondents on the distribution and utilization of iron and folic acid tablets during the antenatal period (N=40)

Aspects	Max. Score	Respondents Knowledge				Paired t-test
		Mean	SD	Mean (%)	SD (%)	
Pre-test	30	13.00	2.8	43.3	9.4	25.82*
Post-test	30	23.40	2.4	78.0	7.9	
Enhancement		10.40	2.6	34.7	8.5	

** Significant at 5% level, t (0.05,39df)=1.96*

Table 5 shows that the overall mean post-test score was 78.0%, which was significantly higher than the pre-test score of 43.3%. The difference in the mean enhancement score was 34.7%.

Further, paired t-value of the pre-test and post-test of the sample was found to be significant at a 5% level (t=25.82*). The findings indicated that the computer-assisted teaching program on the distribution and utilization of iron and folic acid tablets was an effective teaching strategy, as demonstrated by the statistical results.

Table 6. Aspect-wise mean pre-test and post-test knowledge on distribution and utilization of iron and folic acid tablets during the antenatal period (N = 40).

No.	Knowledge aspects	Respondents' knowledge (%)						Paired 't' test
		Pre-test		*Post-test*		*Enhancement*		
		Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	
I	Introduction to anemia and definitions	40.6	17.4	78.8	16.3	38.1	20.9	11.53*
II	Physiological changes during pregnancy	44.2	21.6	80.8	19.6	36.7	27.7	8.38*
III	Anemia causes, its types, signs, and symptoms	41.0	15.5	77.5	14.3	36.5	17.3	13.34*
IV	Treatment and prevention of anemia	45.7	11.2	77.5	11.9	31.8	14.8	13.59*
V	Government of India services	43.6	10.4	77.5	10.6	33.9	13.6	15.76*
	Combined	43.3	9.4	78.0	7.9	34.7	8.5	25.82*

**Significant at 5% level, t (0.05,39df) = 1.96*

Table 6 and Figure 1 describe the aspect-wise pre-test and post-test mean knowledge scores for the distribution and utilization of iron and folic acid tablets. The pre-test mean knowledge score was significantly lower than the post-test performance across all aspects studied. The findings revealed that the greatest improvement score of 38.1% was seen in the *introduction to anemia and definitions*, followed by 36.7% for *physiological changes during pregnancy* in the *hematological system*; 36.5% for *anemia—causes, types, and signs and symptoms*; 33.9% for *Government of India Services for prevention and control of anemia*; and 31.8% for *treatment and prevention of anemia*. The calculated value of the statistical paired t-test was 25.82*, which exceeded the table value of 1.96, indicating a significant enhancement in knowledge scores across all selected aspects at the 5% level. Hence, the research hypothesis is accepted.

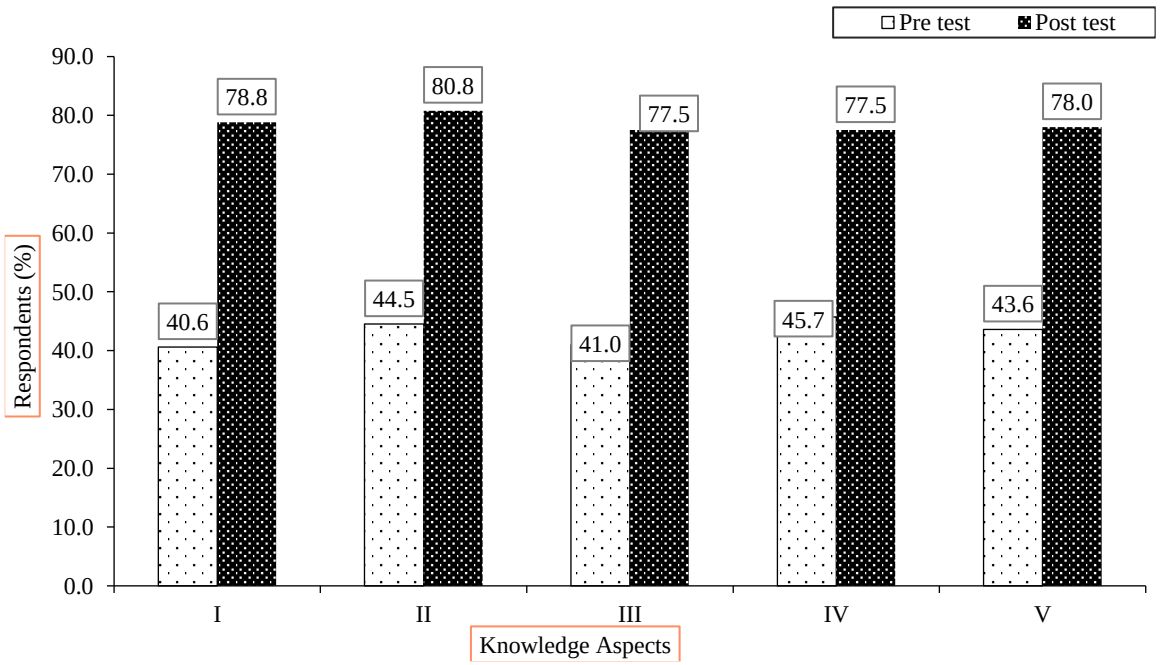

Figure 1. Aspect-wise mean pre-test and post-test knowledge scores on distribution and utilization of iron and folic acid tablets during the antenatal period.

Table 7. Classification of respondents on knowledge level on distribution and utilization of iron and folic acid tablets during antenatal period (N =40).

Knowledge level	**Category**	**Classification of respondents**				**χ^2 value**
		Pre-test		***Post-test***		
		Number	*Percent*	*Number*	*Percent*	
Inadequate	≤50% Score	26	65.0	0	0.0	50.13*
Moderate	51–75% Score	14	35.0	16	40.0	
Adequate	>75% Score	0	0.0	24	60.0	
Total		40	100.0	40	100.0	

**Significant at 5% level, χ^2 (0.05,2df) = 5.991*

Table 7 outlines the knowledge levels regarding the distribution and utilization of iron and folic acid tablets. The results show that 65.0% of respondents had inadequate knowledge and 35.0% had moderate knowledge in the pre-test. After the post-test, 40.0% of respondents had moderate knowledge, while 60.0% had adequate knowledge in this area. Moreover, the difference in knowledge levels between the pre-test and post-test was statistically significant. (χ^2=50.13*).

Table 8. Association between age group and knowledge level of pre-test and post-test on distribution and utilization of iron and folic acid tablets during antenatal period **(**N=40).

Age group (years)	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate		*Moderate*		*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
15–20	12	4	33.3	8	66.7	1	8.3	11	91.7
20–25	13	10	76.9	3	23.1	6	46.2	7	53.8
25–30	15	12	80.0	3	20.0	9	60.0	6	40.0
Total	40	26	65.0	14	35.0	16	40.0	24	60.0
χ^2value		7.59*				7.72*			
Age at menarche	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate		*Moderate*		*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
12 years	14	9	64.3	5	35.7	9	64.3	5	35.7
13 years	14	8	57.1	6	42.9	5	35.7	9	64.3
14 years	12	9	75.0	3	25.0	2	16.7	10	83.3
Total	40	**26**	65.00	14	35.00	16	40.0	24	60.0
χ^2value		0.91 NS				6.27*			
Age at marriage (years)	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate		*Moderate*		*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
15–19	9	3	33.3	6	66.7	4	44.4	5	55.6
20–24	19	11	57.9	8	42.1	6	31.6	13	68.4
25–30	12	12	100.0	0	0.0	6	50.0	6	50.0

Total	40	26	65	16	35	16	40.0	32	60.0
χ^2 value		10.85*				1.14 NS			
Gestational age (Trimester)	**Sample (N)**	**Knowledge Level of Respondents**							
		Pre-test				*Post-test*			
		Inadequate	*Moderate*			*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
First	9	3	33.3	6	66.7	3	33.3	6	66.7
Second	22	15	68.2	7	31.8	8	36.4	14	63.6
Third	9	8	88.9	1	11.1	5	55.6	4	44.4
Total	40	26	65	14	35	16	40.0	24	60.0
χ^2value		6.32*				1.20 NS			
Food pattern	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate	*Moderate*			*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Vegetarian	7	2	28.6	5	71.4	3	42.9	4	57.1
Mixed	33	24	72.7	9	27.3	13	39.4	20	60.6
Total	40	26	65	14	35	16	40	24	60
χ^2value		4.95*				0.03 NS			
Type of Family	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate		*Moderate*		*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Nuclear	26	14	53.9	12	46.1	7	26.9	19	73.1
Joint	14	12	85.7	2	14.3	9	64.3	5	35.7
Total	40	26	65	14	35	16	40.0	24	60.0
χ^2value		4.06*				5.29*			
Religion	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate	*Moderate*			*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Hindu	33	22	66.7	11	33.3	14	42.4	19	57.6
Muslim	7	4	57.1	3	42.9	2	28.6	5	71.4
Total	40	26	65	14	35	16	40.0	24	60
χ^2value		9.23*				0.46 NS			
Education of Mother	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate	*Moderate*			*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Primary	14	9	64.3	5	35.7	2	14.3	12	85.7
High school	8	4	50.0	4	50.0	4	50.0	4	50.0
PUC	14	11	78.6	3	21.4	8	57.1	6	42.9
Graduate	4	2	50.0	2	50.0	2	50.0	2	50.0
Total	40	26	65	14	35	16	40.0	24	60.0

χ^2value		2.32 NS				6.07 NS			
Education of Husband	**Sample (N)**	**Knowledge Level of Respondents**							
		Pre-test				***Post-test***			
		Inadequate		*Moderate*		*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
High school	13	8	61.5	5	38.5	2	15.4	11	84.6
PUC	16	10	62.5	6	37.5	7	42.8	9	56.2
Graduate	11	8	72.7	3	27.3	7	63.6	4	36.4
Total	40	26	65	14	35	16	40.0	24	60.0
χ^2value		0.40 NS				6.94*			
Occupation	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate		*Moderate*		*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Homemaker	18	12	66.7	6	33.3	9	50.0	9	50.0
Daily wages	10	8	80.0	2	20.0	4	40.0	6	60.0
Government	4	2	50.0	2	50.0	1	25.0	3	75.0
Private	5	2	40.0	3	60.0	1	20.0	4	80.0
Self-employed	3	2	66.7	1	33.3	1	33.3	2	66.7
Total	40	26	65	14	35	16	40.0	24	60.0
χ^2value		2.78 NS				2.01 NS			
Family income/month	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate		*Moderate*		*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Rs.5,001–10,000	16	11	68.8	5	31.2	7	43.8	9	56.2
Rs.10.001–15,000	18	11	61.1	7	38.9	7	38.9	11	61.1
Above Rs.15,000	6	4	66.7	2	33.3	2	33.3	4	66.7
Total	40	26	65	14	35	16	40.0	24	60.0
χ^2value		0.23 NS				0.21 NS			
Source of Information	**Sample (N)**	**Knowledge level of respondents**							
		Pre-test				***Post-test***			
		Inadequate		*Moderate*		*Moderate*		*Adequate*	
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Electronic media	10	5	50.0	5	50.0	2	20.0	8	80.0
Print media	14	10	71.4	4	28.6	6	42.9	8	57.1
Health Personnel	7	5	71.4	2	28.6	3	42.9	4	57.1
Friends/Neighbors	4	2	50.0	2	50.0	3	75.0	1	25.0
Family members/Relatives	5	4	80.0	1	20.0	2	40.0	3	60.0
Total	40	26	65	14	35	16	40.0	24	60.0
χ^2value		2.26 NS				3.78 NS			

Table 8 shows the association between demographic variables and pre-test and post-test knowledge levels regarding the distribution and utilization of iron and folic acid tablets during the antenatal period.

DISCUSSION

It is estimated that a total of 840–1210 mg of iron must be absorbed throughout pregnancy. The requirement for absorbed iron rises from 0.8 mg per day in early pregnancy to 6 mg per day in late pregnancy, driven by increased maternal hemoglobin levels, higher oxygen consumption by both the mother and fetus, fetal growth, iron deposition in the placenta, and the need to replace daily losses through stools, urine, and skin. Additionally, it accounts for blood loss during birth and the postpartum period as well as during lactation. Data on the prevalence of anemia in women indicate that the typical dietary iron intake is often inadequate to meet the needs of most women. Therefore, it is recommended that all pregnant women receive iron and folic acid supplements daily during pregnancy. The investigator in this study assessed the effectiveness of a computer-assisted teaching program regarding the distribution and utilization of iron and folic acid tablets during the antenatal period among primigravida mothers. This study aimed to create awareness of the promotion of primigravida mothers' health [19].

Data were collected using a structured interview schedule. A pre-experimental, one-group, pre-test and post-test design was employed to evaluate the knowledge of 40 mothers regarding the distribution and utilization of iron and folic acid tablets. The pre-test was conducted, followed by the implementation of a computer-assisted teaching program, with a post-test administered after seven days to measure the effectiveness of the program [20].

CONCLUSION

This study aimed to assess the effectiveness of a computer-assisted teaching program on knowledge regarding the distribution and utilization of iron and folic acid tablets during the antenatal period among primigravidae mothers in selected villages of Holenarasipura taluk. A pre-experimental design and an evaluative approach were used in this study. Data were collected from 40 participants using convenience sampling. Most primigravida mothers willingly participated in the study and had some knowledge of iron and folic acid tablets. They provided honest and open responses to the supplements. The study was grounded in Pender's Health Promotion Model. This study provides a comprehensive systematic framework for the effectiveness of computer-assisted teaching programs to enhance knowledge regarding iron and folic acid tablets among primigravida mothers.

Major Findings of the Study

The conclusion drawn based on the major findings of the study includes: primigravidae mothers' knowledge level of iron and folic acid tablets was found to be inadequate (65%) and moderate (35%) during the pre-test. In the post-test, 60% of the participants demonstrated adequate knowledge, whereas 40% showed moderate knowledge. The overall mean pre-test knowledge score was 43.3%, compared with a post-test score of 78.0%, resulting in a mean enhancement of 34.7%. Overall, the findings indicated that the computer-assisted teaching program on iron and folic acid tablets effectively improved the knowledge scores. The paired t-test conducted between the pre-test and post-test scores revealed a significant increase in knowledge, with a calculated value of 25.82, which exceeds the table value of 1.96 and is significant at the 5% level. There was a significant association between the knowledge scores and selected demographic variables, except for the education of the mother, occupation of the mother, family income/month, and Source of Information in both pre-test and post-test knowledge scores, Age at Menarche and education of husband in pre-test knowledge scores, age at marriage, gestational age, food pattern, and religion in post-test knowledge scores.

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