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Research Article

"A Comparative Study To Assess The Effect Of Video Assisted Teaching On Knowledge Regarding Vitamin B_{12} And Vitamin D_3 Deficiency Among Working And Non-Working Women Residing In Selected Urban Community."

Mrs. Sheetal Rajgude[1a*], Dr. Sujata Sawant[2b], Ms. Salomi Singh[3c], Mrs. Pratiksha Take[4c], Ms. Siyona Tijore[5c], Mr. Advait Shivarkar[6c]

a. Clinical Instructor, Dr D. Y. Patil Institute of Nursing Education, Pimpri, Pune.
b. Principal, Dr D. Y. Patil Institute of Nursing Education, Pimpri, Pune.
c. Third Year GNM Students, Dr D. Y. Patil Institute of Nursing Education, Pimpri, Pune.

***Corresponding Author:** Mrs. Sheetal Rajgude
*Clinical Instructor, Dr D. Y. Patil Institute of Nursing Education, Pimpri, Pune.

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ABSTRACT

Introduction: Vitamin B_{12} and Vitamin D_3 deficiencies are widely prevalent among women and are associated with multiple health consequences, including fatigue, anemia, osteoporosis, and neurological issues. Women, especially in urban communities, may face lifestyle-related risks that differ according to their working or non-working status. Educating them through innovative methods like video-assisted teaching may enhance their knowledge and promote preventive practices.

Objectives: The study aimed to assess and compare the effectiveness of video-assisted teaching on knowledge regarding Vitamin B_{12} and Vitamin D_3 deficiencies among working and non-working women residing in a selected urban community.

Methodology: A comparative research design was adopted. A purposive sample of working and non-working women from a selected urban community was recruited. Baseline knowledge was assessed using a structured questionnaire. A video-assisted teaching program was administered, followed by a post-test assessment after a specified interval. Data were analyzed using descriptive and inferential statistics to compare pre-test and post-test knowledge scores within and between groups.

Results: The findings revealed a significant increase in post-test knowledge scores among both working and non-working women following video-assisted teaching. Comparison between groups indicated differences in baseline knowledge and magnitude of knowledge gain, suggesting that age, education & religion influenced awareness levels.

Conclusion: Video-assisted teachings were effective in improving knowledge regarding Vitamin B_{12} and Vitamin D_3 deficiencies among women. The study highlights the importance of structured educational interventions in community health, emphasizing the need for tailored approaches for working and non-working women to address nutritional deficiencies and promote preventive health practices.

Keywords: Video-assisted teaching, Vitamin B_{12} deficiency, Vitamin D_3 deficiency, working women, non-working women, community health education.

INTRODUCTION

Micronutrient deficiencies are a major public health concern globally, particularly among women of reproductive and middle age groups. Among these, Vitamin B12 and Vitamin D3 deficiencies are highly prevalent but often underdiagnosed. Vitamin B12 plays a crucial role in red blood cell formation, neurological function, and DNA synthesis, while Vitamin D3 is essential for calcium absorption, bone health, and immune regulation[1]. Deficiency of these vitamins may lead to anemia, fatigue, cognitive decline, osteoporosis, and an increased risk of chronic diseases[2].

Recent studies indicate that urban populations, despite better healthcare access, are increasingly affected due to sedentary lifestyles, inadequate dietary intake, and limited sun exposure. Women, especially those engaged in employment or domestic roles, may differ in their dietary patterns, stress levels, and lifestyle practices, influencing their risk of deficiencies. Working women may experience higher stress and irregular dietary habits, whereas non-working women may have limited health awareness and restricted outdoor activities, both of which contribute to vulnerability[3].

Health education has been recognized as a cornerstone in the prevention of micronutrient deficiencies. Traditional teaching methods are often less engaging and may fail to create sustained behavioral change. Video-assisted teaching, an innovative approach, combines visual, auditory, and narrative elements to enhance comprehension and retention of knowledge. It has been shown to be more effective than conventional teaching in improving awareness and promoting health-related practices[4].

Given this background, the present study was undertaken to assess and compare the effect of video-assisted teaching on knowledge regarding Vitamin B12 and Vitamin D3 deficiencies among working and non-working women residing in a selected urban community. The findings are expected to guide community health interventions and provide evidence for the use of video-based educational tools in preventive health programs.

BACKGROUND OF THE STUDY:

Micronutrient deficiencies continue to be a silent epidemic, particularly in developing countries like India. Among these, Vitamin B12 and Vitamin D3 deficiencies have emerged as significant public health concerns due to their high prevalence and long-term consequences. Vitamin B12, a water-soluble vitamin, is vital for hematopoiesis, neurological functioning, and DNA synthesis. Deficiency can result in megaloblastic anemia, fatigue, memory impairment, and peripheral neuropathy[2]. Similarly, Vitamin D3, a fat-soluble vitamin synthesized primarily through sun exposure, plays an essential role in calcium metabolism, bone mineralization, and immune regulation. Deficiency of Vitamin D3 leads to osteoporosis, osteomalacia, muscle weakness, and increased susceptibility to chronic diseases such as diabetes and cardiovascular disorders[3].

In India, despite abundant sunlight, Vitamin D deficiency is reported in 70–90% of the population due to lifestyle modifications, reduced outdoor activities, and inadequate dietary intake. Likewise, studies have shown that Vitamin B12 deficiency affects nearly half of the Indian adult population, largely due to vegetarian diets and poor supplementation practices. Women are more vulnerable due to physiological demands, dietary restrictions, and social determinants of health. The problem is further compounded in urban settings, where sedentary lifestyles, long working hours, and stress compromise both nutrition and sunlight exposure[6].

Health education is a proven strategy to address knowledge gaps and promote preventive health behaviors. Conventional methods of health education, though effective to some extent, may not sufficiently engage adult learners. Video-assisted teaching has gained importance as it combines audio-visual elements, improves comprehension, and facilitates better retention compared to traditional lecture methods[4].

Working and non-working women differ significantly in their exposure to health information, dietary patterns, and lifestyle practices. Therefore, assessing and comparing the impact of video-assisted teaching on their knowledge about Vitamin B12 and Vitamin D3 deficiencies is crucial for designing targeted interventions in community health practice.

NEED OF THE STUDY

Although the burden of Vitamin B12 and Vitamin D3 deficiencies is well-documented, awareness among women remains inadequate, particularly in urban communities. Working women often neglect dietary practices due to time constraints and occupational stress, while non-working women may lack adequate exposure to health education resources. Both groups are at risk but require different strategies of intervention. Video-assisted teaching represents an innovative educational method that caters to diverse learners, improves motivation, and ensures effective message delivery. By enhancing knowledge, such interventions can foster dietary modifications, promote supplementation, and encourage preventive behaviors like sun exposure.

PROBLEM STATEMENT

"A comparative study to assess the effect of video assisted teaching on knowledge regarding vitamin B12 and D3 deficiency among working and non-working women residing in selected urban community."

OBJECTIVES OF THE STUDY

1. To assess the knowledge regarding vitamin B12 and vitamin D3 deficiency among working and non-working women.
2. To evaluate the effect of video-assisted teaching on knowledge regarding vitamin B12 and vitamin D3 deficiency among working and non-working women.
3. To find the association of knowledge with selected demographic variables.
4. To compare the knowledge of vitamin B12 and D3 deficiency between working and non-working women.

HYPOTHESIS

H_0-- There is no significant difference in the knowledge of pretest and post-test score regarding Vitamin B12 and Vitamin D3 deficiency among working and non-working women.
H_1--There is a significant difference in the knowledge of pretest and post-test scores regarding Vitamin B12 and Vitamin D3 deficiency among working and non-working women.

RESEARCH METHODOLOGY

Research approach: The research approach adopted for this study is a quantitative research approach.
Research design: The research design used for this research is quasi-experimental pretest posttest research.
Variables
Independent Variable: The independent variable in this study is the video assisted teaching.
Dependent Variable: The dependent variable in this study is knowledge of working and non-working women.
Setting of the study: Urban community.
Sample size: The sample size for this study is 200.
Sampling Technique: Purposive sampling technique.
Inclusion criteria

- Working and nonworking female who willing to participate.
- Women who are available at the time of data collection.
- Age between 21 to 50 years

Exclusion criteria

- Women with cognitive or hearing impairment.

Tools and Techniques

• Section A: Demographic data.
• Section B: Knowledge Regarding Vitamin B_{12} Deficiency.
• Section C: Knowledge Regarding Vitamin D_3 Deficiency.

Scoring: 1 mark per correct answer; total score categorized as
Poor (20% and below),
Average (21-40%),
Good (41–60%),
Very Good (61–80%),
Excellent (81-100%).

PILOT STUDY

A pilot study was conducted on 19.06.2025 at the urban area, Pimpri, Pune-18.

RESULT:

Section I: Description of samples (working and non-working women) based on their personal characteristics

Demographic Variable	Working		Nonworking	
	Freq	%	Freq	%
Age				
21-25 Years	27	27.8%	22	21.4%
26-30 Years	33	34.0%	39	37.9%
31-35 Years	16	16.5%	11	10.7%
36-40 Years	11	11.3%	12	11.7%
41-45 Years	9	9.3%	13	12.6%
46-50 Years	1	1.0%	6	5.8%
Education				
Primary education	5	5.2%	38	36.9%
Secondary education		30.9%	29	28.2%
Higher and above	61	62.9%	20	19.4%

No formal education	1	1.0%	16	15.5%
Religion				
Hindu	64	66.0%	70	68.0%
Muslim	7	7.2%	7	6.8%
Buddhist	18	18.6%	22	21.4%
Christian	8	8.2%	4	3.9%
Marital status				
Married	63	64.9%	51	49.5%
Unmarried	34	35.1%	52	50.5%

Table 1: Description of samples (working and non-working women) based on their personal characteristics in terms of frequency and percentage. N=97, 103

Table no 1 indicates that, 34% of them had age 26-30 years, 62.9% of them had higher secondary and above education, 66% of the working women were Hindu, 64.9% of the working women were married, 37.9% of them had age 26-30 years, 36.9% of the nonworking women had primary education,68% of the nonworking women were Hindu, 50.5% of them were unmarried.

Section II: Analysis of data related to the knowledge regarding vitamin B12 and vitamin D3 deficiency among working and non-working women

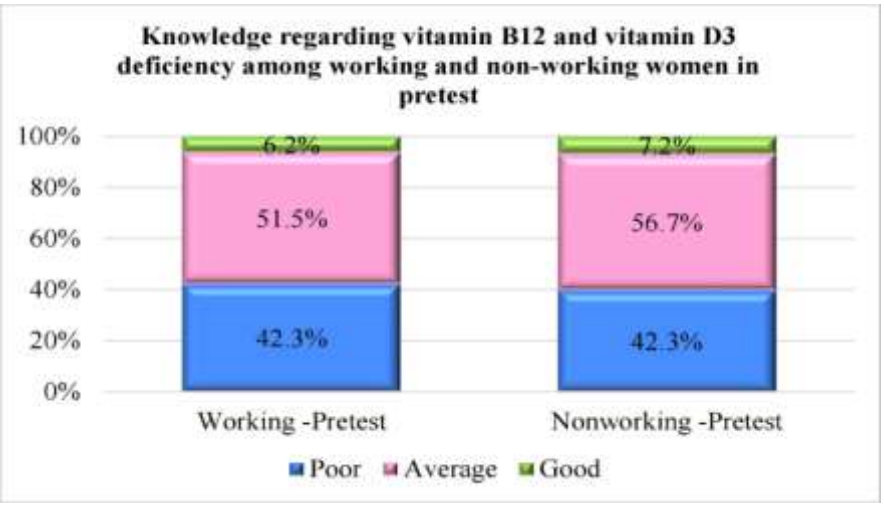

Figure no 1 showed that the 42.3% of the working women had poor knowledge, 51.5% of them had average knowledge and 6.2% of them had good knowledge regarding vitamin B12 and vitamin D3 deficiency. 39.8% of the nonworking women had poor knowledge, 53.4% of them had average knowledge and 6.8% of them had good knowledge regarding vitamin B12 and vitamin D3 deficiency.

Section III: Analysis of data related to the effect of video assisted teaching on knowledge regarding vitamin B12 and vitamin D3 deficiency among working and nonworking women

Knowledge	**Working**				**Nonworking**			
	Pretest		**Posttest**		**Pretest**		**Posttest**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
Poor	41	42.3%	0	0.0%	41	39.8%	0	0.0%
Average	50	51.5%	4	4.1%	55	53.4%	8	7.8%
Good	6	6.2%	93	95.9%	7	6.8%	95	92.2%

Table 2: Effect of video assisted teaching on knowledge regarding vitamin B12 and vitamin D3 deficiency among working and non -working women N=97, 103

Table no 2 indicated that the, in pretest, 42.3% of the working women had poor knowledge, 51.5% of them had average knowledge and 6.2% of them had good knowledge regarding vitamin B12 and vitamin D3 deficiency. In posttest, 4.1% of the working women had average knowledge and 95.9% of them had good knowledge regarding vitamin B12 and vitamin D3 deficiency.

In pretest, 39.8% of the nonworking women had poor knowledge,53.4% of them had average knowledge and 6.8% of them had good knowledge regarding vitamin B12 and vitamin D3 deficiency. In posttest, 7.8% of the nonworking women had average knowledge and 92.2% of them had good knowledge regarding vitamin B12 and vitamin D3 deficiency. This indicates that there is remarkable improvement in the knowledge among working and nonworking women after video assisted teaching

Table 3: Paired t-test for the effect of video assisted teaching on knowledge regarding vitamin B12 and vitamin D3 deficiency among working and non - working women N=97, 103

Group	Test	Mean	SD	t	df	p-value
Working	Pretest	10.2	4.0	21.4	96	0.000
	Posttest	19.6	1.7			
Non working	Pretest	9.8	4.3	20.9	102	0.000
	Posttest	19.3	1.7			

Table no 3 indicates that the video assisted teaching is significantly effective in improving the knowledge among non-working women regarding vitamin B12 and vitamin D3 deficiency.

Section IV: Analysis of data related to of the comparison of knowledge of vitamin B12 and D3 deficiency between working and non-working women

Table 4: Two sample z-test for the comparison of knowledge of vitamin B12 and D3 deficiency between working and non-working women N=97, 103

Test	Working		Non-working		z	p-value
	Mean	SD	Mean	SD		
Pretest	10.2	4.0	9.8	4.3	0.7	0.237
Posttest	19.6	1.7	19.3	1.7	1.1	0.141

Table no 4 indicated that the There was no significant difference in knowledge scores among working and nonworking women regarding vitamin B12 and D3 deficiency in pretest. Similarly, there was no significant difference in their knowledge scores among working and nonworking women regarding vitamin B12 and D3 deficiency in posttest.

Figure no 2: Knowledge item analysis

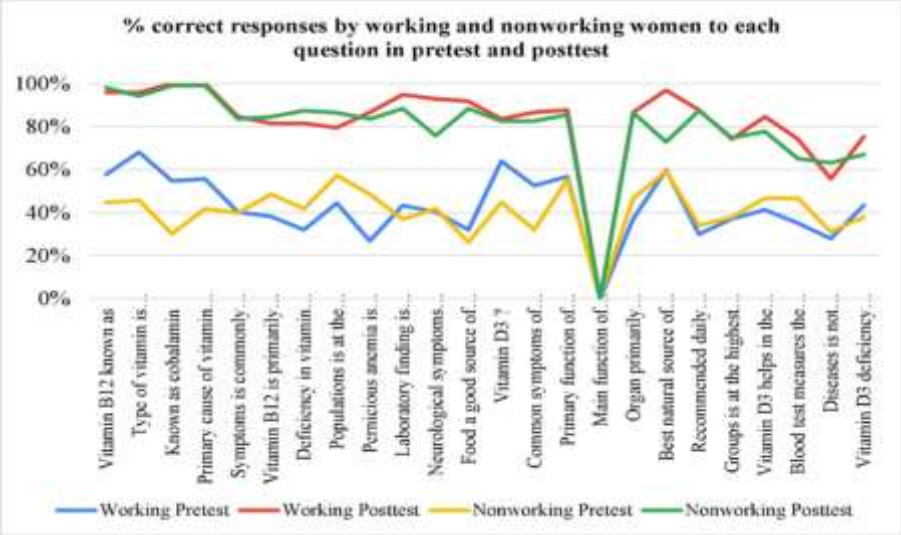

Figure 2 presents the frequency and percentage of the correct responses by working and nonworking women to each question in pretest and posttest. In both the groups, correct responses increased remarkably in posttest. This indicates that the video assisted teaching is effective in improving the knowledge among working and nonworking women regarding vitamin B12 and vitamin D3 deficiency.

Section V: Analysis of data related to the association of knowledge with selected demographic variables

Table 5: Fisher's exact test for the association of knowledge among working women with selected demographic variables N=97

Demographic variable		Knowledge			p-value
		Poor	Average	Good	
Age	21-25 Years	18	8	1	0.000
	26-30 Years	5	28	0	
	31-35 Years	13	1	2	
	36-40 Years	1	7	3	
	41-45 Years	4	5	0	
	46-50 Years	0	1	0	
Education	Primary education	2	3	0	0.169
	Secondary education	8	18	4	
	Higher and above	30	29	2	
	No formal education	1	0	0	
Religion	Hindu	32	29	3	0.050
	Muslim	3	3	1	
	Buddhist	5	13	0	
	Christian	1	5	2	
Marital status	Married	26	32	5	0.748
	Unmarried	15	18	1	

Table no 5 shows that the Since p-values corresponding to age is small (less than 0.05), the demographic variable age was found to have significant association with the knowledge among working women regarding vitamin B12 and vitamin D3 deficiency.

Table 6: Fisher's exact test for the association of knowledge among nonworking women with selected demographic variables N-103

Demographic variable		Knowledge			p-value
		Poor	Average	Good	
Age	21-25 Years	5	14	3	0.000
	26-30 Years	13	26	0	
	31-35 Years	9	2	0	
	36-40 Years	4	8	0	
	41-45 Years	8	3	2	
	46-50 Years	2	2	2	
Education	Primary education	26	11	1	0.000
	Secondary Education	3	22	4	
	Higher and above	5	14	1	
	No formal education	7	8	1	
Religion	Hindu	37	31	2	0.000
	Muslim	1	6	0	
	Buddhist	2	18	2	
	Christian	1	0	3	
Marital status	Married	25	23	3	0.207
	Unmarried	16	32	4	

Table no 6 shows that the Since p-values corresponding to age, education and religion is small (less than 0.05), the demographic variables age, education and religion were found to have significant association with the knowledge among nonworking women regarding vitamin B12 and vitamin D3 deficiency.

CONCLUSION:

The study revealed that video-assisted teaching significantly improved knowledge regarding Vitamin B12 and Vitamin D3 deficiencies among both working and non-working women in an urban community. Although baseline knowledge differed between the groups, the intervention was effective in enhancing awareness in both. This highlights the value of video-based education as a practical tool in community health programs to address micronutrient deficiencies and promote preventive practices.

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