

ORIGINAL ARTICLE

## Effectiveness of a Structured Teaching Programme on Knowledge Regarding Vestibular Rehabilitation Exercises and their Impact on Dizziness Handicap Among Patients with Vertigo

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### Abstract

**Background:** Vertigo is a common presenting complaint among patients visiting the emergency department. Patients with vertigo experience a rotational motion which is often misunderstood as light headedness. Vestibular rehabilitation exercises can be helpful in managing vertigo related balance problems.

**Objectives:** 1. To assess the existing level of knowledge regarding vestibular rehabilitation exercises among vertigo patients; 2. To evaluate the effectiveness of structured teaching programme on knowledge regarding vestibular rehabilitation exercises among vertigo patients; 3. To determine the association between post-test knowledge regarding vestibular rehabilitation exercises among vertigo patients and their selected demographic variables.

**Methodology:** Pre-experimental one group pre-test post-test design was selected for the study. Twenty patients suffering with vertigo were selected through purposive sampling technique. A self-structured, knowledge questionnaire was used to assess the knowledge of patients with vertigo.

**Results:** The findings of the present study revealed that all the 20 participants (100%) had inadequate knowledge in the pre-test, with a mean percentage score of 33.5%. In the post-test, 14 participants (70%) demonstrated adequate knowledge, while 6 participants (30%) had moderately adequate knowledge, with a mean percentage of 87%. The obtained t-value 16.46 was found to be statistically significant at  $P < 0.05$  level.

**Conclusion:** The study concluded that structured teaching programmes are effective in enhancing knowledge regarding vestibular rehabilitation exercises among patients with vertigo.

**Keywords:** Structured teaching programme, Vestibular rehabilitation, Dizziness handicap, Vertigo patients, ENT OPD

### Introduction

Dizziness is subjective in nature. The term dizziness is used to express sensations like feeling of weakness,

fainting, woozy or unsteadiness.<sup>1</sup> Dizziness is one of the most common complaints among the elderly, affecting approximately 30% of older adults. It is more prevalent

in women (36%) than in men (22%).<sup>2</sup> According to the National Centre for Biotechnology Information, the annual incidence of dizziness and vertigo ranges from 15% to 20% in adults.<sup>3,4</sup> The prevalence of dizziness increases with advancing age.<sup>2</sup> Generally dizziness can be categorized into four types: vertigo, disequilibrium, presyncope, or lightheadedness.<sup>1</sup> Although the terms dizziness and vertigo are often used synonymously, they refer to distinct conditions.

Vertigo is not a disease; it is an illusion of rotational motion. The patient feels that the surroundings are moving, causing light-headedness and disequilibrium.<sup>5</sup> Patients with vertigo experience difficulty in performing the activities of daily living due to instability. Although vertigo can affect individuals of all ages, its incidence is higher among those over the age of 65.

Depending on the location of the lesions, vertigo can be either peripheral or central. If the lesions are located in the vestibular region, affecting the vestibular nerve or the labyrinth, it is referred as peripheral vertigo and central vertigo occurs when the lesions involve the brain stem or cerebellum.<sup>6</sup> Vertigo is caused by a multitude of factors. While diagnosing vertigo, it is important to differentiate between the central and peripheral causes, as emergency care is required in central vertigo.<sup>7-9</sup> Irrespective of the cause and type, vertigo affects the quality of life of patients leading to partial or complete dependence for activities of daily living.<sup>8,10-12</sup>

Dizziness can result from various causes, including Meniere's disease, labyrinthitis, hypoglycaemia, dehydration, hypotension, and other neurological disorders.<sup>2,13</sup>

The management of dizziness depends on an accurate diagnosis to identify and treat the underlying cause. Apart from conventional medical management, other measures like vestibular rehabilitation, cognitive behavioural therapy and Tai Chi exercises have proven to be effective in managing dizziness.<sup>14,15</sup>

Vestibular rehabilitation therapy includes a series of exercises that help improve the balance and gaze functions, thereby reducing the restrictions of daily living activities and improving the quality of life of dizziness patients.<sup>16</sup>

## Objectives

1. To assess the existing level of knowledge regarding vestibular rehabilitation exercises among vertigo

patients; 2. To evaluate the effectiveness of structured teaching programme on knowledge regarding vestibular rehabilitation exercises among vertigo patients; 3. To determine the association between post-test knowledge regarding vestibular rehabilitation exercises among vertigo patients and their selected demographic variables.

## Hypothesis

H1: There is a significant difference between pre-test and post-test knowledge scores regarding vestibular rehabilitation exercises for reducing dizziness handicap.

H2: There is a significant association between post-test knowledge scores regarding vestibular rehabilitation exercises for reducing dizziness handicap and the selected demographic variables.

## Criteria for sample selection

**Inclusion criteria:** Patients understanding English and Kannada languages, willing to be part of the study and available at the time of data collection were included.

**Exclusion criteria:** Uncooperative patients, those who were ill, and individuals unwilling to perform vestibular rehabilitation exercises were excluded from the study.

## Materials & Methods

The current research was conducted using a pre-experimental one group pre-test post-test design at RRMCH Hospital, Bangalore. Data were collected from twenty patients with dizziness attending the ENT OPD, selected through a non-probability purposive sampling technique, using a self-structured knowledge questionnaire. The study was conducted after obtaining informed voluntary consent from the participants, assuring them that their responses would be kept confidential and used solely for research purposes. Additionally, approval was obtained from the institutional ethical committee before commencing the study.

The tool included demographic details such as age (in completed years), gender, religion, family type, occupation, education, income per month and marital status. Clinical variables assessed included co-morbid conditions, previous history of dizziness, medication consumption for dizziness treatment, and self-practiced measures to reduce dizziness and vertigo. A pre-tested, self-structured knowledge questionnaire comprising 22 items was used to assess knowledge regarding vestibular rehabilitation exercises. This questionnaire was divided into two sections: knowledge regarding dizziness (5

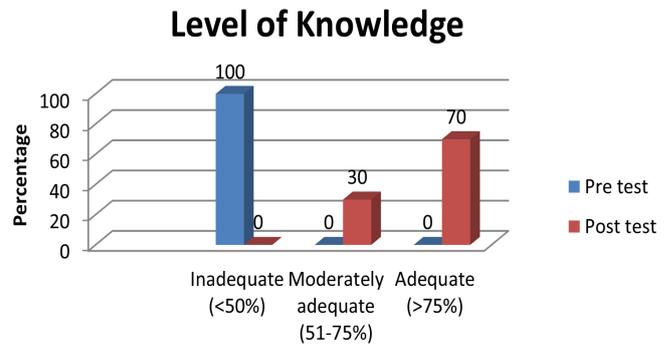
items), and knowledge about vestibular rehabilitation exercises (17 items).

The questionnaire was distributed to the study participants, who were given 45-50 minutes to complete it, including the demographic data. Following this, participants received a 60 minute session on the importance and techniques of performing vestibular rehabilitation exercises. The post-test was conducted one week later to assess the gain in knowledge and the effectiveness of the intervention. The total duration of the study was 45 days. A correct response was scored as ‘one’ point, while an incorrect response was scored ‘zero’. The maximum possible score was 22. The obtained data were entered in Excel sheet and analyzed using descriptive and inferential statistics.

**Results**

According to the findings relevant to sociodemographic variables, the majority of study participants 11 (55%) were above 51 years of age, with females constituting 11 (55%) of the sample. Most participants 14 (70%) belonged to nuclear families. About 15 (75%) of the participants were followers of the Hindu religion, and 9 (45%) were unemployed. A total of 11 (55%) participants reported a monthly income of more than Rs.15,000/- and 16 (80%) participants were married.

Figure 1 shows that in the pre-test, all the 20 (100%) participants demonstrated inadequate knowledge regarding vestibular rehabilitation exercises. Post test findings revealed that 14 (70%) participants demonstrated adequate knowledge, while 6 (30%) showed moderately



**Figure 1:** Comparison of knowledge levels before and after the intervention

adequate knowledge. None of the participants exhibited inadequate knowledge.

Table 1 depicts the mean and standard deviation of the knowledge scores of patients with dizziness. An increase in mean knowledge scores from pre-test to post-test, 6.7±1.65 and 17.4±1.27, respectively, was noted indicating a significant increase in knowledge post intervention ( $P<0.05$ ).

Table 2 presents the results of Chi square analysis conducted to determine the association between knowledge regarding vestibular rehabilitation exercises aimed at reducing dizziness handicap among vertigo patients and their selected demographic variables. The variables such as gender, type of family and education were found to have a statistically significant association at 5% level. In contrast, variables such as age, religion, occupation, income per month and marital status did not show any statistically significant association at the same level.

**Table 1:** Mean, standard deviation and “t” value of knowledge scores

Aspect	Mean	Mean %	Standard Deviation	df	Paired "t" value	P-value
Pre-test	6.7	33.5	1.65	19	16.46	$p<0.05$
Post-test	17.4	87	1.27			
Enhancement	11%	53.5	8.62			

**Table 2:** Association between the knowledge scores and demographic variables

Sl. No	Variables	Frequency	Percentage	Level of Knowledge			Chi square value
				Adequate	Moderately adequate	Inadequate	
1	<b>Age (years)</b>						8.58 NS df=3
	20-30	3	15	0	2	1	
	31-40	1	5	0	1	0	
	41-50	5	25	0	5	0	
	Above 50	11	55	0	11	0	

2	<b>Gender</b>						0.84 S df=1
	Male	9	45	0	9	0	
	Female	11	55	0	10	1	
3	<b>Religion</b>						11.5 NS df=3
	Hindu	15	75	0	15	0	
	Muslim	3	15	0	2	1	
	Christian	2	10	0	2	0	
	Others	0	0	0	0	0	
4	<b>Type of Family</b>						2.44 S df=2
	Joint	14	70	0	14	0	
	Nuclear	6	30	0	5	1	
	Extended	0	0	0	0	0	
5	<b>Occupation</b>						1.27 NS df= 2
	Private/ Government	4	20	0	4	0	
	Business	7	35	0	7	0	
	Unemployed	9	45	0	8	1	
6	<b>Education</b>						5.77 S df=3
	Illiterate	5	25	0	4	1	
	Primary	10	50	0	10	0	
	Secondary	4	20	0	4	0	
	Graduate	1	5	0	1	0	
7	<b>Income per month</b>						19.99 NS df= 2
	Rs.5000-10000	1	5	0	0	1	
	Rs.10001-15000	8	40	0	8	0	
	Above Rs.15001	11	55	0	11	0	
8	<b>Marriage</b>						27.88 NS df= 2
	Married	16	80	0	16	0	
	Unmarried	3	15	0	3	0	
	Separated	1	5	0	0	1	

## Discussion

The findings of the current study demonstrate that the structured teaching programme was effective in improving the knowledge and understanding of vestibular rehabilitation exercises and their role in reducing the symptoms of dizziness. A statistically significant difference was observed between the mean pre-test and post-test knowledge scores. Also, a significant association was identified between knowledge levels and selected demographic variables at 0.05 level of significance.

A study conducted by Malathi T *et al.* reported that 86.7% of participants experienced severe dizziness handicap during the pretest. However, following the practice of vestibular rehabilitation exercises, only 13.3% of participants continued to report dizziness,

while no significant changes were observed in the control group.<sup>17</sup> Ibrahim NMK *et al.* reported the effectiveness of vestibular rehabilitation therapy on improving the balance abnormalities in patients suffering with postural perceptual dizziness.<sup>18</sup> Selvaraj G *et al.* found nurse-led vestibular rehabilitation programme incorporated with yoga to be highly effective in reducing vertigo symptoms.<sup>19</sup> A study conducted by Benjamin T *et al.*, to determine the effect of video assisted teaching programme about vestibular rehabilitation exercises on knowledge and quality of life of patients suffering with vertigo, reported significant improvements in knowledge and quality of life.<sup>20</sup>

## Limitations

The study was limited by a smaller sample size and was conducted in a single, specified setting.

## Recommendations

- An experimental study with a control group can be undertaken.
- Future studies can explore the use of different methods of teaching.

## Conclusion

Based on the results, it was concluded that teaching programmes are effective in enhancing individuals' knowledge and understanding. Therefore, more educational and informative teaching activities must be undertaken to support people overcome their health-related issues.

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## Conflicts of Interest

None.

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**Ethical approval:** Approved from RajaRajeswari College of Nursing

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