AN EXPERIMENTAL STUDY TO EVALUATE THE IMPACT OF HEALTH EDUCATION ON DENGUE FEVER AWARENESS AND MANAGEMENT AMONG CAREGIVERS OF PATIENTS ADMITTED TO COMMUNITY HEALTH CENTRE (CHC) IN GANDHINAGAR, BHOPAL, MADHYA PRADESH

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Abstract

Dengue fever (DF) has emerged as a significant public health concern, with a notable increase in cases in recent years. Globally, it is estimated that there are 400 million infections and 100 million symptomatic cases annually. In India, an average of 100,690 cases was reported annually between 2013 and 2017. In 2018, India reported 110,473 cases of Dengue fever. The overall prevalence of Dengue fever in India was recorded at 48.7%. Given the growing burden of the disease, this study aimed to assess the effectiveness of an instructional module in enhancing knowledge about Dengue fever and its management among caregivers of patients admitted to the Community Health Centre (CHC) in Gandhinagar, Bhopal. The results revealed a significant improvement in the caregivers' knowledge, with the mean post-test score (19.3) being higher than the pre-test score (9.9). A statistical analysis using the t-test ($t=12.6$, $P<0.05$) confirmed a significant difference, indicating that the self-instructional module effectively enhanced the caregivers' understanding of Dengue fever and its management.

Keywords: Assessment, Effectiveness, Health education, Dengue fever, Caregivers, Patients.

Introduction

Dengue fever (DF) has emerged as a significant public health concern worldwide, with approximately 50% of the global population residing in areas where the disease transmission is conducive. In recent years, the incidence of Dengue fever has risen sharply. In India, the overall prevalence of Dengue fever stands at 48.7% (https://www.thelancet.com). Effective fluid management and close monitoring are essential in preventing complications and minimizing mortality. Consequently, the role of caregivers is crucial in the nursing management of Dengue patients alongside medical intervention.

Need for the Study

Dengue fever is one of the most prevalent tropical diseases globally. The treatment primarily involves supportive care, including bed rest, antipyretics, and analgesics. However, in some cases, the disease may progress to life-threatening conditions such as Dengue Hemorrhagic Fever (DHF) or Dengue Shock Syndrome (DSS). Early diagnosis, timely hydration, appropriate treatment, and continuous follow-up care are essential in preventing fatal outcomes from severe forms of the disease. Thus, caregivers must be knowledgeable about the signs and symptoms of severe Dengue and be able to provide the necessary care and seek medical attention promptly. This highlights the importance of preparing a self-instructional module on Dengue fever and its management to equip caregivers with the essential knowledge to care for their patients, family members, and the community.

Objectives

1. To assess the pre-test knowledge regarding Dengue fever and its management among caregivers of patients admitted to CHC, Gandhinagar.
2. To assess the post-test knowledge regarding Dengue fever and its management among caregivers of patients admitted to CHC, Gandhinagar.
3. To determine the significant difference between the pre-test and post-test knowledge levels among caregivers.
4. To examine the association between pre-test knowledge levels regarding Dengue fever and selected demographic variables.

Hypothesis

The mean post-test knowledge score of caregivers regarding Dengue fever and its management will be significantly higher than the mean pre-test knowledge score at the 0.05 significance level. Additionally, there will be a significant association between the pre-intervention knowledge score of caregivers and their selected demographic variables, such as age, education status, and family type.

Research Methodology

Research Design:

The research design selected for the study was a Pre-experimental one-group pre-test-post-test design.

The design can be represented as:

E → O1 → X → O2

Where:

- **E** = Experimental group (only one group).
- **O1** = Pre-test knowledge score.
- **X** = Treatment variable (self-instructional module).
- **O2** = Post-test knowledge score.

Sampling Technique:

The sample for this study consisted of 60 caregivers of patients admitted to CHC, Gandhinagar, Bhopal, selected using a convenient sampling technique.

Development and Description of the Tools

Description of the Tool:

The tool consisted of two sections:

Section 1: This section collected demographic information, including 6 items related to the caregiver's age, education status, family type, family income, source of information, and other relevant details.

Section II: This section contained 30 knowledge items, categorized into the following areas:

- Meaning of Dengue Fever
- Causes and risk factors
- Mode of transmission
- Signs and symptoms
- Complications
- Management and prevention

The items were objective-type multiple-choice questions, each with one correct answer. Each correct answer was assigned a score of one point, and each incorrect answer was given a score of zero.

Table 1: The maximum total score of the knowledge questionnaire was 30. Score was graded as follows.

Score	Grading
1-6	Poor
7-12	Average
13-18	Good
19-24	Very good
25-30	Excellent

Reliability of the Tool

The reliability coefficient of the knowledge test was calculated using Karl Pearson's formula. The reliability coefficient was found to be 0.81, indicating that the tool was highly reliable. No modifications were necessary, and the tool was determined to be valid, reliable, and feasible for the study.

Development of the Self-Instructional Module

The self-instructional module was developed based on a comprehensive review of relevant research and non-research literature, discussions with experts, and the investigator's personal experience. The module was specifically designed to enhance the knowledge of caregivers of patients admitted to the CHC, Gandhinagar.

Pilot Study

A pilot study was conducted from February 1, 2023, to February 10, 2023. The samples used in the pilot study were excluded from the main study. Data analysis was performed using both descriptive and inferential statistics. The reliability coefficient of the knowledge test was calculated using Karl Pearson's formula. Both the tool and the information booklet were found to be feasible and practical. No further modifications were made to the tool or the self-instructional module.

Analysis and Interpretation

The raw data was collected and entered into a master sheet for statistical analysis. The data was analyzed and interpreted using both descriptive and inferential statistics. The findings have been organized and presented in the following sections.

Section I: Sample Characteristics

Table 2: Frequency and Percentage Distribution of Sample Characteristics.

S. No	Selected demographic variables	Frequency total	Percentage (%)
1	Age in years		
	25-40 years	20	33.3
	41 – 55 years	40	66.6
2	Education of care givers		
	Non literate	20	33.3
	Primary level	28	46.66
	Secondary level	12	20
	Higher secondary level	0	0
3	Type of family		
	Nuclear family	9	15
	Joint family (up to 6 members)	22	36.66
	Extended family up to 8 members	28	46.66
	Extended family more than 8 members	1	1.66
4	Source of information		
	Family members	27	45
	Community	24	40
	Media	6	10

	Health team	3	5
5	Family income per month		
	Up to 2500/-	24	40
	2501-5000/-	21	35
	5001-10,000/-	9	15
	>10,000/-	6	10

Section 11: Knowledge questionnaire

Section 11-1. The pre-test knowledge score of care givers of patients admitted in CHC, Gandhi Nagar regarding Dengue fever and its management.

Table 3: Pre-test knowledge score of the sample (N=60)

S. No.	Score	Grading	Pretest		Mean	S.D.
			Frequency	Percentage (%)		
1	1-6	Poor	21	35%	9.9	4.7
2	7-12	Average	24	40%		
3	13-18	Good	12	20%		
4	19-24	Very good	3	5%		
5	25-30	Excellent	0	0%		

Pre-test mean score=9.9, S. D=4.7

The data revealed that 35% of caregivers had poor knowledge (score range: 1-6), 40% had average knowledge (score range: 7-12), 20% had good knowledge (score range: 13-18), 5% had very good knowledge (score range: 19-24), and none of the caregivers had excellent knowledge (score range: 25-30). The mean pre-intervention knowledge score was 9.9, with a standard deviation of 4.7.

Section II-2: Post-Test Knowledge Scores of Caregivers Regarding Dengue Fever and Its Management

Table 4: Post-test knowledge score of the sample

S. No	Score	Grading	Post- test		Mean	S.D.
			Frequency	Percentage (%)		
1	1-6	Poor	0	0	19.3	3.4
2	7-12	Average	6	10%		
3	13-18	Good	30	50%		
4	19-24	Very good	15	25%		
5	25-30	Excellent	9	15%		

Pre-test mean score=19.3, S.D =3.4

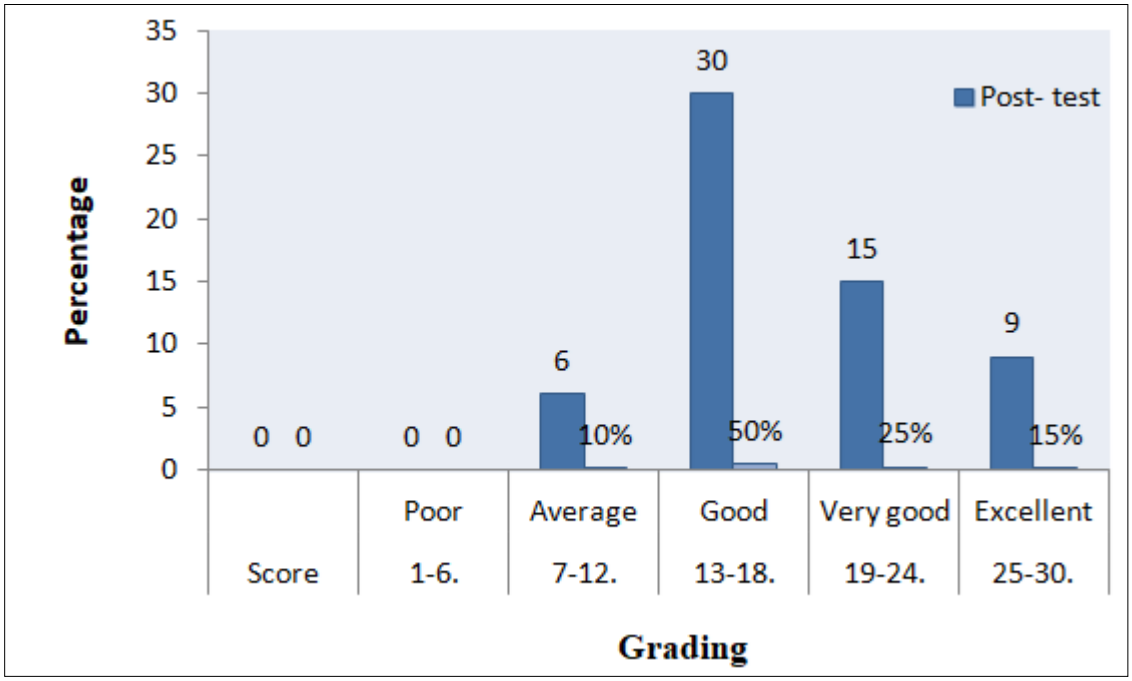

Figure 1: Bar diagram showing percentage distribution of pre-test and post-test knowledge score

Section 11- 3: Effectiveness of self-instructional module in terms of gain in knowledge scores.

T**able 5: Mean, Standard Deviation and 'T' Value of Pre-test and Post-test knowledge score (N=6s0)**

Knowledge	Mean(x)	Mean percentage	SD	Mean difference	T- Value
Pre intervention	9.9	33.91	4.7	9.4	12.6
Post intervention	19.3	66.09	3.4		

't' (59) =12.6, P< 05

Results

The data presented in Table No. 5 indicates that the mean post-test score (66.09%) is significantly higher than the mean pre-intervention score (33.91%). The dispersion of pre-test scores (SD = ±4.7) is greater than that of the post-test scores (SD = ±3.4). The computed t-value shows a significant difference between the pre-test and post-test knowledge scores (t59 = 12.6, p < 0.05). These findings suggest that the self-instructional module was effective in increasing the knowledge scores of caregivers.

Section II-4: Association Between Pre-Test Knowledge Scores and Selected Demographic Variables

The findings in this section reveal that the computed chi-square value indicates that 50% of the values showed no significant difference, while the remaining 50% demonstrated a significant difference in various demographic variables concerning the pre-test knowledge scores of caregivers of patients admitted to CHC, Gandhinagar, Bhopal.

Discussion, Summary, Conclusion, Recommendations, Implications, and Limitations

Discussion

The data indicates that caregivers of patients admitted to CHC, Gandhinagar, lacked sufficient knowledge regarding Dengue fever and its management, as reflected by the mean pre-test score of 9.9 (on a scale of 1-30). These findings suggest that the caregivers' pre-test knowledge was inadequate in most areas related to Dengue fever and its management. This is consistent with the findings of P. Kosalya (2014), who evaluated the effectiveness of a video teaching program on knowledge and practices regarding the control and prevention of Dengue fever among housewives. Her study found that video-assisted teaching effectively enhanced knowledge and practices (t-value = 14.8, p > 0.05).

Recommendations

1. A similar study should be conducted with a larger sample using random sampling, to allow for broader generalization of the findings.
2. A comparative study could explore the effectiveness of planned teaching programs versus self-instructional modules.
3. Future research could investigate the occurrence of opportunistic infections among Dengue fever patients.
4. A similar study with a control group could be undertaken to further validate the effectiveness of the intervention.
5. Comparative studies should evaluate the effectiveness of different teaching strategies, including self-instructional modules, peer evaluation, and education by healthcare teams.

Implications

The findings of this study have significant implications across several areas:

a) **Nursing Practice**: Health education is an essential tool in healthcare. It is a cost-effective intervention that can significantly improve knowledge regarding Dengue fever, its management, and preventive measures at home.

b) **Nursing Education**: With a focus on self-reliance and client preparation in the healthcare system, nurses play a critical role in teaching patients about Dengue fever, its management, and preventive measures. Nursing curricula should place greater emphasis on self-care in communicable diseases, particularly Dengue fever.

c) **Community Health Nursing**: Home-based individual teaching programs are highly effective in improving knowledge about preventive measures, self-awareness, and self-care. Community-based screening programs also prove to be effective in identifying cases in endemic areas.

d) **Nursing Administration**: Nurse administrators are responsible for organizing in-service education programs, workshops, seminars, and conferences for staff and students to raise awareness about Dengue fever. This knowledge can then be passed on to the public to aid in the management and prevention of Dengue.

e) **Nursing Research**: Research could focus on assessing the knowledge of Dengue fever prevention and management, including the handling of Dengue Hemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS).

Limitations

The study has the following limitations:

1. The findings cannot be generalized due to the small sample size and the convenience sampling technique.
2. Limited time was available for data collection.
3. A structured knowledge questionnaire was used, which limited the depth of information that could be obtained from the caregivers.
4. No attempt was made to measure the retention of knowledge regarding self-care activities after the post-test.
5. The study did not incorporate a control group, which could have provided a more robust

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