International Journal of Advance Research in Medical Surgical Nursing

E-ISSN: 2663-2268
P-ISSN: 2663-225X
www.surgicalnursingjournal.com
IJARMSN 2025; 7(1): 10-16
Received: 12-10-2024
Accepted: 17-11-2024

Jitty M Joseph
Associate Professor,
Department of Medical Surgical Nursing,
St. Josephs College of Nursing,
Mysore, Karnataka, India

Corresponding Author:
Jitty M Joseph
Associate Professor,
Department of Medical Surgical Nursing,
St. Josephs College of Nursing,
Mysore, Karnataka, India

Assessment of knowledge regarding prevention and management of dengue fever among adults attending outpatient department at selected hospitals in Bengaluru with a view to develop a self-instructional module

Jitty M Joseph

DOI: https://doi.org/10.33545/surgicalnursing.2025.v7.i1a.209

Abstract
Dengue fever is now believed to be the most common arthropod-borne disease in the world. The World Health Organization (WHO) currently estimates that there may be 50 to 100 million cases of Dengue fever worldwide every year. About 500,000 individuals per year manifest the severe forms, which gave a mortality rate of about 10 percent. Given the dramatic geographic expansion of epidemic Dengue Fever (DF) and Dengue Hemorrhagic Fever (DHF), the WHO has classified this disease as a major international public health concern. DHF is more serious and the fatality rate is about 5%. Children younger than 15 years comprise 90% of DHF subjects in the world. DHF can affect both adult and children. Early screening and educating the adults regarding the preventive measures of Dengue fever can significantly reduce the risk of disease and death.

Keywords: Dengue fever, arthropod-borne disease, world health organization (WHO), dengue hemorrhagic fever (DHF), epidemic dengue fever

Introduction
The relationship of this country with Dengue has been long and intense. The first recorded epidemic of Dengue-like illness occurred at Madras in 1780 and the Dengue virus was isolated for the first time simultaneously in Japan and Calcutta in 1943-1944. After the first virologically proved epidemic of Dengue fever along the East Coast of India in 1963-1964, it spread to all over the country. The first full-blown epidemic of the severe form of the illness, the Dengue Hemorrhagic Fever/Dengue Shock Syndrome occurred in North India in 1996. Aedes aegypti is the vector for transmission of the disease. Vaccines or antiviral drugs are not available for dengue viruses; the only effective way to prevent epidemic Dengue Fever/Dengue Hemorrhagic Fever is to control the mosquito vector, *Aedes aegypti* and prevent its bite.

Dengue fever is one of the world's important viral hemorrhagic fever disease, the most geographically widespread of the arthropod-borne virus illnesses, caused by arbovirus of Flavivirus genus with four serotypes. It is transmitted by *Aedes ageptyi*, *Aedes albopictus*. Four spectra of illness are seen; an asymptomatic phase, acute febrile illness, classic Dengue fever (DF), Dengue Hemorrhagic Fever (DHF) which includes Dengue Shock Syndrome (DSS) Dengue viral infection has been recognized as one of the world's biggest emerging Epidemics. Throughout the tropics this infection has an annual incidence of 100 million cases of DF with another 2,50,000 cases of DHF and mortality rate of 24,000-25,000 per year.

Dengue virus infection is increasingly recognized as one of the world's emerging infectious diseases. About 50–100 million cases of Dengue Fever and 500,000 cases of Dengue Hemorrhagic Fever, resulting in around 24,000 deaths, are reported annually. Over half of the world's population resides in areas potentially at risk for Dengue transmission. Dengue is one of the most important viral diseases transmitted by arthropod vectors which lead to morbidity and mortality. World Health Organization declares dengue and dengue hemorrhagic fever to be endemic in the Asian sub-continent Presently, Dengue is endemic in 112 countries of the world. In a developing country's preventable diseases such as Dengue

have the potential to cause the greatest mortality. Despite the magnitude of problem, no documented evidence exists on the awareness and practices of the adult population regarding Dengue Fever.

Dengue fever is an acute, infectious, commonest Arboviral disease, caused by dengue viruses, transmitted from person to person, by the bite of infective, female Aedes mosquito. Clinically it is characterized by high fever, headache, body ache, severe joint and muscular pains. Dengue virus is a member of Flavi-virus group, belongs to Castle's group B and family Togaviridae. It is RNA virus, spherical, 17 to 25milli microns in diameter. It is more among men then among women. Mode of transmission is by the bite of infective female Aedes mosquito. Incubation period varies from five to 10 days.

Dengue fever is self limiting diseases and represent the majority of cases of dengue infection of all the arthropod-borne viral diseases, dengue fever is the most common. It causes significant morbidity and mortality in many areas of the world. Dengue epidemics are increasing due to growing urban population, poor housing conditions, overcrowding and inadequate sanitation. The incidence of dengue is increasing and children are more in risk. Life can't be risk-free but most household can be prevent dengue by impacting hygienic measure for prevention of Dengue.

In India Dengue deaths rates are statistically greater than other affected areas. As many cases go unreported, highest statistics in 2010 reported that in Delhi confirmed dengue cases were 5837 and the reported deaths were eight, and in Uttar Pradesh confirmed dengue cases were 496 and the reported deaths were eight. In 2011 dengue cases were reported in Karnataka 206 and deaths are three. Dengue virus is now believed to be the most common arthropod – born e disease in the world. The world health organization currently estimated there might be 50 million cases of dengue infection worldwide every year. About 250,000 individuals per year manifest the severe forms, which have a mortality rate of 10%. Given the dramatic geographic expansion of epidemic dengue fever and dengue hemorrhagic fever .The world health organization has classified this disease has major international public health concern.

Dengue fever (DF) is an acute febrile illness with sudden onset of fever followed by a remission of a few hours to two days. The rash may be diffuse flushing , mottling or fleeting pin – point eruption on the face, neck and chest during the first half of the febrile period and a conspicuous rash that may be maculapapular or scarlatiniform on third or fourth day. It may be accompanied by itching and hyperesthesia. Dengue hemorrhagic fever (DHF**)** is a severe form of Dengue Fever caused by infection with more than one Dengue virus. Anorexia, vomiting, epigastric discomfort, tenderness at the right costal margin and generalized abdominal pain are common. The major pathophysiologic changes are thrombocytopenia, increased vascular permeability and hemorrhagic manifestations.

Dengue shock syndrome (DSS) Shock may be manifested by rapid and weak pulse with narrowing of the pulse pressure or hypotension, with the presence of cold, clammy skin and restlessness. The management of Dengue Fever is symptomatic and supportive. Bed rest is advisable during the acute febrile phase. Antipyretics or sponging are required to keep the body temperature below 40^0C oral fluid and electrolyte therapy is recommended for patients with excessive sweating, vomiting or Dengue is a communicable diseases spread by mosquitoes from one human to another. The only way it can really be prevented is by avoiding mosquito bites. One can make sure all egg-laying habitats of mosquitoes like open and stagnant water source are cleaned up. If there are any open water sources you cannot eliminate, cover them and apply appropriate insecticides. Use protection such as window screens, long-sleeved clothes, and insecticide treated materials, coils and vaporizers.

There is no specific medication for treatment of a dengue infection. Persons who think they have dengue should use analgesics (pain relievers) with acetaminophen and avoid those containing ibuprofen, Naproxen, aspirin or aspirin containing drugs. They should also rest, drink plenty of fluids to prevent dehydration, avoid mosquito bites while febrile and consult a physician. As with dengue, there is no specific medication for DHF. If a clinical diagnosis is made early, a health care provider can effectively treat DHF using fluid replacement therapy. Adequately management of DHF generally requires hospitalization.

Acetaminophen may be used to treat fever and relieve other symptoms. Aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), and corticosteroids should be avoided. Management of severe dengue requires careful attention to fluid management and proactive treatment of hemorrhage. Single-dose methylprednisolone showed no mortality benefit in the treatment of dengue shock syndrome in a prospective, randomized, double-blind, placebo-controlled trial. The Novartis Institute for Tropical Diseases (NITD) in Singapore is carrying out research to find inhibitors of dengue viral target proteins to reduce the viral load during active infection.

Materials and Methods

The methodology of research indicates the general pattern of organizing the procedure of gathering valid and reliable data for an investigation .This chapter provides a brief description of the methods adopted by the investigator in this study. It includes the research approach, research design, the setting, sample and sampling technique. It further deals with the development of the tool and procedure for data collection and plan for data analysis.

This chapter deals with the description of methodology and different steps that are taken for gathering and org organizing data for the investigator to assess the knowledge regarding prevention and management of Dengue fever.

Research approach

The research approach identifies the researcher from where the data is to be collected, what to collect, how to collect and how to analyze it. It also suggests possible conclusion and helps the researchers in answering specific research questions in an accurate and efficient way.

The research approach adopted for this study is a non experimental descriptive approach. This study aims at assessing the knowledge regarding prevention and management of dengue fever among adults attending outpatient department at selected hospital in Bengaluru with a view to develop a self instructional module.

A research design incorporates the most important methodological decisions that an investigator makes in conducting the research study. It depicts the overall plan for the organization of scientific investigations. It helps the

researcher in the selection of samples, manipulation of independent variable and observation of the type of statistical method to be used to interpret the data. The selection of design depends upon the purpose of the study, research approach and variables to be studied. The research design used for this study was non experimental descriptive design.

Results

Statistical analysis is a method of rendering quantitative information meaningfully and intelligently. This enables the researcher to summarize, organize, evaluate, interpret and communicate the obtained data into numeric information. This chapter deals with analysis and interpretation of data collected from 60 adults regarding knowledge on prevention and management of dengue fever. The findings were organized and presented in three sections with tables and figures. The details of each section are presented below to correlate with objectives. Keeping in view the objectives of the study, non experimental descriptive approach was adopted to evaluate the effectiveness of self instructional module. Descriptive and Inferential statistics was used to analyze the date. Analysis was done based on the objectives and hypothesis of the study. The level of significance was set at 0.05 levels.

Presentation of data

The analyzed data has been organized and presented in the following sections

Section 1: Description of distribution of socio-demographic variables of the adults in relation to age in years, gender, religion, educational status, occupation, monthly income of the family, dietary pattern, type of family, area of living, personal habits, whether any family member affected with dengue fever, previous knowledge regarding dengue fever, source of water for daily usage and mosquito preventive technique used at home.

Section 2: Assess the knowledge score regarding prevention and management of Dengue Fever among adults attending outpatient department.

Section 3: Association between knowledge score regarding prevention and management of Dengue Fever among adults with their selected demographic variables.

Table 1: Distribution of adults according to their age in years

N= 60

Sl. No	Age in years	Frequency(f)	Percentage (%)
1	21-30	15	25.00%
2	31-40	20	33.33%
3	41-50	25	41.67%
	Total	60	100.00

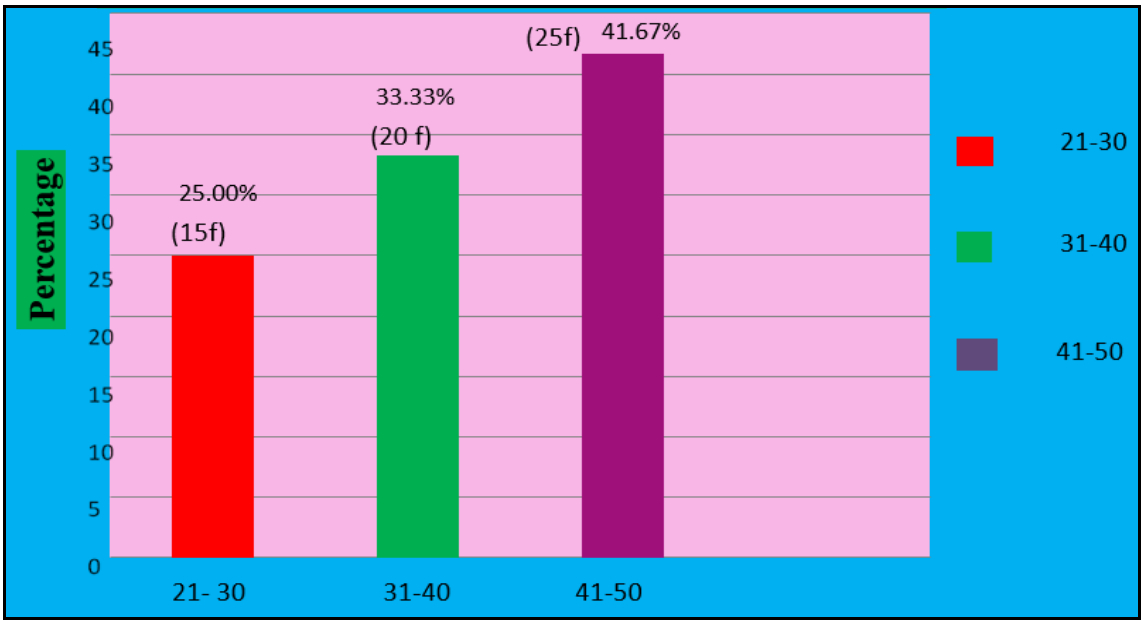

Fig 1: Distribution of adults according to their age in years

The data presented in the table- 1 and figure- 1 depicts the distribution of age in years of the adults. 25(41.67%) of the adults were between the age group of 41-50 years, 20(33.33%) were between 31-40 years of age, and 15 (25.00%) were in the age of 21-30 years.

Hence it can be interpreted that majority 25(41.67%) of adults were between the age of 41-50years

Section II: Assess the knowledge score regarding prevention and management of Dengue Fever among adults attending outpatient department.

Table 2: Classification of respondents on knowledge level regarding prevention and management of Dengue fever among adults attending outpatient department.

Level of knowledge	scores	Classification of Respondents		Respondents Knowledge (%)			
		Number (f)	Percent	Mean	SD	Mean %	SD%
Inadequate 1 to 16	< 50 %	44	73.3	11.70	2.184	36.56	6.82
Moderate 17 to 24	51-75 %	10	16.7	21.10	1.969	65.94	6.15
Adequate 25 to 32	> 75 %	6	10.0	27.67	1.033	86.47	3.23
Total		60	100.0	14.87	5.905	46.47	18.45

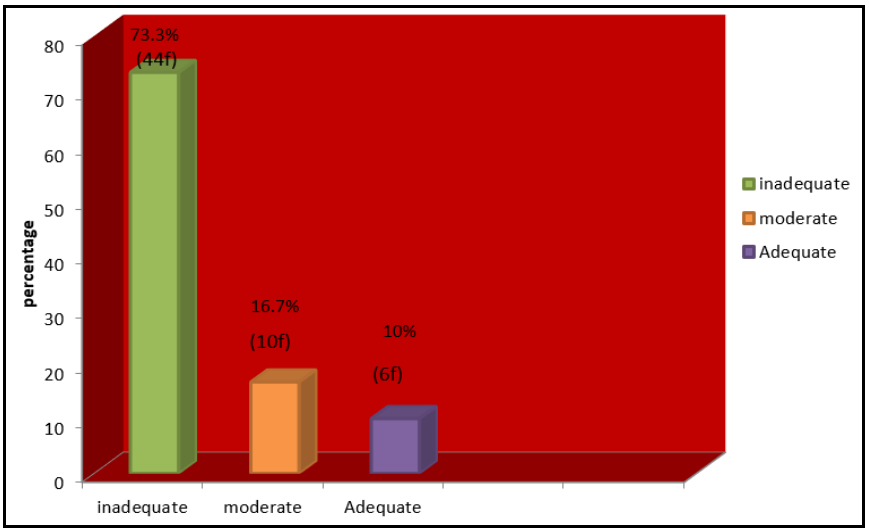

Fig 2: Percentage distribution of knowledge scores of adults regarding prevention and management of dengue fever.

The above table 2 and figure 2 shows the distribution of knowledge scores of adults regarding prevention and management of dengue fever. The scores revealed that on identifying the adults level of knowledge regarding prevention and management of dengue fever, majority of the adults 44(73.30%) had inadequate level of knowledge and 10(16.70%) adults had moderate level of knowledge and only six (10%) adults had adequate level of knowledge regarding prevention and management of Dengue fever. Hence it can be interpreted that majority of adults 44(73.30%) had inadequate level of knowledge

Section-III

Aspect wise mean Knowledge scores regarding prevention and management of Dengue fever among adults who are attending outpatient department.

Table 3: Distribution of knowledge scores among adults

Sl. No.	Aspect wise Knowledge	Number of questions	Max. Score	Knowledge scores			
				Mean	SD	Mean (%)	SD (%)
I	Meaning and causes	8	8	3.58	1.67	44.75	20.87
II	Sign and symptoms	4	4	2.13	0.747	53.25	18.67
III	Diagnostic test and complications	4	4	1.60	1.045	40.0	26.12
IV	Prevention and management	16	16	7.55	3.486	47.19	21.79
Overall		32	32	14.87	5.905	46.47	18.45

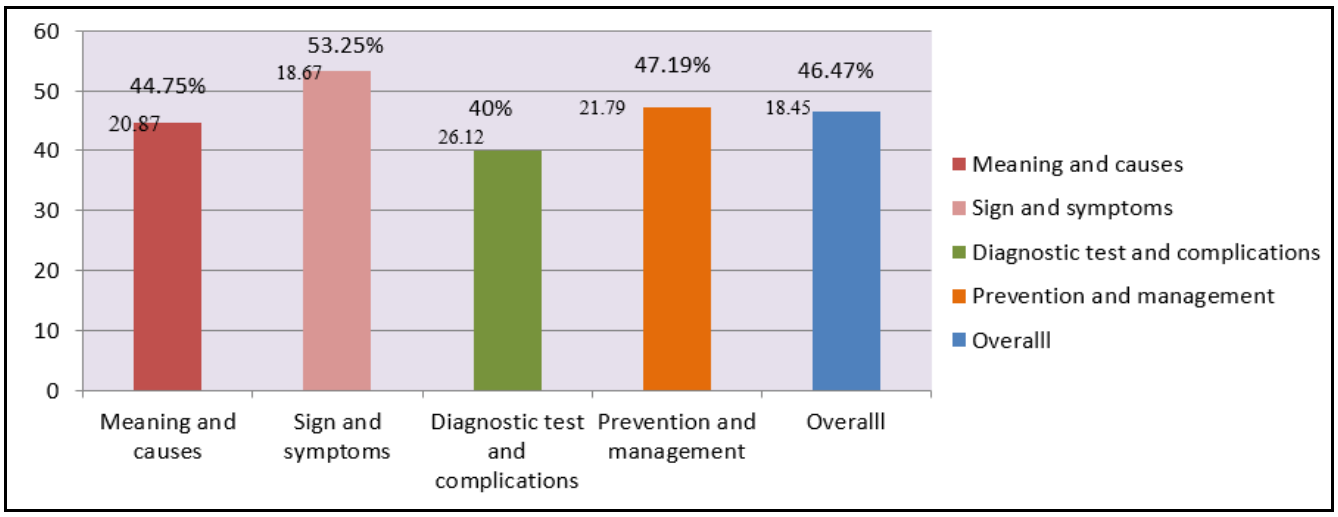

Fig 3: Distribution of knowledge scores regarding prevention and management of Dengue fever

The above table 3 and figure 3, shows the mean, standard deviation and mean percentage score of adults regarding prevention and management of dengue fever among adults
On determining the meaning and causes of dengue fever 44.75, signs and symptoms 53.25 and diagnostic test 40.0 and complications 47.19 and combined is 46.47.
On assessing the knowledge regarding prevention and management of dengue fever the maximum score of 16, the mean score was 7.55 with SD of 3.486 and the mean percentage was47.19.
The overall, knowledge regarding prevention and management of dengue fever among adults with the maximum score 32, the mean was 14.87 with SD 5.905 and mean percentage of46.47.The data showed that there was not sufficient knowledge in most of the aspects.

Conclusion

The present study was on "Assessment of knowledge regarding prevention and management of Dengue Fever among adults attending outpatient department at selected hospitals in Bengaluru with a view to develop a self-instructional module. In this study, 60 adults were selected by using non probability sampling technique. The research approach adopted was a descriptive study. A Structured knowledge questionnaire was used to assess the knowledge of adults regarding prevention and management of Dengue Fever.
The objectives of the study are,

1. Assess the knowledge regarding prevention and management of Dengue Fever among adults attending outpatient department.
2. Find the association between knowledge regarding prevention and management of Dengue Fever among adults with their selected demographic variables.
3. To develop a self-instructional module regarding prevention and management of Dengue Fever.

The study had attempted to examine the research hypothesis

H_1.There will be a significant association between knowledge of adults regarding prevention and management of Dengue Fever with their selected demographic variables.
The conceptual framework selected for the study is based on the Nola j. Pender's Health promotion model. The components of this study include individual characteristics and experiences, behavior specific cognition and effect, and behavioral outcome that a person will take actions to avoid illness while other fail to protect them. This model addresses the relationship between a person's health and promotion.
It provides a way of understanding and predicting how adults will behave in relation to their health how they will comply with health care therapies. It provides a comprehensive systematic ongoing frame work of this study. The non experimental descriptive research design was used to achieve the overall purpose of this study. The study was limited to adults coming to selected hospitals who are in the age group of 21-50 years.
Data collection instrument consists of structured knowledge questionnaire. Content validity was established by five experts. The tool was found to be reliable. Based on the criteria, a total sample of 60 adults were included in this study and they were explained the need for the study. Consent was obtained before conducting the study. The data gathered was analyzed and interpreted in terms of objectives and hypothesis. Descriptive and inferential statistics were used for analysis.

The following conclusions were drawn from the study

From the findings it is concluded that, Majority 25(41.67%) of the adults were between the age group of 41-50 years .Maximum percentage of the adults 38 (63.32%) were females. Highest percentage of the adults 24 (40.00%) were christians. Majority of adults 32(53.30%) had completed their higher secondary. Maximum number of adults 25 (41.70%) were government employees.
Majority of the adults 31 (51.70%) had an income of above Rs. 30001 per month.
Majority of adults 41 (68.30%) are following mixed diet. Maximum number of adults 36 (60.00%) belonged to joint family. Majority of the adults 49 (81.70%) were from urban area. Majority of the adults 45 (75.00%) were not in any bad habits. Majority of the adults 51(85.00%) were not affected with Dengue fever. Highest number of the adults 57 (95.00%) got previous information regarding dengue fever. Highest percentage of adults 34 (56.30%) were using bore well water. Majority of adults 35(58.30%) were using mosquito coils.
The findings of the study were discussed here as per the objectives of the study:

1. Assess the knowledge regarding prevention and management of Dengue Fever among adults who are attending outpatient department.

The important findings are

On assessment of the knowledge among adults regarding prevention and management of dengue fever among adults.

- It revealed that in level of knowledge regarding prevention and management of dengue fever among adults, majority of the 44(73.30%) had inadequate level of knowledge and 10(16.70%) adults had moderate level of knowledge regarding prevention and management of dengue fever and six (10%) adults have adequate level of knowledge.
- The mean, standard deviation and mean percentage score of the knowledge regarding prevention and management of dengue fever among adults On determining themeaning and causes of dengue fever 44.75, signs and symptoms 53.25 and diagnostic test 40.0 and complications 47.19 and combined is 46.47.
- Assessing the knowledge regarding prevention and management of dengue fever the maximum score of 16, the mean score was 7.55 with SD of 3.486 and the mean percentage was 47.19.
- The overall, knowledge regarding prevention and management of dengue fever among adults with the maximum score 32, the mean was 14.87 with SD 5.905 and mean percentage of46.47.The data showed that there was not sufficient knowledge in most of the aspects.

Implications

The findings of the study may provide useful informations to nursing practice, nursing education, nursing administration and nursing research.

Limitations of the study

The study was limited to

- Below the age of 21 years and above 51 years
- Not available at the time of data collection.
- Not able to speak English or Kannada.

Recommendations

- A similar study can be replicated on a large sample to generalize the findings.
- A experimental study can be undertaken with control group for effective comparison.
- Health education module can be tested for its application.
- A study can be conducted on prevention of Dengue fever.
- An evaluative study can be conducted by using a structured teaching programme.

Conflict of Interest

Not available

Financial Support

Not available

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How to Cite This Article
Joseph JM. Assessment of knowledge regarding prevention and management of dengue fever among adults attending outpatient department at selected hospitals in Bengaluru with a view to develop a self-instructional module. International Journal of Advance Research in Medical Surgical Nursing. 2025;7(1):10-16