Original Article

Effectiveness of Video-Assisted Teaching in Enhancing Knowledge on Dengue Fever among Patients Admitted in a Hospital in Navi Mumbai

Sigymol John, Priyadarsini John

Department of Medical Surgical Nursing, D Y Patil College of Nursing, Navi Mumbai, Maharashtra, India

Abstract

Aim: The study was conducted to assess the effectiveness of video-assisted teaching on knowledge regarding dengue fever (DF), among patients admitted to the orthopedic ward of D Y Patil Hospital, Nerul, Navi Mumbai. **Methods:** One group pre-test post-test design was adopted for the study. The approach involved the description of the plan to investigate the phenomenon under study in a structured (quantitative), unstructured (qualitative) or a combination of both (quantitative – qualitative integrated approach) methods. A non-probability convenience sampling technique was used to collect data from 50 patients. The data were collected using a semi-structured questionnaire. **Results:** In the pre-test, 36% of the study subjects had good knowledge about dengue whereas 26% had poor knowledge scores. There was a marked improvement in the post-test knowledge scores. Chi-square test revealed that in the pre-test there is a significant association between the demographic variables, age, gender, educational qualification, and previous knowledge with the knowledge scores where as the post-test showed significant association of knowledge scores with the demographic variables age and educational qualification on DF. **Conclusion:** The study can be concluded that the video-assisted teaching may have served a key role in improving the knowledge level of participants based on the t-test and Chi-square results.

Key words: Dengue fever, KAP, knowledge attitude and practices, video-assisted teaching

Address for correspondence: Mrs. Priyadarsini John, Department of Medical Surgical Nursing, D Y Patil College of Nursing, Navi Mumbai, Maharashtra, India. E-mail: priyaparnjohn@yahoo.co.in

Introduction

Health is the fundamental right of every human being. Health is a complete state of physical, mental, and social wellness of the individual. Health is a quality of life resulting from the total functioning of the individual that empowers him to achieve personal and social satisfaction.^[1] Health may also be quoted as an equilibrium between agent, host, and environment so when this equilibrium is broken, illness or

disease invades the person. Illness can be restricted to self, i.e., non-communicable disease and tends to communicate from infected agent to susceptible host, i.e., communicable disease.^[2]

The disease is the disturbance in the normal functioning of the body and is used interchangeably with illness. A communicable disease is the leading cause of health problems; they are caused by infectious agents transmitted from infected host to susceptible person. The vector may be mechanical or biological. The biological which usually harbors pathogens within their body and deliver pathogens to new host is often responsible for serious blood-borne diseases such as malaria, filaria, chikungunya, and dengue infection.^[3]

Dengue is a fast-emerging viral infection responsible for massive outbreak worldwide, and India is one of the seven identified countries in Southeast Asia regularly reporting incidence of dengue fever (DF) and dengue hemorrhagic fever (DHF) outbreaks. The first dengue positive case in India was reported in the year 1940.^[4]

Access this article online

Website: <http://www.innovationalpublishers.com/Journal/ijns> | e-ISSN: 2581-463X

DOI: <https://doi.org/10.31690/ijns/41>

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution Noncommercial Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

How to cite this article: John S, John P. Effectiveness of Video-Assisted Teaching in Enhancing Knowledge on Dengue Fever among Patients Admitted in a Hospital in Navi Mumbai. Indian Journal of Nursing Sciences 2019;4(3):85-91.

The economic burden of dengue in India alone is estimated to be 29.3 million. India is also endemic for DF and DHF. Every year cases of DF and/or DHF are reported. In 1996, there was a large outbreak of DF and DHF. In total, 16,517 cases and 545 deaths were reported from all over the country. After 1996, there was a decline in cases of DF and DHF. Again, in the year, 2003 an outbreak of DF and DHF was reported from various parts of the country, especially New Delhi, Kerala, Karnataka, Punjab, Tamil Nadu, Uttar Pradesh, and Maharashtra. A total of 12754 cases and 215 deaths were reported. In the year 2005 too, the country witnessed a large outbreak of DF reporting about 10824 cases and 87 deaths.^[5]

According to an article published in The Hindu on October, 2016, "Navi Mumbai reports spike in dengue cases this year." By October 4, Navi Mumbai Municipal Corporation (NMMC) has visited 42,730 houses and collected 408 contact-smears and 2665 mass-smears. Among the residences visited, 155 had mosquitoes breeding in them. As a precautionary step, 34,567 homes were sprayed with chemicals that inhibit mosquito breeding, while fogging was carried out in 36,911 houses.^[6] The sole method of prevention and control is the knowledge, attitude, and practices (KAP) for the same.

DF

DF refers to discussion on the definition, etiology, mode of transmission, clinical manifestations, complications, prevention, and care of the patient with DF.

Patient

Patient refers to persons who are in the age group between 20 and 65 years and above, and those who are admitted with different disease conditions to the orthopedic wards of D Y Patil Hospital, Nerul, Navi Mumbai.

Hospital

According to Oxford dictionary hospital refers to an institution providing medical and surgical treatment and nursing care for sick or injured people.

Assumptions

- The patients attending hospital may or may not have adequate knowledge about DF
- The patients may or may not have the interest to know more about DF
- The video-assisted teaching on DF may or may not improve the knowledge of patients, admitted in selected hospitals at Navi Mumbai.

Hypothesis

H_{01} – There is no significant difference between pre-test and post-test knowledge scores of inpatients on knowledge about DF.

H_1 – There will be a significant difference between pre-test and post-test knowledge scores of inpatients on knowledge about DF.

H_{02} – There is no significant association between pre-test and post-test knowledge scores with selected demographic variables.

H_2 – There will be a significant association between pre-test and post-test knowledge scores with selected demographic variables.

Methods

Aims of research methodology are to describe and analyze methods, throw light on their limitations and resources, clarify their presuppositions and consequences, relating their potentialities to the twilight zone at the "frontiers of knowledge."^[7] It enriches the practitioner and his practices; provides a chance to study a subject in depth; enables to make intelligent decisions; and understand the material which no other kind of work can match.^[8]

The study was conducted to assess the effectiveness of video-assisted teaching on knowledge regarding DF, among patients admitted to the orthopedic ward of D Y Patil Hospital, Nerul, Navi Mumbai.

Research design

Research design is also known as a blueprint that researchers select to carry out their research study. The research design also includes the description of the methods of data collection and analysis.^[9] Pre-experimental, one group pre-test post-test design was adopted.

It is represented as:

RO1-----X-----O2

Keys:

R – Randomization.

O1 – Pre-test to assess the level of knowledge of patients about DF.

X – Video assisted teaching on DF.

O2 – Post-test to assess the effectiveness of video-assisted teaching on the level of knowledge of patients about DF.

Research approach

It involves the description of the plan to investigate the phenomenon under study in a structured (quantitative), unstructured (qualitative) or a combination of both (quantitative – qualitative integrated approach) methods. Therefore, the approach helps to decide about the presence or absence as well as manipulation and control over variables. In addition, it also helps to identify the presence or absence of and comparison between groups.

Sampling technique

Non-probability convenience sampling technique was used to collect data. The data were collected using a semi-structured questionnaire. The data were tabulated and

analyzed in terms of the objectives of the study, using descriptive and inferential statistics.

Sample size

The sample size for the study was 50.

Criteria for sample selection

Inclusion criteria

The following criteria were included in the study:

- Patients who are willing to participate in the study
- Patients who are in the age group of 20–65 years and above
- Patients who are admitted in orthopedic wards of D Y Patil Hospital, Nerul, Navi Mumbai and those who could mobilize by self
- Patients who can speak, read, and understand English or Marathi
- Patients who are available at the time of the study.

Exclusion criteria

The following criteria were excluded from the study:

- Patients who are not willing to participate in the study
- Patients who cannot speak, read, and understand English or Marathi.

Data collection procedure

Data collection is the process of gathering and measuring information on targeted variable using an established systematic fashion, which then enables one to answer relevant questions and evaluate outcomes. A formal data collection process is necessary as it ensures that the data gathered are both defined and accurate and that subsequent decisions based on arguments embodied in the findings are valid.^[10]

Period of data collection

Data collection was done for a period of 4 weeks from November 27, 2017, to December 23, 2017. Data were collected with the help of semi-structured knowledge questionnaire.

Procedure for data collection

The pre-test was administered on December 9, 2017, to 50 patients admitted to the male and female orthopedic wards of D Y Patil Hospital, Nerul, after that a video-assisted teaching was provided to the study subjects. Total bed strength of male and female orthopedic wards of D Y Patil Hospital, Nerul, is 150. Approximately 65 patients were able to mobilize by themselves among the inpatients during the study period. Among those clients, 50 patients who were fit for the current study based on inclusion criteria were selected. After 7 days, on December 16, 2017, post-test was conducted. It took around 15–20 min for the video-assisted teaching and approximately 40–45 min for test administration. Duration of data collection was for 2 weeks.

Results

Data analysis procedure

A total score of 28 was converted to out of 25 for doing analysis. The knowledge scores were graded as poor (0–5), average (6–10), good (11–15), very good (16–20), and excellent (21–25) [Table 1]. Analysis of knowledge scores of the pre-test and post-test was done by calculating the frequency, percentage, mean, and standard deviation. Paired *t*-test was used for testing the effectiveness of video-assisted teaching from pre-test and post-test knowledge. Chi-square test to find the association between level of pre-test knowledge with selected demographic variables. The analysis and interpretation of data are organized under the following sections.

- Section I – Analysis of sample characteristics in relation to demographic variables
- Section II – To assess the level of knowledge regarding DF among patients admitted to the orthopedic ward of D Y Patil Hospital, Nerul, by conducting a pre-test
- Section III – To assess and compare the effectiveness of video-assisted teaching on knowledge regarding DF among patients admitted to the orthopedic ward of D Y Patil Hospital, Nerul, by comparing the pre-test and post-test knowledge score using the paired *t*-test
- Section IV – To test the association between pre-test and post-test knowledge scores with their selected demographic variables age, sex, education, previous knowledge, and previous history of DF. A total score of 28 was converted to out of 25 for doing analysis.

Section 1

Table 2 depicts that the majority of the study subjects 25 (50%) belongs to early adulthood and only 5 (10%) of the subjects were from late adulthood. Majority 28 (56%) of the participants in the study were males and 22 (44%) were females. The majority, i.e., 13 (26%) of the subjects obtained primary school education and only 4 (8%) were postgraduates and 7 (14%) of the participants were illiterate. Majority 18 (36%) of the study subjects were private employees and none of the subjects were government employees.

Table 3 reveals that the majority of the study subjects 20 (40%) were earning ≤Rs. 5000 and only 2% earned between Rs. 45001–55000/month. Majority of the respondents were from urban 28 (56%) community and only 3 (6%) were from rural slum area. Majority of the

Table 1: Levels of knowledge

Levels of knowledge	Total score
Poor	0–5
Average	6–10
Good	11–15
Very good	16–20
Excellent	21–25

Table 2: Analysis of sample characteristics in relation to demographic variables: Age, gender, educational qualification, and occupation ($n=50$)

Demographic variables	Category	Frequency	Percentage
Age	Early adulthood (20–35 years)	25	50
	Middle adulthood (36–65 years)	20	40
	Late adulthood (>65 years)	5	10
Gender	Male	28	56
	Female	22	44
	Transgender	0	0
Educational qualification	Illiterate	7	14
	Primary school	13	26
	Middle school	10	20
	High school	11	22
	Graduate	5	10
Occupation	Postgraduate	4	8
	Unemployed	13	26
	Agriculture	8	16
	Business	11	22
	Private employee	18	36
	Government employee	0	0

study subjects 45 (90%) lived in pucca house and only 5 (10%) lived in kutcha house. About 32 (64%) of the people had a closed drainage system and 18 (36%) had an open one. Majority, i.e., 33 (66%) subjects depended on NMMC garbage disposal and only 1 (2%) of the study population follow landfills as a method of waste disposal.

Table 4 reveals that the majority of the study participants 38 (76%) had previous knowledge about DF, whereas 12 (24%) did not have any previous knowledge on dengue. The majority, i.e., 20 (40%) of the subjects gained information regarding dengue from the internet and 5 (10%) of the subjects got information from television. Majority 39 (78%) of the study subjects do not have a history of DF and 11 (22%) had dengue previously. All the subjects, i.e., 11 (100%), who previously had dengue took allopathy treatment.

Section II

Analysis of knowledge regarding DF among patients admitted to the orthopedic ward of D Y Patil Hospital, Nerul.

Table 5 reveals that in the pre-test 36% (18) of the study subjects had good knowledge about dengue whereas 32% (16) had average knowledge and 26% (13) had poor knowledge scores. On the other hand, only 4% (2) had very good and 2% (1) had excellent knowledge scores.

Table 3: Analysis of sample characteristics in relation to demographic variables: Monthly income, type of community, type of house, type of drainage system, and method of disposal of home waste ($n=50$)

Demographic variables	Category	Frequency	Percentage
Monthly income	≤Rs. 5000/-	20	40
	Rs. 5001–15000/-	20	40
	Rs. 15001–25000/-	5	10
	Rs. 25001–35000/-	2	4
	Rs. 35001–45000/-	2	4
	Rs. 45001–55000/-	1	2
	≥Rs. 55001/-	0	0
Type of community	Rural	10	20
	Rural slum	3	6
	Urban	28	56
	Urban slum	9	18
Type of house	Pucca	45	90
	Kutcha	5	10
Type of drainage system	Open	18	36
	Closed	32	64
Method of disposal of home waste	Burning	5	10
	Dumping	11	22
	Landfills	1	2
	Navi Mumbai municipal corporation garbage disposal	33	66

Section III

Analysis and comparison of the effectiveness of video-assisted teaching on knowledge regarding DF among patients admitted to the orthopedic ward of D Y Patil Hospital, Nerul.

Table 6 reveals that there was a marked improvement in the post-test knowledge scores when compared with the pre-test scores. In the post-test none of the participants 0% (0) showed poor knowledge whereas in the pre-test 26% (13) had poor knowledge scores on DF. Majority of the subjects, i.e., 44% (22) had good knowledge on dengue, 30% (15) of the respondents scored very good, 10% (5) excellent, and 16% (8) had average knowledge scores in the post-test. In the pre-test 36%, (18) of the study subjects had good knowledge about dengue whereas 32% (16) had average knowledge, 4% (2) had very good, and 2% (1) had excellent knowledge scores.

Table 7 shows that the mean value of post-test knowledge score was increased to 16.00 from the pre-test score of 9.82. The calculated t-value 18.1076, at 49 degrees of freedom is greater than the tabulated value (2.02) at 0.05 level of significance. It can be assumed that video-assisted teaching may have helped in improving the knowledge of the study

subjects in the post-test. Therefore, the research hypothesis H_1 , i.e., there will be a significant difference between pre-test and post-test knowledge scores of inpatients on DF is accepted and the null hypothesis H_{01} , i.e., there is

no significant difference between pre-test and post-test knowledge scores of inpatients on DF, is rejected.

Section IV

Association of knowledge scores with selected demographic variables.

This section deals with the association of pre-test and post-test knowledge with selected demographic variables.

Table 8 reveals that there is a significant association between the demographic variable age, gender, education, and previous knowledge with the pre-test knowledge scores and the demographic variables age and education had a significant association with the post-test knowledge scores. Therefore, the research hypothesis H_1 , i.e., there will be significant association of pre-test and post-test knowledge scores with selected demographic variables is accepted and the null hypothesis H_{02} , i.e., there is no significant association of pre-test and post-test knowledge scores with selected demographic variables was rejected.

Discussion

“The whole secret of a successful life is to find out what is one’s destiny to do, and then do it.” - Henry Ford.

Major findings of the study

Findings related to the distribution of demographic data

Majority of the study subjects, 25 (50%) belongs to early adulthood, whereas only 5 (10%) of the subjects were from the late adulthood age group. Majority, i.e., 28 (56%) of the participants in the study were males and 22 (44%) were females. Majority, i.e., 13 (26%) of the subjects had primary school education and only 4(8%) where postgraduates. About 7 (14%) of the participants were illiterate. Majority 18 (36%) of the study subjects were private employees and 13 (26%) of subjects were unemployed. Majority, i.e., 20 (40%) of the participants were earning $\leq$ Rs. 5000 and between Rs. 5001–15000 each only 2 (4%) of the participants earned between Rs. 45001–55000. Majority of the respondents were from urban 28 (56%) community whereas 3 (6%) of them stayed in a rural slum area. Majority of the study subjects 45 (90%) lived in pucca house and only 5 (10%) lived in kutch house. About 32 (64%) of

Table 4: Analysis of sample characteristics in relation to demographic variables: Previous knowledge on dengue, source of information, previous history of dengue fever and treatment taken ($n=50$)

Demographic variables	Category	Frequency	Percentage
Previous knowledge on dengue	Yes	38	76
	No	12	24
Source of information	Newspaper	12	24
	Television	5	10
	Internet	20	40
	Friends	6	12
	Healthcare worker	7	14
	Other sources	0	0
Previous history of dengue fever	Yes	11	22
	No	39	78
If yes treatment taken	Allopathy	11	100
	Homeopathy	0	0
	Ayurveda	0	0
	Home remedies	0	0
	Cured without any intervention	0	0

Table 5: Distribution of overall knowledge score in frequency and percentage obtained by the study group in the pre-test ($n=50$)

Grade	Pre-test	
	Frequency	Percentage
Poor (0–5)	13	26
Average (6–10)	16	32
Good (11–15)	18	36
Very good (16–20)	2	4
Excellent (21–25)	1	2
Grand total	50	100

Table 6: Comparison of pre-test and post-test knowledge scores in frequency and percentage ($n=50$)

Grade	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Poor (0–5)	13	26	0	0
Average (6–10)	16	32	8	16
Good (11–15)	18	36	22	44
Very good (16–20)	2	4	15	30
Excellent (21–25)	1	2	5	10
Grand total	50	100	50	100

Table 7: Effectiveness of video-assisted teaching on knowledge scores ($n=50$)

Video-assisted teaching	Mean	Standard deviation	Calculated t-value	Degrees of freedom	Table value at 0.05 level of significance	P-value
Pre-test	9.82	4.92	$t=18.1076$	49	2.02	0.000
Post-test	16.00	4.61				

Table 8: Association of pre-test knowledge level with selected demographic variables ($n=50$)

Demographic variables	Pre-test			
	Degrees of freedom	Calculated value	Table value at 0.05 level of significance	Level of significance
Age	8	15.53	15.51	S
Gender	4	11.02	9.49	S
Education	20	45.21	31.41	S
Previous knowledge	4	12.94	9.49	S
Post-test				
Age	6	29.52	12.59	S
Gender	3	7.21	7.82	NS
Education	15	43.71	24.99	S
Previous knowledge	3	3.15	7.82	NS

the people had a closed drainage system and 18 (36%) had an open one. Majority, i.e., 33 (66%) of subjects depended on NMMC garbage disposal, only 1 (2%) of the population used landfills for waste disposal. Majority of the study participants 38 (76%) had previous knowledge about DF, whereas 12 (24%) did not have any previous knowledge on dengue. Majority 15 (40%) of the subjects got information regarding dengue from the internet. About 9 (23%) of the subjects got information from newspaper, 4 (11%) from television, 5 (13%) from friends, and another 5 (13%) got information about dengue from healthcare workers. Majority 39 (78%) of the study subjects did not have a history of DF and 11 (22%) had suffered from dengue previously. About 50 (100%) of the subjects who previously suffered from dengue took allopathy treatment.

Findings related to the effectiveness before and after the introduction of video-assisted teaching on knowledge regarding selected aspects of DF

In the pre-test of the current study, 36% of the study subjects had good knowledge about dengue whereas 26% had poor knowledge scores. There was a marked improvement in the post-test knowledge scores. In the post-test, none (0%) of the participants showed poor knowledge. The majority (44%) of the subjects had good knowledge on dengue. About 30% of the respondents scored very good and 10% excellent in the post-test. Effectiveness of video-assisted teaching on knowledge level was assessed by applying paired t-test. The calculated t -value 18.1076 at 49 degrees of freedom is found to be greater than the tabulated value of 2.02 at 0.05 level of significance. The researcher had applied t-test to compare the difference between the average scores of pre-test and post-test. Since $P < 0.00001$, the difference between the mean scores is significant at 0.05 level of significance.

Findings related to the association of knowledge scores with selected demographic variables

The researcher applied the Chi-square test to associate the knowledge scores with demographic variables. Chi-square test revealed that in the pre-test there is a significant association between the demographic variables, age, gender, educational qualification, and previous knowledge with the knowledge scores whereas the post-test showed significant association of knowledge scores with the demographic variable age and educational qualification on DF.

A similar study conducted by Dhimal *et al.* on “KAP regarding DF among the healthy population of highland and lowland communities in Central Nepal”^[11] also showed a significant association of the knowledge scores with demographic variables.

Therefore, we can conclude that there may be an association between the demographic variables and knowledge scores.

Conclusion

The study concluded that videos were an effective method in promoting knowledge regarding DF.

References

1. Park K. Preventive and Social Medicine. 19th ed. Jabalpur: Banarsidas Bhanot Publishers; 2007. p. 12, 13, 87, 346.
2. Clement I. Basic Concepts of Community Health Nursing. 2nd ed. Karnataka: EMMESS Publication; 2009. p. 25.
3. Rao KS. An Introduction to Community Health Nursing. 4th ed. Chennai, BI Publications; 2004. p. 605.
4. Halstead SB. Dengue Overview and History in Dengue.

- Tropical Medicine Science and Practice. Vol. 5. London: Imperial College Press; 2008. p. 1-28. Available from: <https://www.nature.com>. [Last cited on 2012 Nov 05].
5. National Institute of Communicable Diseases Zoonosis Division. Guidelines for Prevention and Control of Dengue; 2006. Available from: <http://www.ncdc.gov.in>. [Last cited on 2019 Aug 16].
 6. Sridhar MS. Introduction to Research Methodology. Available from: <https://www.slideshare.net/mssridhar/introduction-to-research-methodology-presentation>. [Last cited on 2008 Dec 17].
 7. Kothari CR. Research Methodology: Methods and Techniques. 2nd ed. New Delhi: New Age International Publisher; 2004.
 8. Gopal MH. An Introduction to Research Procedures in Social Sciences. Bombay: Asia Publishing House; 1970.
 9. Sharma SK. Nursing Research and Statistics. 2nd ed. New Delhi: Elsevier India Private Limited; 2014. p. 138-40, 299.
 10. White SA, van den Broek NR. Methods for assessing reliability and validity for a measurement tool: A case study and critique using the WHO haemoglobin colour scale. *Stat Med* 2004;23:1603-19.
 11. Dhimal M, Aryal KK, Dhimal ML, Gautam I, Singh SP, Bhusal CL, *et al*. Knowledge, attitude and practice regarding dengue fever among the healthy population of highland and lowland communities in central Nepal. *PLoS One* 2014;9:e102028.