



Effectiveness of Nurse Led Intervention on knowledge regarding Zika virus among nursing students of selected college of Navi Mumbai.

Mrs Shital Parag Tike^{1*}, Mrs Smeeta Revankar²

^{1*}Assistant Professor, Bharati Vidyapeeth (Deemed to be University), College of Nursing, Rain Tree Marg, sector 7 C.B.D. Belapur, Belpada complex, Navi Mumbai, Email Id: shital.tike@bharativedyapeeth.edu, Mobile Nos: 9702553212, Orcid Id: 0000-0002-5198-6776.

²Assistant Professor, Bharati Vidyapeeth (Deemed to be University), College of Nursing, Rain Tree Marg, sector 7 C.B.D. Belapur, Belpada complex, Navi Mumbai, Email: smeeta.revankar@bharativedyapeeth.edu
ORCID ID: 0000 0001 7477 4410

***Corresponding Author:** Mrs. Shital Parag Tike

*Assistant Professor, Bharati Vidyapeeth (Deemed to be University), College of Nursing, Rain tree Marg, sector 7 C.B.D. Belapur, Belpada complex, Navi Mumbai, Email Id: shital.tike@bharativedyapeeth.edu
Mobile Nos: 9702553212

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ABSTRACT

Background: Zika virus is a viral infection affecting both adults and infants, transmitted by mosquitoes. It belongs to the Flaviviridae family, which consists of single-stranded RNA viruses. This study aimed to assess nursing students' knowledge of Zika virus, evaluate the effectiveness of a structured teaching program (STP) on Zika virus, and determine any significant associations between pre-interventional knowledge scores and selected demographic variables.

Methodology: A quasi-experimental research design was employed, utilizing a pre-experimental one-group pre-test and post-test design. Forty-nine final-year BSc Nursing students were selected using non-probability convenient sampling, and data were collected through structured questionnaires.

Results: The majority of participants were aged 17-20 years (89.80%), female (83.68%), Hindu (79.60%), and from urban areas (77.55%). Prior to the structured teaching program, there was a lack of knowledge among nursing students about Zika virus. Following the program, there was a significant increase in knowledge, as indicated by the statistical paired t-test ($t = -14.7626, p < 0.05$). This suggests that the structured teaching program effectively enhanced nursing students' understanding of Zika virus.

Conclusion: The study concludes that the structured teaching program successfully improved nursing students' knowledge of Zika virus.

Keywords: Zika Virus, Structured Teaching Program, Nursing.

Introduction

Zika virus is a small, spherical, and infectious agent that replicates inside living cells. It was first discovered in Rhesus monkeys in Uganda in 1947 and later in humans in 1952. ² The virus has two major lineages, Asian and African. Zika virus particles are small, but they are icosahedral in symmetry and contain a nucleocapsid and an envelope. RT-PCR testing detects Zika viral RNA. Symptoms, when present, typically include fever, rash, conjunctivitis, muscle and joint pain, malaise, or headache, and last for 2-7 days.¹

Zika virus infection during pregnancy can lead to birth defects and pregnancy complications for both the mother and child.² The best way to prevent Zika virus infection is to take steps to avoid mosquito bites. These include using repellent, wearing covering clothing and avoiding standing water. It is important for everyone, including pregnant and breastfeeding women, to take these precautions.³

Need of the study

Zika virus is a virus that can cause birth defects in babies born to mothers who were infected while pregnant. While there is no vaccine available to prevent Zika virus infection, it is recommended to take precautions such as using insect repellent, staying indoors, and avoiding unprotected sex with individuals who have been

infected with Zika virus. If a person has already been infected with Zika virus, supportive care such as pain relief can be helpful. In addition, pregnant women who have been infected with Zika virus should be closely monitored for potential complications and should seek medical attention if any are present.⁴

Zika virus is a pathogen that has been known since 1947 but has recently become the focus of intense research due to its ability to cause birth defects in humans.⁵ In the absence of a vaccine and medication, raising awareness about the risk factors and preventive strategies for infection can help reduce the risk of contracting the virus. Preventive measures include interventions to prevent stagnation of water multiplication of mosquitoes, protecting the body from mosquito bites, and taking protective measures in sex.⁶ While Zika transmission and infection can be studied through multidisciplinary collaborations, significant gaps remain in our knowledge of the natural history of the infection, its effects on neurodevelopment, modes and the risk of transmission from rodent to human is relatively low, but it can occur through respiratory droplets or inhalation of contaminated dust.⁷ Other arbovirus infections, such as Lyme disease and West Nile virus, are also a concern because they can also be transmitted to humans through bites by ticks and mosquitoes. Effective countermeasures, such as therapeutics and an effective vaccine, are being researched to help prevent and treat these infections.⁸

As the Zika virus has only recently emerged, there exists uncertainty regarding the level of understanding among healthcare providers regarding Zika disease and the virus itself. Therefore, this study endeavors to assess the knowledge of Zika among nursing students. Nursing students play a crucial role in bridging the gap between the public and the healthcare system, making their awareness and comprehension of Zika particularly pertinent. By evaluating their knowledge, this study aims to shed light on potential areas of misconception or deficiency, thus informing targeted educational interventions. Ultimately, enhancing the knowledge of nursing students regarding Zika can contribute to more effective communication, prevention strategies, and patient care within the healthcare system.

PROBLEM STATEMENT:

A study to assess the effectiveness of structured teaching program regarding knowledge on the Zika virus among nursing students of selected college of Navi Mumbai.

The objectives of study were as follows:

1. To assess the knowledge regarding Zika virus before and after structured teaching program among nursing students in selected colleges of Navi Mumbai.
2. To evaluate effectiveness of structured teaching program regarding knowledge about Zika virus.
3. To find out significant association between pre-interventional knowledge score with selected demographic variables among nursing students in selected colleges of Navi Mumbai.

Methodology:

In this study quantitative research approach was used. Quasi-experimental- one group pretest posttest research design was adopted keeping in the view of objectives of the study. The study setting was Bharati Vidyapeeth College of Nursing Navi Mumbai. The Inclusion Criteria consisted of participants who are willing to participate and available at time of data collection and those who attended webinar, conference on Zika virus were excluded. 49 final year BSc Nursing students were selected using non-probability convenient sampling technique.

Study was approved by Institutional Ethical Committee after the approval by institute research recognition committee. The investigator obtained the necessary permission from concerned authorities. Informed consent was obtained from parents and assent consent from study participants

Data collection procedure

Data were gathered using self-structured questionnaire Section A consist of socio demographic variables based on age, gender, religion, area of residence, family monthly income, type of accommodation, family, frequency of cleaning surroundings and any previous knowledge. Section B consists of structured knowledge questionnaire.

As per inclusion and exclusion criteria samples were selected. Pretest was conducted using structured demographic and knowledge questionnaire. Samples were provided Nurse led intervention with a well-structured teaching program. The content of lesson plan was definition, structure mode of transmission, etiology, signs and symptoms, diagnostic test, treatment and prevention of Zika Virus infection. A post-test was conducted on 7th day using the same data collection tool

Results:

The study finding were into the following sections

SECTION I : DISTRIBUTION OF DEMOGRAPHIC VARIABLES OF STUDENTS

n=49

Sr. no	AGE	Frequency	Percentage
1	17-20	44	89.80
2	21-23	3	6.12
3	24-26	1	2.04
4	27andabove	1	2.04
GENDER			
1	Male	8	16.32
2	Female	41	83.68
RELIGION			
1	Hindu	39	79.60
2	Muslim	6	12.24
3	Christian	4	8.16
4	Other	0	0
RESIDENCE			
1	Urban	38	77.55
2	Rural	11	22.45
FAMILY MONTHLY INCOME			
1	<10000	15	30.61
2	10000-25000	16	32.66
3	25000-50000	14	28.57
4	>50000	4	8.16
TYPE OF ACCOMMODATION			
1	Hostel	1	2.04
2	Dayscholar	30	61.22
3	PayingGuest	5	10.20
4	OnRent	13	26.54
	Total	49	100

Table 1: Demographic distribution on Nursing Students

Table 1 interprets that the majority of participants fell within the age group of 17-20 years (89.80%), with most of them being female (83.68%) and belonging to the Hindu religion (79.60%). Additionally, a large proportion of participants hailed from urban areas (77.55%). Regarding monthly income, 33% of students reported an income ranging from Rs. 10,000 to Rs. 250,000, while 61% were day scholars from nuclear families. Notably, 55% of the participants had no prior knowledge of Zika Virus.

Table: 02: Distribution of participants according to type of family & previous knowledge about Zika virus n=49

TYPEOFFAMILY	Frequency	Percentage
Nuclear	30	61.22
Joint	18	36.74
Extended Nuclear	0	0
Separate	1	2.04
HOW THEY CLEAN THEIR SURROUNDINGS		
Daily	37	75.51
Once a week	6	12.24
Twice a week	4	8.16
Never	2	4.09
PREVIOUS KNOWLEDGE OF ZIKA VIRUS		
Yes	22	44.90
No	27	55.10
IFYES n-22		
Friends	10	45.45
SocialMedia	12	54.55
Total	49	100

Table 2 Source of previous knowledge of Zika Virus out of 49 students 10(45.45%) students had previous knowledge of Zika Virus through friends, 12 (54.55%) students had previous knowledge of Zika Virus through social media. Hence it can be interpreted that majority of the students who participated in this study had previous knowledge of Zika virus through social media.

Section II: Evaluate effectiveness of structured teaching program regarding knowledge of zika virus.

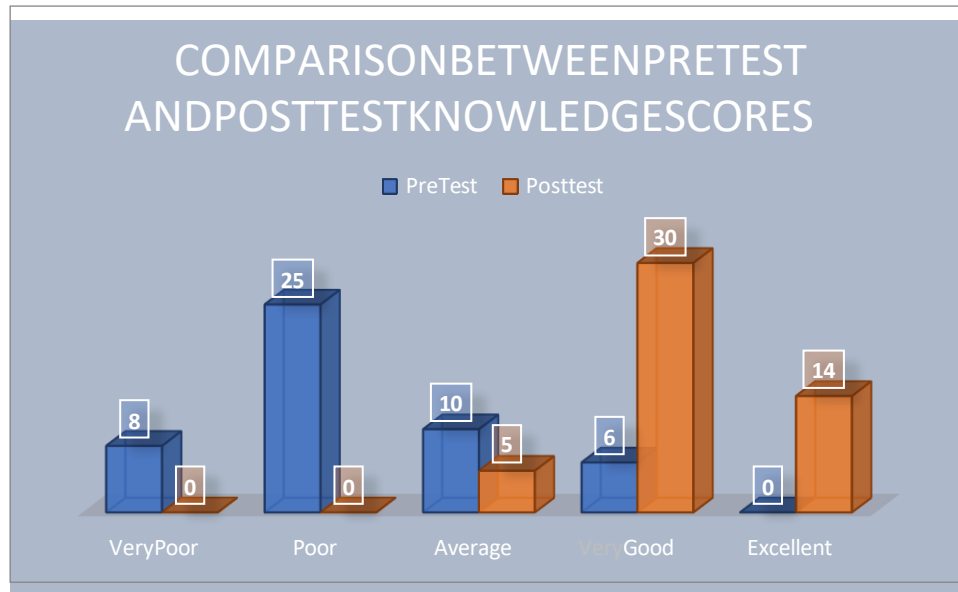


Figure no 1 Comparison between pretest and post test knowledge score

Figure 1 displays the frequency of pre-test and post-test scores to compare participants' knowledge scores before and after the intervention that the majority (51.02%) of students had poor knowledge scores before the structured teaching program. However, after the program, 61.22% of students achieved a very good knowledge score, indicating that there was gain in knowledge after the structured teaching program.

Table3: Significant Difference between the mean pretest and post test knowledge score of subjects on Zika Virus.

n=49

	Mean Knowledge	Mean difference	Standard deviation	"t" value	p
Pre-Test	9.67	9.33	4.31	Table Value:	0.001
Posttest	19		2.54	Calculated Value: -14.7626	

Table 3 displays the outcomes of a study that employed a structured teaching program to enhance student understanding of the Zika virus. Before the program, the mean pre-test score was 9.67 with a standard deviation (SD) of 4.31, while after the program, the mean post-test score was 19 with an SD of 2.54. This suggested a significant improvement in students' knowledge of the Zika virus due to the structured teaching program. The null hypothesis (H_{01}) stating that there would be no significant difference between the mean knowledge scores of students before and after the structured teaching program is rejected.

SECTION III: Association Between pre-test knowledge Scores With Selected Demographic Variables Among Nursing Students in Selected Colleges of Navi Mumbai.

Association between demographic variables	hi-square statistics	P value	Level of Significance
Age	7.0498	.854308	Not significant
Gender	2.4649	650925.	Not significant
Religion	5.4563	.94098	Not significant
Residence	2.7287	604196	Not significant
Family income	4.0045.	983356.	Not significant
Type of accommodation	11.8292.	.45949	Not significant
Type of family	5.2254.	950025	Not significant
Pattern of cleaning	5.1008.	.954528	Not significant
Awareness of Zika Virus	9.7975	6.3603	Not significant
Source of information	4.9928.	.288039	Not significant

Table 5 indicated that there was no statistically significant association between pre-interventional knowledge scores and selected demographic variables. Hence H_{02} was accepted as there was no significant relationship between pre-interventional knowledge scores and selected demographic variables.

Discussion:

Section1: Demographic distribution on Nursing Students

In the current study, the majority of participants fell within the age group of 17-20 years (89.80%), with most of them being female (83.68%) and belonging to the Hindu religion (79.60%). Additionally, a large proportion of participants hailed from urban areas (77.55%). Regarding monthly income, 33% of students reported an income ranging from Rs. 10,000 to Rs. 250,000, while 61% were day scholars from nuclear families. Notably, 55% of the participants had no prior knowledge of Zika Virus.

A study conducted by Lissa J and Sheela Williams aimed to evaluate the effectiveness of a Structured Teaching Programme (STP) on knowledge regarding Zika virus disease and its management among nursing students in a selected college in Mysuru. The study revealed similar demographic trends among the participants. The majority of participants were female (88.3%), with more than half of them above the age of 18 years (51.7%). Additionally, a significant proportion of participants identified as Christian (66.7%) and hailed from nuclear families (49%). In terms of income, 41% of participants reported an average income above Rs 6000 per month. The majority of participants practiced hygiene at home (60%) and reported the absence of mosquito breeding places (40%). Furthermore, a significant proportion of participants resided in urban areas (33%) and had no previous knowledge regarding Zika Virus (47%). These demographic characteristics reflect a diverse sample of nursing students, providing valuable insights into the effectiveness of the Structured Teaching Programme on Zika virus knowledge and management within this population.⁹

Section 2: Comparison between pretest and posttest knowledge score

In the present study, the pre-test mean value was 9.67 with a standard deviation (SD) of 4.31, while the post-test mean value was 19 with an SD of 2.54. This suggests a significant improvement in students' knowledge of the Zika virus after the structured teaching program, indicating its effectiveness.

A similar study conducted by Anitha B and Annie Annal M in 2016 aimed to assess the effectiveness of a Structured Teaching Program (STP) on knowledge regarding Zika Fever among Staff Nurses at MGMCRI in Pondicherry. The findings revealed that the post-test mean knowledge score was higher than the pretest mean score, and the difference was statistically significant at $p < 0.001$ level. This further supports the effectiveness of structured teaching programs in enhancing knowledge about Zika fever.¹⁰

Section 3: Association Between pre-test knowledge Scores With Selected Demographic Variables

The present study illustrated that there was no statistically significant association between pre-interventional knowledge scores and selected demographic variables i.e. age, gender, religion, area of residence, monthly income, type of family, cleaning pattern and previous knowledge at 0.05 level of significance.

Whereas study conducted by Francis DL, Wongsin U, Chien SC, Hsu YE, Lohmeyer FM, Jian WS, Lin LF, Iqbal U. Assessment of knowledge, attitudes, and practices towards Zika virus among healthcare workers in St. Kitts the analysis revealed factors associated with participants' knowledge of Zika Virus (ZIKV). In the univariate analysis, lacking a formal degree was significantly correlated with lower odds of possessing good knowledge of ZIKV compared to those with degrees (odds ratio (OR) = 0.46; 95% confidence interval (CI) = 0.25–0.83). Individuals without a formal degree remained significantly less likely to have good knowledge of ZIKV (adjusted odds ratio (AOR) = 0.49; 95% CI = 0.24–0.99). However, the association between having a low income and knowledge of Zika was no longer significant in the multivariate analysis (AOR = 0.58; 95% CI = 0.28–1.23). Other factors examined did not show significant associations with knowledge levels.¹¹

Recommendations

These recommendations suggest that the findings of the study need to be further explored and validated through additional research methods.

A replication study on a larger sample size can help generalize the findings to a larger population.

- An experimental study can provide more concrete evidence of the effectiveness of the techniques.
- A study in a different setting can also help determine whether the findings are applicable in different contexts.
- Overall, these recommendations emphasize the importance of ongoing research to confirm and expand the findings.

Limitations

- The study was limited to only B.Sc Nursing students and small sample size hence findings may not be

generalized to other care professionals.

- The study was limited to only assessment of knowledge
- The study was limited to only few nursing college

Conclusion:

The study on Zika Virus concludes that:

- The structured teaching program effectively increased nursing students' knowledge of Zika Virus.
- Majority of students showed significant improvement in knowledge scores after the intervention.
- Demographic factors such as age, gender, religion, and area of residence did not significantly influence pre-interventional knowledge scores.

Similar studies have shown consistent findings, emphasizing the effectiveness of structured teaching program in enhancing knowledge about Zika Virus among healthcare providers.

Overall, the study highlighted the importance of educational interventions, such as structured teaching program, in improving awareness and understanding of Zika Virus among healthcare professionals, which is crucial for effective prevention and management strategies.

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