International Journal of Research In Paediatric Nursing

E-ISSN: 2664-1305
P-ISSN: 2664-1291
www.paediatricnursing.net
IJRPN 2023; 5(2): 17-23
Received: 07-05-2023
Accepted: 11-06-2023

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A study to evaluate the effectiveness of structured nursing intervention on knowledge and practice regarding management and prevention of dengue fever among mothers of school going children age group 6-12 years in selected urban areas at Bhuj-Kachchh, Gujarat

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DOI: https://doi.org/10.33545/26641291.2023.v5.i2a.129

Abstract
Background: Dengue has been on the rise in India since the last 5-6 years. Children are most vulnerable to this disease not only because they have a weaker immune system but also because the dengue-spreading mosquitoes bite during the day while most of us adults are indoors (either at home or office) and our children are in school, either playing, having lunch at school grounds etc. As soon as they come home and rest for a while, it's time for their evening playtime. Hence it is important for us to understand how we can prevent diseases like dengue, especially in children.
Methodology: Quantitative research approach with pre-experimental one group pre-test post-test design was adopted for this study. The samples of the study were mothers of school going children age group 6-12 years from selected urban areas and data collected by using purposive sampling technique. The sample consisted of 60 mothers of school going children age group 6-12 years. The tools used for data collection were Demographic Variables Proforma, Structured Knowledge Questionnaire and Structured Five-Point Rating Scale.
Result: Study result depicted that, 76.7% (46) of mothers had inadequate knowledge, 20% (12) of mothers had moderately adequate knowledge, whereas 3.3% (02) of mothers had adequate knowledge in pre-test, whereas in post-test, 51.7% (31) of mothers had adequate knowledge, 33.3% (20) of mothers had moderately adequate knowledge and only 15% (09) of mothers had inadequate knowledge. Study result elicited that, 6.7% (04) of mothers had satisfactory practice, 25% (15) of mothers had moderately satisfactory practice, whereas 68.3% (41) of mothers had unsatisfactory practice in pre-test. Post-test practice score reveals, 48.3% (29) of mothers had satisfactory practice, 30% (18) of mothers had moderately satisfactory practice and only 21.7% (13) of mothers had unsatisfactory practice. The obtained 't' value is t=21.525 for pre-test and post-test level of knowledge, is statistically highly significant at $p<0.001$ level (df =59: table value is p=3.46). The obtained 't' value is t=13.18 for pre-test and post-test level of practice, is statistically highly significant at $p<0.001$ level (df=59: table value is p=3.46). Therefore, the researcher rejected null hypothesis.
Conclusion: Study results showed most of mothers gained adequate knowledge and satisfactory practise in post-test. Thus, it can be concluded that Structured Nursing Intervention on Dengue Fever was effective to increase and update mother's knowledge and practise regarding prevention and management of Dengue Fever.

Keywords: Dengue fever, evaluate, effectiveness, knowledge, practice, prevention, structured nursing intervention

Introduction
The dengue virus is the cause of dengue fever, a mosquito-transmitted tropical disease. Typically, three to fourteen days after infection, symptoms appear. Recovery often takes two to seven days and may involve symptoms such a high fever, headache, nausea, pain in the muscles and joints, and a distinctive skin rash. Rarely, the illness progresses into severe dengue, also known as dengue hemorrhagic fever, which causes bleeding, low platelet counts, and blood plasma leakage, or into dengue shock syndrome, which causes dangerously low blood pressure [1]. Dengue fever has rapidly increased during the past five decades, up to a 30-fold rise, making it a global public health concern. Numerous research have asserted that the bulk of dengue illnesses take place peri-domestically, raising concerns about vector control in residential areas.

A recent study in Colombo, Sri Lanka, however, underlines the fact that, out of all identified breeding containers, approximately 11.9% of residential premises, 66.75% of schools, and 21.2% of work or public venues had at least one container positive for larvae or pupae. On school grounds, the highest breeding rate has been recorded [2]. Children spend a lot of time in the school setting, which can make it easier for some illnesses to spread. As a result, schools can be important sites for activities promoting good health and preventing disease. Since eliminating potential larvae breeding grounds is a vital first step in modern mosquito-borne disease control, health education and personal hygiene are also essential [3]. In order to prevent dengue, it is crucial to keep the mosquito vector population below risk levels. This can be done by educating the public about the habitat and life cycle of the mosquito vector as well as by physically controlling it. It is accepted that there is a serious shortage of health education and awareness regarding dengue and how it spreads among school populations [4]. The live attenuated dengue vaccine CYD-TDV has been shown in clinical trials to be effective and safe in people who have had a prior dengue virus infection (Seropositive individuals), as stated in the WHO position paper on the Dengvaxia vaccine (September 2018). However, it poses a higher risk of developing severe dengue among people who contract the illness for the first time naturally after receiving the vaccine (Those who were seronegative at the time of inoculation) [5]. Since the Second World War, dengue has become a widespread issue in more than 110 nations. Between 50 and 528 million people get infected each year, and 10 to 20 thousand to 20,000 people pass away. Supportive and symptomatic treatment is essentially how dengue virus infection is managed. There isn't a defined course of treatment. However, certain Indian research have helped to improve the management of DHF/DSS [6].

Objectives

1. To assess the pre-test and post-test level of knowledge and practice regarding management and prevention of Dengue Fever among the mothers of school going children age group 6-12 years.
2. To evaluate the effectiveness of Structured Nursing Interventions on knowledge and practice regarding management and prevention of Dengue Fever among the mothers of school going children age group 6-12 years.
3. To find out the association between the post-test level of knowledge and practice regarding management and prevention of Dengue Fever among the mothers of school going children age group 6-12 years and demographic variables.

Research hypotheses

H_1: There will be significant difference between the pre-test and post-test level of knowledge and practice regarding management and prevention of Dengue Fever among the mothers of school going children age group 6-12 years.

H_2: There will be significant association between the post-test level of knowledge and practice regarding management and prevention of Dengue Fever among the mothers of school going children age group 6-12 years and demographic variables.

Methodology

Research approach: Quantitative research approach

Research Design: Pre-experimental one group pre-test and post-test design

Sampling technique: Non-probability Purposive Sampling Technique

Sample size: 60

Setting of study: Ganeshnagar, Bhuj, Kachchh, Gujarat.

Tool used for data collection: Following tools used for the data collection

Tool 1: Demographic Variables Proforma

Tool 2: Structured Knowledge Questionnaire

Tool 3: Structured Five-Point Rating scale

Tool 1

It dealt with the demographic variables such as age of the mother, age of the children, mothers' education, occupation, family type, family income, number of children in the family, type of house and sources of health information.

Tool 2

It dealt with the knowledge regarding management and prevention of Dengue Fever among mothers of school going children age group 6-12 years. It had 20 Structured Knowledge Questionnaires. Each right answer awarded by "1" mark, wrong answer had "0" mark. No Negative Marks. Total score is 20.

$$\left[\text{SCORE INTERPRETATION} = \frac{\text{score obtain}}{\text{Total Score}} \text{ x } 100\right]$$

The subject was classified in three groups based on their scores

1. Adequate knowledge: 15-20 marks (≥ 75-100%)
2. Moderately adequate knowledge: 10-14 marks (≥ 50-74%)
3. Inadequate knowledge: ≤ 9 marks (≤ 49%)

Tool 3

It dealt with key answered and scoring system of practice Regarding management and prevention of Dengue Fever among mothers of school going children age group 6-12 years. All questions dealt with Structured Five-Point Rating scale. Maximum score of the question was 4 and minimum score was 0. Total score of practice rating scale is 40.

$$\left[\text{SCORE INTERPRETATION} = \frac{\text{score obtain}}{\text{Total Score}} \text{ x } 100\right]$$

The subject was classified in three groups based on their scores

1. Satisfactory practice: 30-40 marks (≥ 75-100%)
2. Moderately Satisfactory practice: 20-29 marks (≥ 50-74%)
3. Unsatisfactory practice: ≤ 19 marks (≤ 49%)

Procedure

The investigator obtained permission from the Ethical committee of BMCB College of Nursing at Bhuj-Kachchh, Gujarat. Data collection period was 1 month. The time scheduling for data collection was from 10.00 am to 12.00 pm. Purposive Sampling Technique was used to select the samples. The investigator initially established rapport with the study subjects. The purpose of the study was explained to each subject and informed consent was obtained. 4 samples were assessed in a day. Each study subject was assessed separately and privacy was maintained. The pre-test assessment was conducted with Structured Knowledge Questionnaire and Structured Five-Point Rating scale and the same day Structured Nursing Intervention was administered by the researcher to the study sample and the post-test was conducted after the 60 days of pre-test with the same technique.

Result

The findings related to demographic variables of participants

Table 1: Frequency and percentage distribution of demographic variables of subjects. (N=60)

Sr. No	Demographic Variables	Frequency (Fr)	Percentage (%)
Age of the mother			
	25 to 30 years	13	21.66
	31 to 35 years	28	46.67
	36 to 40 years	19	31.67
	41 years or above	00	00
Age of the child			
	6 years to 7 years	20	33.33
	8 years to 9 years	21	35
	10 years to 11 years	19	31.67
	12 years	00	00
Mother's education			
	Illiterate	00	00
	Primary	31	51.67
	Secondary	26	43.33
	Diploma / Graduate	03	5
Occupation			
	Government	01	1.66
	Private	49	81.67
	Self-Employee	4	6.67
	Un-employed	6	10
Family type			
	Joint Family	32	53.3
	Nuclear Family	28	46.7
	Extended family	00	00
Family income (per month)			
	Below 10,000/-	00	00
	10,001 to 20,000/-	27	45
	20,001 to 30,000/-	33	55
	Above 30,001/-	00	00
Number of children in the family			
	1	33	55
	2	26	43.3
	3	01	1.7
	4 and above 4	00	00
Type of house			
	Pakka House	60	100
	Kachcha House	00	00
Source of health information			
	Friends	18	30
	Relatives	11	18.3
	Mass media	31	51.7
	Health Workers	00	00

Table 2: Comparison of mean and standard deviation among mothers of school going children age group 6-12years before and after Structured Nursing Intervention.

Level of knowledge	Mean	Mean difference	SD	"t" Valsue
Pretest level of knowledge	7.63	5.67	2.37	t=21.52*** df=59 p=3.46 (p<0.001)

Key: Significant at p<0.001 level ***, Significant at p<0.01 level **, Significant at p<0.05 level *, Ns- Not significant

Table 2 portrays that, the mean score of pre-test level of knowledge is 7.63 and SD value is 2.37. The mean score of post-test level of knowledge is 13.30 and SD value is 3.08. Mean difference is 5.66. The obtained 't' value is t=21.52 which is statistically highly significant at p<0.001 level (df=59: table value is p=3.46). It shows that there is highly

significant difference between the pre-test and post-test level of knowledge regarding management and prevention of Dengue Fever among mothers of school going children age group 6-12 years at selected urban areas.

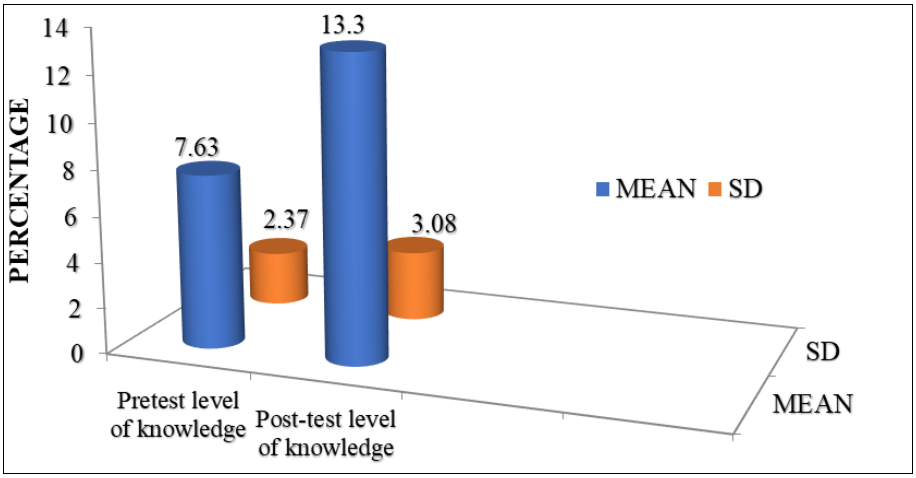

Fig 1: Comparison of mean and standard deviation pre-test and post-test level of knowledge regarding Dengue Fever among mothers of school going children age group 6-12 years.

Table 3: Comparison of mean and standard deviation on pretest and post-test level of practice regarding Dengue Fever among mothers of school going children age group 6-12 years. N=60)

Level of practice	Mean	Mean difference	SD	"t" value
Pre-test level of practice	18.43	10.63	6.18	$t=13.18^{***}$
Post-test level of practice	29.06		7.71	df=59 p= 3.46 (p<0.001)

Key: Significant at p<0.001 level ***, Significant at p<0.01 level **, Significant at p<0.05 level *, Ns- Not significant

Table 3 portrays that, the difference between the pre-test and post-test level of practice regarding Dengue Fever among mothers of school going children age group 6-12 years, the mean score of pre-test level of practice is 18.43 and SD value is 6.18. The mean score of post-test level of practice is 29.06 and SD value is 7.71. Mean difference is 10.63. The obtained 't' value is t=13.18 which is statistically highly significant at p<0.001 level (df = 59: table value is p =3.46). It shows that there is highly significant difference between the pre-test and post-test level of practice regarding Dengue Fever among mothers of school going children age group 6-12 years in selected urban areas.

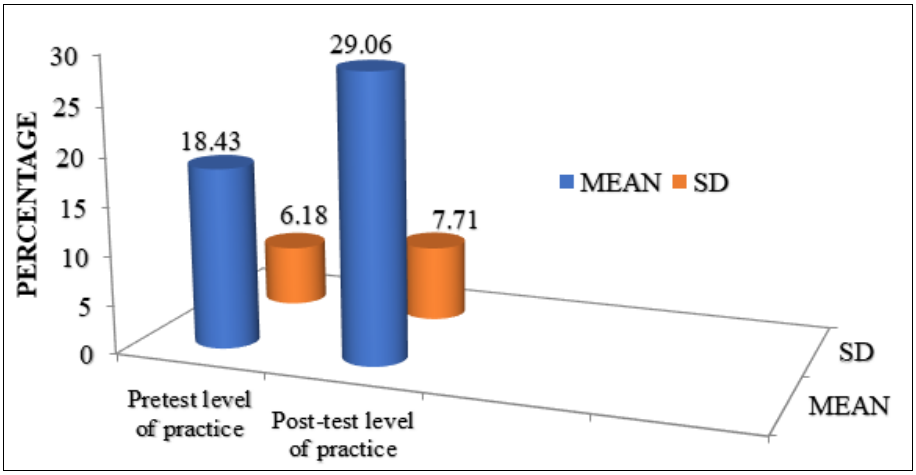

Fig 2: Comparison of mean and standard deviation on pre-test and post-test level of practice regarding Dengue Fever among mothers of school going children age group 6-12 years.

Table 4: Association between the post-test level of knowledge regarding management and prevention of Dengue Fever among mothers of school going children age group 6-12 years and demographic variables. (N=60)

Sr. No.	Demographic variables	Adequate knowledge		Moderately adequate knowledge		Inadequate knowledge		Chi- square Value
		Fr	%	Fr	%	Fr	%	
Age of the mother								$\chi^2=2.67^{NS}$
	25 to 30 years	06	19.36	04	20	03	33.33	df=4
	31 to 35 years	15	48.38	08	40	05	55.56	p=9.49

	36 to 40 years	10	32.26	08	40	01	11.11	p< 0.05
	41 years or above	00	00	00	00	00	00	NS
Age of the children								χ^2=1.44^{NS}
	6 years to 7 years	10	32.26	06	30	04	44.45	df=4
	8 years to 9 years	12	38.71	06	30	03	33.33	p=9.49
	10 years to 11 years	09	29.03	08	40	02	22.22	p< 0.05
	12 years	00	00	00	00	00	00	NS
Mother's Education								χ^2=14.87**
	Illiterate	00	00	00	00	00	00	df=4
	Primary	09	29.03	14	70	08	88.89	p=13.28
	Secondary	19	61.29	06	30	01	11.11	p< 0.01
	Diploma / Graduate	03	9.68	00	00	00	00	S
Occupation								χ^2= 9.15^{NS}
	Government	00	00	00	00	01	11.11	df=6
	Private	27	87.10	15	75	07	77.78	p=12.59
	Self-Employee	01	3.22	03	15	00	00	p< 0.05
	Un-employed	03	9.68	02	10	01	11.11	NS
Type of Family								χ^2=56.42***df=2
	Joint Family	31	100	00	00	01	11.11	p=13.82
	Nuclear Family	00	00	20	10	08	88.89	p< 0.001
	Extended family	00	00	00	00	00	00	S
Family Income (per month)								χ^2= 2.23
	Below 10,000/-	00	00	00	00	00	00	df=2
	10,001 to 20,000/-	15	48.38	10	50	02	22.22	p=5.99
	20,001 to 30,000/-	16	51.61	10	50	07	77.78	p< 0.05
	Above 30,001/-	00	00	00	00	00	00	NS
Number of children in family								χ^2=1.65
	1	18	58.07	11	55	04	44.44	df=4
	2	12	38.71	09	45	05	55.56	p=9.49
	3	01	3.22	00	00	00	00	p< 0.05
	4	00	00	00	00	00	00	NS
Type of house								χ^2=00
	Pakka House	31	100	20	100	09	100	p< 0.05
	Kachcha House	00	00	00	00	00	00	NS
Source of Health information								χ^2=60.49***
	Friends	00	00	13	65	05	55.56	df=4
	Relatives	00	00	07	35	04	44.44	p=18.47
	Mass media	31	100	00	00	00	00	p< 0.001
	Health workers	00	00	00	00	00	00	S

Key: Significant at *p*<0.001 level ***, Significant at *p*<0.01 level **, Significant at *p*<0.05 level *, Ns- Not significant

The analytical report of the Table 4 explains that the demographic variables such as mother's education, type of family and source of health information have obtained χ2 value above the level of tabulated value, therefore researcher accepted research hypothesis and rejected null hypothesis.

Table 5: Association between the post-test level of practice regarding management and prevention of Dengue Fever among mothers of school going children age group 6-12 years and demographic variables. (N=60)

SR No	Demographic variables	Satisfactory Practice		Moderately Satisfactory Practice		Unsatisfactory Practice		Chi- square Value
		Fr	%	Fr	%	Fr	%	
Age of the mother								χ^2=2.04^{NS}
	25 to 30 years	07	24.13	02	11.11	04	30.77	df=4
	31 to 35 years	13	44.82	10	55.56	05	38.46	p=9.49
	36 to 40 years	09	31.03	06	33.33	04	30.77	p< 0.05
	41 years or above	00	00	00	00	00	00	NS
Age of the child								χ^2=1.10^{NS}
	6 years to 7 years	09	31.03	06	33.33	05	38.46	df=4
	8 years to 9 years	11	37.94	07	38.89	03	23.08	p=9.49
	10 years to 11 years	09	31.03	05	27.78	05	38.46	p< 0.05
	12 years	00	00	00	00	00	00	NS
Mother's Education								χ^2=25.70***
	Illiterate	00	00	00	00	00	00	df=4
	Primary	06	20.69	12	66.67	13	100	p=18.47
	Secondary	20	68.97	06	33.33	00	00	p< 0.001
	Diploma/Graduate	03	10.34	00	00	00	00	S
Occupation								χ^2= 6.22^{NS}
	Government	00	00	00	00	01	7.69	df=6
	Private	26	89.65	13	72.22	10	76.93	p=12.59
	Self-Employee	01	3.44	02	11.11	01	7.69	p< 0.05

	Un-employed	02	06.89	03	16.67	01	7.69	NS
Type of Family								χ^2=43.62***
	Joint Family	28	96.55	04	22.22	00	00	df=2
	Nuclear Family	01	3.44	14	77.78	13	100	p=13.82
	Extended family	00	00	00	00	00	00	p< 0.001 S
Family Income (per month)								χ^2= 0.56
	Below 10,000/-	00	00	00	00	00	00	df=2
	10,001 to 20,000/-	12	41.38	08	44.44	07	53.85	p=5.99
	20,001 to 30,000/-	17	58.62	10	55.56	06	46.15	p< 0.05
	Above 30,001/-	00	00	00	00	00	00	NS
Number of children in family								χ^2=1.32
	1	15	51.72	10	55.56	08	61.53	df=4
	2	13	44.82	08	44.44	05	38.46	p=9.49
	3	01	3.44	00	00	00	00	p< 0.05
	4	00	00	00	00	00	00	NS
Type of house								χ^2=00
	Pakka House	29	100	18	100	13	100	p< 0.05
	Kachcha House	00	00	00	00	00	00	NS
Source of Health information								
	Friends	01	3.44	08	44.44	09	69.23	χ^2=47.59***
	Relatives	00	00	07	38.88	04	30.76	df=4
	Mass media	28	96.55	03	16.66	00	00	p=18.47
	Health workers	00	00	00	00	00	00	p< 0.001 S

Key: Significant at p<0.001 level ***, Significant at p<0.01 level **, Significant at p<0.05 level *, Ns- Not significant

The analytical report of the Table 5 explains that the demographic variables such as mother's education, Family type and sources of health information have obtained $\chi 2$ value above the level of tabulated value at the level of 0.001, therefore researcher accepted research hypothesis and null hypothesis rejected.

Discussion

The present study was undertaken to assess knowledge and practice regarding management and prevention of Dengue Fever among mothers of school going children age group 6-12 years. Data was collected from mothers of school going children age group 6-12 years at Selected urban areas. The data was collected by using Structured Knowledge Questionnaire for knowledge and Structured Five-Point Rating scale for practice regarding management and prevention of Dengue Fever. Study result that there is highly significant association between post-test level of knowledge and demographic variable such as mother's education (14.87), type of family (56.42) and sources of health information (60.48). There is highly significant association between post-test level of practice and demographic variables such as mother's education (25.70), type of family (43.62) and sources of health information (47.59). The findings of the study recommended the implications on nursing practice, nursing education, nursing administration and nursing research. The numerals show, most of mothers gained adequate knowledge and satisfactory practice in post-test. With the emerging health care trends nursing education must focus on innovations of theory and practice is a vital need and it is important in nursing education, nursing curriculum. Therefore, the nursing students should be introducing the management and prevention of Dengue Fever in children. Nurse must educate the mothers of school going children age group 6-12 years regarding management and prevention of Dengue Fever in children. Nursing personnel should be motivated and provide the time for development of educational materials like flip chart, poster, power point presentation and pamphlets. Provision should be made for easy access of educational material which is already developed; this was make student teaching more effective.

Conclusion

It can be concluded that majority of mothers of school going children age group 6-12 years having moderately adequate knowledge and practice in management and prevention of Dengue Fever after administration of Structured Nursing Intervention may help mothers to understand the prevention and management by giving information on introduction, definition, causes, symptoms, types of Dengue Fever, management and prevention of Dengue Fever. It helps mothers to prevent and manage the symptoms of Dengue Fever easily.

Acknowledgement

It is a matter of great privilege for me to express my deep heart fully gratitude to "The God Almighty" for abundant, health and confidence given to me to complete this study. I am immensely grateful and greatly indebted to Dr. AMBICA. C, M. Sc. (N), Ph.D. (N), Principal cum Professor and Research Guide, Department of Paediatric Nursing, B.M.C.B. College of Nursing, for constant encouragement, valuable suggestions, support and direction throughout my study. I am privileged to express my whole hearted special and sincere thanks to Dr. Nehal Vaidya, (MBBS & DCH) Paediatrician and Neonatologist, Poojan Children Hospital and Shashvat Neonatal ICU, his constant guidance, support and suggestions as a medical guide throughout the study. It's my great pleasure and privilege to express my deep gratitude to my beloved Parents for their moral support, inspiration and encouragement which helped me to strive to the best of my ability.

Conflict of Interest

Not available

Financial Support

Not available

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How to Cite This Article
Sheth NN, Ambica C, Joseph M. A study to evaluate the effectiveness of structured nursing intervention on knowledge and practice regarding management and prevention of dengue fever among mothers of school going children age group 6-12 years in selected urban areas at Bhuj-Kachchh, Gujarat. International Journal of Research in Paediatric Nursing. 2023;5(2):17-23.