International Journal of Advance Research in Community Health Nursing

E-ISSN: 2664-1666
P-ISSN: 2664-1658
www.communitynursing.net
IJARCHN 2023; 5(1): 112-115
Received: 20-01-2023
Accepted: 25-02-2023

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A study to assess the effectiveness of self- instructional module regarding disaster management among first year nursing students of selected college of nursing at Belagavi

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DOI: https://doi.org/10.33545/26641658.2023.v5.i1b.137

Abstract
Background: Disaster can be any occurrence that causes damage, ecological disruption, loss of human life or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area. Emergencies and disasters do not only affect health and well-being of people but also large number of people are displaced, killed or injured, or subjected to greater risk of epidemics.
Objective: To evaluate the effectiveness of self- instructional module regrading disaster management among first year nursing students in terms of gain in knowledge score.
Methodology: The research design was pre-experimental, one group pre-test, post-test design. The sample size comprised of 100 first year nursing students selected by randam sampling technique.
Result: The results showed that most (81%) of the subjects in the pre-test had average knowledge whereas in the post-test majority of subjects (91%) had scored good knowledge.
Conclusion: The study concluded that the self-instructional module was found effective in increasing the knowledge regrading disaster management among first year nursing students.

Keywords: Effectiveness, self-instructional module, nursing students, disaster management

Introduction
The term disaster is defined as a serious disruption of the functioning of society, causing widespread human, material or environmental losses which exceed the ability of affected society to cope using only its own resources. The damage caused by disaster depends on climate, the geographical location, and the type of the earth surface of vulnerability. Disasters cause great harm to the existing infrastructure and threaten the future of sustainable development. Disasters are not confined to a particular part of the world, they can occur any where and at any time. Primarily disasters are natural and man-made disaster. Natural disasters are large-scale geological or meteorological events that have the potential to cause loss of life or property. These include: earthquakes, cyclones, floods, tidal waves, land-slides, volcanic eruptions, tornadoes, fires, hurricanes, snow storms, severe air pollution (smog), heat waves, famines, epidemics, nuclear accidents. Man-made disasters are usually associated with a criminal attack such as an active shooter incident, or a terrorist attack using weapons such as explosive, biological, or chemical agents. However, man-made disasters can also refer to human-based technological incidents, such as a building or bridge collapse, or events related to the manufacture, transportation, storage, and use of hazardous materials [1]. Disaster management is actions taken during disaster by an organization in response to unexpected events that are adversely affecting people or resources and threatening the continued operation of the organization. It includes the development of disaster recovery plans and the implementation of such plans. Disaster management has three phases that is pre impact phase it includs forecasting, early warning, preparedness. Impact phase it includs close monitoring of impact, establishing emergency communication and deploying rescue teams and post impact phase includes medical care, food, clothing & shelter for rescued people, estimating loss of life and property, disposal of bodies and prevention of epidemics [2].

Need for the study

India is one of the most disasters prone countries of the world, almost 80% of geographical area is considered at risk to one or more type of natural disaster. Every year approximately 65 million people were affected by disaster [3]. In 2021 Uttarakhand flood, also known as the Chamoli disaster, began on 7 February 2021 in the environs of the Nanda Devi National Park, in the outer Garhwali Himalayas in Uttarakhand state and 72 people were died.Very Severe Cyclonic Storm Yaas was a relatively strong and very damaging tropical cyclone that made landfall in Odisha and brought significant impacts to West Bengal during late May 2021. A series of floods took place across the Indian state of Maharashtra. As of 28 July 2021 around 251 people have died and over 100 are still missing due to floods and landslides [4].

In the state of Karnataka, during 2019 endured severe damage and destruction of property and 7 lakh people were displaced, 14 remained missing, while 61 lost their lives. Excess rainfall caused intensify floods. North Karnataka districts of Belagavi, Bijapur, Raichur, Kalburgi, Yadgir and Uttara Kannada were severely affected by the excess flood discharge released from Maharashtra's Koyna reservoir. Moreover, many districts along the Western Ghats, including Shivamogga, Uttara Kannada, Dakshina Kannada, Kodagu and Chikkamagaluru were also severely affected and heavy rain fall also caused landslides in several parts of the state [5]. During 2021, there was heavy rainfall in Uttara Kannada District recorded 541 mm of rain. Thirthahalli in Shimoga district saw 355 mm of rain. The Navy teams evacuated 165 people from Singudda and Bhaire villages near Kadra Dam, while 70 people were evacuated from low lying areas of Kaiga. As of 25 July, 31,360 people had evacuated from low-lying areas across the state. Fatalities were reported in the districts of Uttara Kannada district, Belagavi, and Chikkamagaluru, Dharwad and Kodagu. Shivamogga and Haveri districts have also been affected [6].

The researcher has observed that vulnerability to disaster is growing. The local residents must also be aware of how they can effectively participate in preparing for a disaster, mitigating potential impacts of a disaster and the recovery process after a disaster. Nursing stuents are part of health care professionals need to educate and train to improve their knowledge and impart information and conducte public awareness activites regarding disaster management and empowering the population through sharing knowledge and information about the various types of disasters and their potential risks as widely as possible so that people act appropriately when a disaster happens.

Objectives of the study

1. To determine the level of knowledge regrading disaster management among first year ursing students before the administration of self-instructional module.
2. To evaluate the effectiveness of self-instructional module regrading disaster management among first year nursing students in terms of gain in knowledge score
3. To find the association between pre-test knowledge score among first year nursing students regarding disaster management and selected demographic variables.

Hypotheses

All hypotheses will be tested at 0.05 level of significance.

1. H_1: The mean post-test knowledge score among first year nursing students regarding disaster management will be significantly higher than the mean pre-test knowledge score.
2. H_2: There will be significant association between pre-test knowledge score among first year nursing students regarding disaster management and selected demographic variables.

Material and methods

Research Approach: Evaluative research approach

Research Design: The pre-experimental, one group pre-test, post-test design.

Setting: The study was conducted at school and college of nursing, Belagavi Institute of Medical Sciences, Belagavi

Population: First year B.Sc. Nursing and First year GNM. Nursing students' of selected college of nursing at Belagavi.

Sample and sample size: The sample size comprised of 100. In this 70 first year B.Sc.Nursing stuents and 30 first year GNM stuents.

Sampling technique: Random sampling technique.

Results

Demographic variables: Majority of the subjects (60%) were in the age group of 17- 19 years; majority of the subjects (80%) were female, most of the subjects (88%) were belonging to Hindu religion; majority of the subjects (70%) were studing B.Sc Nursing coure, most of subjects (86%) were talking kannada language, majority of sample (46%) were belonging to nuclear family and majority of samples (53%) were received information from TV.

Table 1: Frequency and percentage distribution of pre-test knowledge score regrading Disaster Management among first year nursing students
N=100

Pretest knowledge score	Frequency	Percentage	Mean	SD
Good (76% & above)	5	5	12.17	2.498
Average (51-75%)	81	81		
Poor (50% & below)	14	14		

The data from the above table revealed that majority (81%) of the subjects in the pre-test had average knowledge regarding disaster management and also it depicted that the mean knowledge score was 12.17 with Standard deviation 2.498

Table 2: Frequency and percentage distribution of post-test knowledge score regrading Disaster Management among first year nursing students

Post-test knowledge score	Frequency	Percentage	Mean	SD
Good (76% & above)	91	91	19.08	1.535
Average (51-75%)	09	09		
Poor (50% & below)	-	-		

The data from the above table revealed that majority (91%) of the subjects in the post-test had good knowledge regarding disaster management and also it depicted that the mean knowledge score was 19.08 with Standard deviation

1.535

Table 3: Range, mean, median, SD, and mean percentage of pre-test and post-test knowledge score of subjects
N = 100

Aspect	Range	Mean	Median	SD
Pre-test	05-16	12.17	13	2.498
Post-test	15-20	19.08	20	1.535

The data presented in the above table shows that the respondents' post-test knowledge scores ranged from 15- 20 with mean of 19.08 is higher than their pre-test knowledge score, which ranged from 05-16 with mean of 12.17 The dispersion of the pre-test score (SD=2.498) is more than that of their post-test score (SD = 1.535) which shows that the self-instructional module is effective.

Testing of hypotheses

All hypotheses were tested at 0.05 level of significance.

To find the significance of mean difference between pre-test and post-test knowledge score of sample who received self-instructional module regarding disasster management. the following null hypothesis was stated:

H_{01}: There is no significant difference between mean pre-test and post-test knowled subjects before and after receiving self-instructional module regarding disasster management.

The above hypothesis was tested using paired 't' test.

Table 4: Paired't' test showing the significance of mean difference between pre-test and post-test knowledge score among first year nursing students.
N = 100

Group	Mean knowledge score		Mean difference	SD of difference	SE	df	't' value
	Pre-test	Post-test					
First year nursing students	12.17	19.08	6.91	0.963		99	24.45

Maximum score = 0
t_{99}= 1.98, P < 0.05
* Significant

It is evident from the data presented in Table 4 that the calculated 't' value (24.45) is greater than the table value (1.98). Hence the null hypothesis was rejected and the research hypothesis is accepted at 0.05 level of significance. The mean difference between pre-test and post-test knowledge score is a true difference and not a chance difference. This indicates that the self instructional module is significantly effective in increasing the knowledge of first nursing students regarding disasster management.

Table 5: Chi-square test showing the association between pre-test knowledge scores and demographic characteristics of subjects

Sr. No	Demographic variable	Level of knowledge			df	Chi-square value	P value	Significance
		Good	Average	Poor				
1	**Age**							
	17 – 19 years	4	47	9	4	1.250	9.48	** Not significant
	19 – 21 years	1	29	4				
	Above 21 years	0	5	1				
2	**Gender**							
	Male	0	17	3	2	1.317	5.99	** Not significant
	Female	5	64	11				
3	**Religion**							
	Hindu	4	72	12	4	2.091	9.48	** Not significant
	Muslim	1	6	2				
	Cristian	0	3	0				
4	**Nursing course**							
	B.Sc. Nursing	1	55	14	2	12.12	5.99	*Significant
	G N M	4	26	0				
5	**Language**							
	Kannada	4	70	12	4	1.325	9.48	** Not significant
	Hindi	1	8	2				
	Marathi	0	3	0				
6	**Type of family**							
	Nuclear family	4	50	5	4	6.199	9.48	** Not significant
	Joint family	0	24	6				
	Single parent family	1	7	3				
7	**Area of residence**							
	Rural area	5	59	11	2	1.964	5.99	** Not significant
	Urban	9	22	3				
8	**Monthly income of the family**							
	Below 10,000 Rs.	3	25	9	6	7.638	12.5	** Not significant
	11,000 – 20,000 Rs.	2	40	4				
	21,000 – 30,000 Rs.	0	13	1				
	Above 31,000 Rs.	0	3	0				
9	**Source of information**							
	Television	4	42	7	8	6.035	15.5	** Not significant

	Newspapers	1	24	7				
	Magazine	0	2	0				
	Health personnel/social worker	0	7	0				
	Did not receive any information	0	6	0				

P<0.05
* Significant
** Not significant

The data presented in Table 5 shows the association between pre-test knowledge score of subjects and the demographic variables. The chi-square value of nursing course is significant. The calculated chi-square value ($\chi^2_{(1)}$=12.12, p<0.05) is more than table value ($\chi^2_{(1)}$=5.99). Hence, it is inferred that there is a significant association between nursing course and pre- test knowledge score of subjects. However, the chi-square value of other variables age, gender, religion, language, type of family, area of residence, income and source of information are not found significant at 0.05 level of significance, thereby suggesting that there is no association between these above mentioned variables with pre -test knowledge score of subjects.

Recommendations

1. The study can be conducted on a larger sample.
2. A comparative study can be conducted to find out the effectiveness of sensitization teaching programme between urban and rural community.
3. An evaluatory study can be conducted to find out the effectiveness of self-intructional module among two different groups of health professionals.

Interpretation and conclusion

The finding of this study support the need for conducting health education, counselling and mass awareness programmes regarding disaster management to the college students, adults, general public etc. The study proved that first year nursing students had average level of knowledge regarding disaster management. After administration of the self-instructional module their knowledge improved to a remarkable extent. The findings of the study showed that the self-instructional module was effective in increasing the knowledge among first year nursing students regarding disaster management.

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How to Cite This Article
K Roopa, VO Anupama. A study to assess the effectiveness of self-instructional module regarding disaster management among first year nursing students of selected college of nursing at Belagavi. International Journal of Advance Research in Community Health Nursing. 2023;6(1):xx-xx