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Research Article

Pre-Experimental Study to Assess the Impact of The teaching Program on Knowledge and Attitude regarding Disaster Management among the Nursing Students of Selected Nursing Colleges of Himachal Pradesh

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Abstract

Aim: The aim of this pre-experimental study is to examine how the teaching program affects disaster management knowledge and attitude in Himachal Pradesh nursing students.

Method: Pre-experimental design with one group pre-and post-test was used in this study. The researcher used quantitative approach. About 450 samples were taken for the investigation. Simple random sampling was utilized because the sample was available and met inclusion requirements. Data were presented using descriptive and inferential statistics. The knowledge and attitude of the pre- and post-test scores were compared using the *t*-test. Chi-square tests determined the connection between knowledge and attitude and demographic variables.

Result: Results say that pre-test, 263 (58.45%) had poor disaster management knowledge and 9 (2%) had extremely good. On the post-test, 170 (38.22%) had strong disaster management knowledge and 33 (7.33%) had exceptional. Most 310 (69%) pre-test responders had a negative attitude about catastrophe management, while 140 (31%) had a positive attitude. After the test, 52% of 235 respondents had good attitude about catastrophe management and 48% negative attitude for it. At 0.05 significance level, demographic variables are associated with pre-test knowledge score. At a significance level of 0.05, the demographic variables are associated with pre-test attitude score.

Conclusion: The education program enhances nursing students' disaster management knowledge and attitudes, the study revealed. Nursing students' knowledge and attitude rise.

Keywords: Attitude, disaster management, Himachal Pradesh, knowledge, nursing students, teaching programs

Introduction

A disaster is an incident, or set of events, that cause more deaths, damage, or loss to the environment, infrastructure, property, basic services, or sources of nourishment than the afflicted community can typically sustain. A disaster is when the normal course of life or ecology is disrupted and immediate, extreme action is required to save and protect people and the environment. According to the UN, a disaster is an instance of a sudden or significant tragedy that affects the essential makeup and regular operation of the society or community.[1]

Any event, whether natural or artificial, that unexpectedly disrupts society's routine and harms enough people and property that it is impossible for things to return to normal using the current social and economic standards is considered a disaster. A disaster is a traumatic, unforeseen event that

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significantly impairs a community's ability to function and causes more damage to people, property, and the environment than can reasonably be anticipated for the community or society to be able to recover from using its own resources. Even when natural causes play a major role in a disaster, human factors can still play a role.[2]

Disaster management is the organization and control of the tasks and resources necessary to cope with all humane aspects of events, also response, readiness, and improvement, as to lessen the effects of calamities.[3]

Through collaboration with physicians and other members of the medical team, nurses play a crucial part in the response in a range of clinical and community settings as well as during all stages of a catastrophic incident. Through assessment and triage, they identify the victims' needs, offer basic medical care, advanced clinical care, life-saving drugs should be administered, resources should be allocated, and ongoing mental physical health needs should be monitored. Nurses can assist with organizational logistics by developing operational response plans, security protocols, and statistical analyses of data at the individual and community levels.[4]

Nurses lack understanding regarding the emergency preparation of the health system, in particular school nurses who, are expected to carry out substantial duties in times of public health crisis.[5] A research, in which more than 5000 nurses from the Spectrum Health system participated, for instance, 78% of respondents said they knew next to nothing about emergency preparedness and disaster response. Research suggests that many nurses and other healthcare workers may feel underprepared to do so or to preserve their own safety. Individual nurses and other healthcare professionals may or may not be prepared to respond to crises.[6]

The current study's objective is to assess how the educational course has affected nursing students' understanding of and attitudes toward disaster management.

Materials and Methods

Research approach

A quantitative approach has been utilized by the researcher for this study.

Research design

A pre-experimental design with a single group pre- and post-test has been chosen for this study.

Setting of study

The chosen Himachal Pradesh colleges serve as the study's setting.

Population of study

The population of the study consisted of nursing students of selected colleges in Himachal Pradesh.

Sample technique

For this study, simple random sampling technique was used.

Sample size

450 sample sizes were chosen for the study.

Description of tool

- Section A: Socio-demographic variable
- Section B: Structured knowledge questionnaire
- Section C: Attitude scale.

Statistics

To display the data, both inferential and descriptive statistics were employed.

- Descriptive statistics: Frequency and percentage for the demographic data, categorization of the knowledge and attitude score on disaster management.
- Inferential statistics: The knowledge and attitude pre- and post-test scores were compared using a *t*-test to determine the difference. Chi-square tests were utilized to determine how knowledge and attitude related to the chosen demographic factors.

Results

Section A: Frequency and percentage distribution of the demographic variables in experimental group and control group

Table 1 shows 450 (100%) female respondents and 0 (0%) male respondents. 199 (44%) respondents were urban and 251 (56%) rural. 352 (78%) nuclear families and 98 (22%), joint families. 294 (65%) had a monthly household income of 20,001–30,000 Rs. Following that, 73 (16%) had 10,000–20,000 Rs. while 62 (14%) had over 30,001 Rs. 21 (5%) under 10,000 Rs. 423 (94%) respondents had disaster management experience, whereas 27 (6%) did not. 297 (66%) respondents got disaster

Table 1: Distribution of respondents in relation to selected demographic. *n*=450

Demographic variables	Frequency	Percentage
1. Gender		
a. Male	0	0
b. Female	450	100
2. Residence		
a. Rural	251	56
b. Urban	199	44
3. Type of family		
a. Joint family	98	22
b. Nuclear family	352	78
4. Family monthly income		
a. <10,000 Rs	21	5
b. 10,000–20,000 Rs.	73	16
c. 20,001–30,000 Rs.	294	65
d. More than 30,001 Rs.	62	14
5. Do you have previous knowledge regarding disaster management?		
a. Yes	423	94
b. No	27	6
6. Source of information regarding disaster Management		
a. Media	297	66
b. Friends	92	20
c. Medical professional	25	6
d. Other	36	8

management information from media, 90 (20%) from friends, 36 (8%) from other sources, and 25 (6%) from doctors.

Section B: Assessment of pre-test knowledge and attitude score regarding disaster management among the nursing students

Table 2 depicts that for pre-test knowledge and attitude score, most respondents (58.45%) had poor disaster management knowledge, followed by 133 (29.55%) with average knowledge, 35 (7.58%) with good knowledge, 10 (2.22%) with excellent knowledge, and 9 (2%) with very good knowledge.

Table 3 shows the most of 310 (69%) respondents had a negative attitude toward catastrophe management and 140 (31%) had a good attitude.

Table 2: Distribution of pre-test knowledge score regarding disaster Management among nursing students. *n*=450

S. No	Knowledge level	Pre-test score	
		Frequency	Percentage
1.	Excellent (25–30)	10	2.22
2.	Very good (19–24)	9	2
3.	Good (13–18)	35	7.78
4.	Average (7–12)	133	29.55
5.	Poor (0–6)	263	58.45

Table 3: Distribution of pre-test attitude score regarding disaster management among nursing students. *n*=450

Sr. No	Attitude level	Pre-test score	
		Frequency	Percentage
1.	Positive attitude (46–100)	140	31
2.	Negative attitude (20–45)	310	69

Table 4: Distribution of post-test knowledge score regarding disaster management among nursing students. *n*=450

S. No	Knowledge level	Post-test score	
		Frequency	Percentage
1.	Excellent (25–30)	33	7.33
2.	Very good (19–24)	57	12.67
3.	Good (13–18)	172	38.22
4.	Average (7–12)	150	33.33
5.	Poor (0–6)	38	8.45

Table 5: Distribution of post-test attitude score regarding disaster management among nursing students. *n*=450

S. No	Attitude level	Post-test score	
		Frequency	Percentage
1.	Positive attitude (46–100)	235	52
2.	Negative attitude (20–45)	215	48

Section C: Assessment of post-test knowledge and attitude score regarding disaster management among the nursing student after the intervention

Table 4 shows the post-test knowledge score: 170 (38.22%) had good disaster management knowledge, 150 (33.33%) had average, 57 (12.67%) had very good, 38 (8.45%) had poor, and 33 (7.33%) had excellent knowledge.

Table 5 shows the post-test attitude score of the respondents whereas 52% of 235 respondents had a good attitude toward catastrophe management, while 48% had a negative attitude.

Section D: Comparison of pre- and post-test knowledge and attitude score regarding disaster management among the nursing students

Table 6 depicts that the Pre- and post-test knowledge scores are compared, in pre-test, 263 (58.45%) had poor disaster management knowledge, 133 (29.55%) had average, 35 (7.58%) had good, 10 (2.22%) had excellent, and 9 (2%) had very good. In the post-test, 170 (38.22%) had good disaster management knowledge, 150 (33.33%) average, 57 (12.67%) very good, 38 (8.45%) poor, and 33 (7.33%) excellent.

Table 7 shows the pre-test mean knowledge score of 6.74, median 5, and standard deviation of 5.67. The mean post-test knowledge score is 14.15, the median is 14, and the standard deviation is 6.10.

Table 8 shows that in the pre-test, 310 (69%) respondents had a negative attitude toward disaster management and 140 (31%) had a positive attitude. After the test, 52% of 235 respondents had a positive attitude toward catastrophe management and 48% had a negative view.

Table 9 shows the pre-test mean attitude score of 40.69, median 38, and standard deviation 14.41. Post-test knowledge scores mean 54.18, median 47.5, and SD 18.49.

Section E: Assessment of the effectiveness of the teaching program on knowledge and attitude score regarding disaster management among the nursing students

Table 10 shows the educational program's impact on nursing students' disaster management expertise. The mean knowledge

Table 6: Comparison of pre- and post-test knowledge regarding disaster management among the nursing students. *n*=450

S. No	Knowledge level	Pre-test score		Post-test score	
		Frequency	Percentage	Frequency	Percentage
1.	Excellent (25–30)	10	2.22%	33	7.33
2.	Very good (19–24)	9	2%	57	12.67
3.	Good (13–18)	35	7.78%	172	38.22
4.	Average (7–12)	133	29.55%	150	33.33
5.	Poor (0–6)	263	58.45%	38	8.45

Table 7: Mean, median, and standard deviation of the pre-test knowledge score and post-test knowledge score of nursing students regarding disaster management. *n*=450

Test	Mean	Median	SD
Pre-test	6.74	5	5.67
Post-test	14.15	14	6.10

Maximum score: 30

Table 8: Comparison of pre and post-test attitude regarding disaster management among the nursing students. *n*=450

S. No.	Attitude level	Pre-test score		Post-test score	
		Frequency	Percentage	Frequency	Percentage
1.	Positive attitude (46–100)	140	31	235	52
2.	Negative attitude (20–45)	310	69	215	48

Table 9: Mean, median, and standard deviation of the pre-test attitude score and post-test attitude score of nursing students regarding disaster management. *n*=450

Test	Mean	Median	SD
Pre-test	40.69	38	14.41
Post-test	54.18	47.5	18.49

Maximum score: 30

Table 10: Effectiveness of teaching program on knowledge regarding disaster management among the nursing students. *n*=450

Test	Mean	SD	T-test	DF	*P*-value	Result
Pre-test	6.74	5.67	18.85	449	<0.00001	S
Post-test	14.15	6.10				Significant

score after the test was 14.15 (SD ± 6.10), compared to 6.74 (SD ± 5.67) pre-test score. Mean knowledge score improved after teaching program implementation. Using paired t-test analysis (t = 18.85; $P \leq 0.00001$), the difference between pre-test and post-test mean knowledge scores was significant at 0.05 level. Therefore, the null hypothesis is rejected and alternative hypothesis is accepted.

Table 11 shows that the teaching program affects nursing students' disaster management attitudes, The post-test mean attitude score of 54.18 with SD ± 18.49 was higher than the pre-test score of 40.69 with SD ± 14.41. Mean attitude score improved after instruction program implementation. Using paired *t*-test analysis (t = 12.20; $P \leq 0.00001$), the difference between pre-test and post-test mean knowledge scores was significant at 0.05 level. Therefore, the null hypothesis is rejected and alternative hypothesis is accepted.

Section F: Determine the correlation between knowledge and attitude score among the nursing students

Table 12 depicts that, correlation between the nursing students' knowledge and attitudes about disaster management having

Table 11: Effectiveness of teaching program on attitude regarding disaster management among the nursing students. *n*=450

Test	Mean	SD	T Test	DF	*P*-value	Result
Pre-test	40.69	14.41	12.20	449	<0.00001	S
Post-test	54.18	18.49				Significant

Table 12: Correlation between knowledge and attitude regarding disaster management among nursing students. *n*=450

Particulars	Correlation
Knowledge versus attitude	r=0.63

a positive correlation between knowledge and attitude with r = 0.63.

Section G: Determine the association between the knowledge and attitude score with selected demographic variables

As shown in Table 13, the Chi-square value of demographic variables like Type of Family (17.95), Family monthly income (25.28), and source of disaster management information (42.74) shows a significant correlation between pre-test knowledge score at 0.05 level of significance. The null hypothesis was rejected and the alternative hypothesis was accepted.

In Table 14, the Chi-square value for the relationship between attitude level and score with selected demographic variables like Residence (5.00), Type of Family (23.11), Family monthly income (48.45), and source of disaster management information (9.29) shows a significant association with pre-test attitude score at 0.05 level of significance. The null hypothesis was rejected and the alternative hypothesis was accepted.

Discussion

A similar study conducted by, Sakhare *et al*. shows that, from the 200 samples, 78.5% of healthcare team members had medicore knowledge, 152 (76%) had average practices, and 184 (92%), excellent attitudes toward hospital disaster preparedness. A few demographic factors were examined in relation to practices and attitude using Fisher's Exact Test. The number of beds, healthcare team members' knowledge and attitudes in relation to disaster readiness, and hospital ownership at the time of the study were strongly correlated. None of the demographic characteristics correlated with practices.[7]

Fazl *et al*., conducted a descriptive cross-sectional study to assess Gurugram hospital staff nurses' disaster preparedness knowledge and practices. Results show mean knowledge and practice scores of 69.8% and 66.5%. The study revealed average disaster preparedness knowledge and practices with substantial variances ($P \leq 0.0001$).[8]

A study conducted by Thomas *et al*., done to evaluate a thorough flood management training program for national

Table 13: Association between the knowledge level regarding disaster management among the nursing students with selected demographic variables. *n*=450

Socio-demographic variables	Total no of Samples	Level of knowledge score					Df	*P*-value	Chi-square value	Result
		Excellent	V. good	Good	Average	Poor				
1. Gender							-	-	-	-
Male	0	0	0	0	0	0				
Female	450	10	9	35	133	263				
2. Residence							4	0.1176	7.37	NS
Rural	251	6	6	26	77	136				
Urban	199	4	3	9	56	127				
3. Type of family							4	0.00125	17.95	S
Joint family	98	2	1	6	14	75				
Nuclear family	352	8	8	29	119	188				
4. Family monthly income							12	0.013	25.28	S
<10,000 Rs.	21	2	1	4	7	7				
10,000–20,000 Rs.	73	2	2	10	16	43				
20,001–30,000 Rs.	294	4	4	16	98	172				
More than 30,001 Rs.	62	2	2	5	12	41				
5. Do you have previous knowledge regarding disaster management?							4	0.3258	4.64	NS
Yes	423	8	8	32	126	249				
No	27	2	1	3	7	14				
6. Source of information regarding disaster management							12	0.00002	42.74	S
Media	297	6	4	11	99	177				
Friends	92	2	3	9	19	59				
Medical professional	25	1	1	8	7	8				
Other	36	1	1	7	8	19				

Table 14: Association between the attitude level regarding disaster management among the nursing students with selected demographic variables. *n*=450

Socio-demographic variables	Total no of samples	Level of attitude score		Df	*P*-value	Chi-square-value	Result
		Positive	Negative				
1. Gender				-	-	-	-
Male	0	0	0				
Female	450	140	310				
2. Residence				1	0.025	5.00	S
Rural	251	89	162				
Urban	199	51	148				
3. Type of family				1	0.0000	23.11	S
Joint family	98	11	87				
Nuclear family	352	129	223				
4. Family monthly income				3	0.0000	48.45	S
<10,000 Rs.	21	9	12				
10,000–20,000 Rs.	73	16	57				
20,001–30,000 Rs.	294	73	221				
More than 30,001 Rs.	62	42	20				
5. Do you have previous knowledge regarding disaster management?				1	0.5483	0.360	NS
Yes	423	133	290				
No	27	7	20				
6. Source of information regarding disaster management				3	0.0256	9.29	S
Media	297	91	206				
Friends	92	21	71				
Medical professional	25	12	13				
Other	36	16	20				

service project volunteers at Rajeev College of Nursing, Hassan, found that The study found that 43.03% (12.91) of NSS volunteers' pre-test flood management knowledge was related. NSS volunteers knew 23.29% (77.63%) about flood management after the test. Thus, 34.6% (10.38) of the study group understood flood control better. The NSS volunteers' mean post-test knowledge score of 23.29 was far greater than their pre-test score of 12.91. The paired "t" test result of 35.729 is significant at $P = 0.000$. The study found that the STP on flood control helped National Service Scheme volunteers learn moderate to adequate flood management.[9]

A similar study conducted by Alshakka *et al*. examined university health students' disaster preparedness knowledge, attitudes, and readiness: Based on resource-poor conditions, when appropriate, descriptive statistics and parametric (one-way, two-way, Pearson correlation, independent *t*-tests, ANOVA, and multiple regression analysis) or nonparametric

tests were employed. *P*-values under 0.05 were significant. This study involved 250 health students. Practice preparation, attitude, and knowledge were reasonable. Knowledge and attitude are positively correlated, indicating practice readiness. Healthcare students' crisis management and preparedness knowledge, eagerness to practice, and positive attitude were moderate. Novelty/Improvement: The significance of disaster management education in college curricula is shown by this study.[10]

A similar study conducted by Aurelio *et al*. A study on nursing students' disaster preparedness knowledge, attitudes, and practices found that their demographic profile strongly correlates with their practices and that their assimilation into society improves throughout the year. The research shows that nursing students' disaster preparedness knowledge, attitudes, and practices are adequate, although they may improve. Students can improve their disaster preparedness skills through continuing education and training seminars. This improves disaster management and preparation.[11]

Conclusion

The study's conclusions confirm that the educational program has a positive impact on nursing students' knowledge and attitudes about disaster management. Nursing students experience improvements in both their knowledge and attitude scores.

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