

The Effect of an Educational Intervention About Disaster Preparedness on Knowledge and Attitudes of Technical Nursing Institute Intern-nurse Students

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Abstract: Disasters often result in significant impacts on people's health. Nurses play a central role in disaster preparedness and management. Nursing school has a vital role in preparing the future nurses with basic knowledge in disaster preparedness, response and recovery. The aim of the study is to evaluate the effect of an educational intervention about disaster preparedness on technical nursing institute intern- nurse students' knowledge and attitude. A quasi-experimental inquiry design was utilized with pre-test post-test and follow up. The study was accomplished at the Technical Nursing Institute, Zagazig University, Egypt. A convenience sample of 119 technical nursing institute intern- nurse students were enrolled in the study. Two tools were used for data collection self-administered questionnaire and attitudes scale. It appeared that, there were 18.5% of the considered subjects had adequate knowledge some time recently the program. Too there were as it was 19.3% of the examined subjects had positive attitude toward disaster preparedness at pre-test. There were advancement in knowledge and attitude of the members post program. It was concluded that, instructive intervention was effective in accomplishing noteworthy change in specialized nursing founded student' knowledge around disaster preparedness, which was showed in advancement and altering in their demeanours concerning disaster. Training programs are fundamental for all nursing undergraduate to prepare them to oversee their awareness around disaster preparation.

Keywords: KAP, Disaster Preparedness, Nursing, Students

1. Introduction

The nursing profession plays a vital part within the capacity to get ready for and react to disaster. Higher instructions educate and nursing schools are able of making extraordinary commitments to all stages of calamity administration. These teach can teach a culture of disaster readiness and moderation by creating preparing educational program, advancing instructive openings and raising mindfulness of organization disaster administration plans [1].

A disaster may be unexpected sudden, calamitous occasion genuinely disturbs society and causes human fabric, and financial or natural misfortunes that surpass the society's capacity for managing and utilizing claim assets. In spite of

the fact that frequently caused by nature, catastrophes can have human origins (The Worldwide Alliance of Ruddy Cross and Ruddy Bow Social orders) [2].

disaster can take numerous diverse shapes, and the length can extend from an hourly disturbance to days or weeks of progressing annihilation. Normal and human-caused disaster influence thousands of individuals each year. Major unfavourable occasions such as these have the potential to cause disastrous misfortune of life and physical devastation. They are frequently startling and can take off entirety communities in stun. Whether of normal or human beginning, disaster definitely influence all nations of the world and their populaces [3].

Individuals who live through a disaster can encounter

enthusiastic trouble. Sentiments of uneasiness, steady stressing, and inconvenience resting and other depression-like indications are common reactions to disaster some time recently, amid, and after the occasion. Numerous individuals are able to “bounce back” from calamities with offer assistance from family and the community, but others may require extra bolster to manage and move forward on the way of recuperation. Anybody can be at hazard, counting survivors living in the impacted areas and first responders and retrieval workers [4].

All societies are at risk to disaster, both normal and man-made. Any calamity can hinder basic administrations, such as wellbeing care, power, water, sewage/garbage expulsion, transportation and communications. The interference can truly influence the wellbeing, social and financial systems of neighbourhood communities and nations [5].

The hospital speak to a basic resource within the occasion of a disaster, but it is additionally a helpless one. Healing centres can drop casualty to the calamity occasion itself. Obviously, each hospital must have methods in put to preserve basic administrations when fundamental and transport patients to elective offices. In expansion, when a clinic close down, its staff, vehicles, gear, and supplies may still be valuable. Territorial fiasco arranging ought to incorporate plans to disperse these resources as required by the community [6].

Disaster Management can be characterized as the organization and administration of assets and obligations for managing with all helpful angles of crises, in specific readiness, reaction and recuperation in arrange to reduce the effect of disaster. Disaster administration endeavours' point to decrease or maintain a strategic distance from the potential misfortunes from dangers, guarantee provoke and fitting help to the casualties of a fiasco, and accomplish a quick and successful recuperation [2].

Higher instructions teach in addition to nursing schools are competent of making awesome commitments to all stages of disaster administration. First, it can teach a culture of preparedness and mitigation by developing educational curricula, advancing instructive openings and raising mindfulness of organization disaster administration plans. Also, nursing institutes can conduct important inquire about and create capacity-building programs for healthcare specialists and those included in helpful work. These measures would make riches of assets that might be utilized in national preparedness and response frameworks through academic-public health organizations [7].

Most nurses get small, on the off chance that any, disaster preparedness and response instruction in nursing school, and consequently they lack confidence in their abilities to contribute effectively during disasters. In common, nursing school staff were insufficiently arranged to teach disaster preparedness content. With the expanding worldwide recurrence of disaster, the need for disaster readiness preparing must be strengthened. Nurses shape the biggest gather of the healthcare workforce and are regularly on the cutting edge in calamity administration. In this manner,

nurses ought to be satisfactorily prepared with the knowledge and attitudes to reply to disaster, beginning from their pre-service preparing to their in-service proficient preparing. Be that as it may, the inclusion of disaster preparedness instruction in undergrad nursing educational program is negligible in most countries [8].

Effective earlier preparing of nurse students assists in security and wellbeing of healthcare labourers and responders amid a disaster. Moreover, it may moreover move forward the readiness of understudies to assist amid a calamity. Student nurses trained in disaster management could also helpful in community education programmes as part of a community disaster preparedness health initiative [9]. The reason of this study is to evaluate the effect of educational intervention about disaster preparedness on knowledge and attitude of the technical nursing institute intern- nurse students.

Aim:

To evaluate the effect of educational intervention about disaster preparedness on knowledge and attitude of the technical nursing institute intern- nurse students.

Research Hypothesis:

1. There will be significant improvement of knowledge and attitude of technical nursing institute intern- nurse students about disaster preparedness after implementation of educational program.
2. There will be a positive correlation between knowledge and attitude of technical nursing institute intern- nurse students about disaster preparedness.

2. Methodology

2.1. Study Design

A quasi-experimental design.

2.2. Setting

This study was made at the technical nursing Institute, Zagazig University, Egypt.

2.3. Subjects

A convenience sample of 119 of technical nursing institute intern- nurse students 85 were female and 34 male students of mean age 20.17 ± 0.20 this is the age of the transition period of students, which begins as senior nursing students to become professional and independent registered nurse.

2.4. Tools

The data was collected by self-administered questionnaire developed from related literatures after modification by research team containing two parts: part (a) includes socio-demographics data of the study subjects such as (age, sex, marital status, studying disaster preparedness and attendance training about disaster preparedness) and part (b) It was developed after reviewing related works of [10, 11, 12]. To assess technical nursing institute intern- nurse students'

knowledge regarding disaster preparedness, It includes 16-items about basic concepts, Disaster preparedness plan (2 items), Disaster training (2 items), Disaster preparedness. Tool two: It was adopted to assess technical nursing institute intern- nurse students' attitudes towards their disaster preparedness [10].

2.5. Scoring System

Students' knowledge regarding disaster includes 16 questions and were divided into four subgroups: Basic concepts (3 questions), Disaster preparedness plan (5 questions), Disaster training (5 questions), and Disaster management (3 questions) each question correct answer was granted one point, and zero for the wrong one or don't know. The total score for all questions was 16. Total scores were expressed as percentages. If the total score was less than 60%, it was considered inadequate level of knowledge, 60% and more was considered adequate level of knowledge.

Likert scale. It was designed to assess attitude of technical nursing institute intern- nurse students towards disaster management. It was adopted from [10]. The scale was consisted of 10 items were evaluated according to responses: "agree=3", "not sure=2" and "disagree=3" respectively. The scoring was reversed in case of negative items. Summing up the scores of the items then the overall score gave total attitude score. The total attitude score was graded as the following; negative when total score was (10-17), neutral when total score was (18-24) and positive when total score was (25-30).

2.6. Field Work

An official permission was obtained from the Director of technical nursing Institute, Zagazig University. Meeting and discussions were held between the researchers and director of technical nursing Institute to make them aware about the aims and objectives, as well as to gain better cooperation and full support, to stimulate nursing students to participate positively in the study.

2.7. Ethical Considerations

The purpose of the study was explained to each student and oral informed consent to participate in the study was obtained from them. Confidentiality and anonymity of participants; as well as their right to withdraw from the research at any time were ensured without any consequences. Afterwards, the study was conducted by the investigators through four consecutive phases: assessment, planning, implementation and evaluation. The whole duration for data collection took about six months started from January to July, (2016).

Assessment phase

This phase aimed to assess to technical nursing institute intern- nurse students' knowledge and attitudes towards their disaster preparedness. Tools (I, II) were translated into Arabic and tested for content and face validity by a jury of three experts (one professors community health nursing and

two professors of nursing administration) and some modifications were done. The tools used in this study had high reliability, by using Cronbach's Alpha Coefficient test.

Pilot study: The pilot study commenced, once ethical approval had been obtained, to test the clarity, feasibility and applicability of the study tools. It was conducted on 15 students who were excluded from the study sample. Based on the results of the pilot study, modifications and omissions of some details were done and then the final forms were developed.

Planning phase: To evaluate the pattern participants' information almost disaster preparedness, pre-test shapes were disseminated to the accessible members who were gathered in a Lesson room. The shapes were collected after 20 to 30 minutes. Based on comes about of the pre-test, the members learning needs were distinguished. Appropriately, the destinations of the program were expressed and the substance was planned. The targets of the program were to progress nursing student' knowledge with respect to disaster preparedness which was reflected in enhancement and changing their attitude towards disaster.

The contents of the program included the following:

Definition of disaster, the importance of personal preparedness, examples of disasters and the consequences experienced by communities, type and classification of disasters (Human-Made Events, Natural Disasters), disaster preparedness plan, examples of when personal preparedness plans can be utilized disaster cycle management: 1- Prevention or Mitigation: Prevention activities. 2- Preparedness: Training, Drills & Exercises 3-Response, 4-Recovery).

Implementation phase

The total duration (16 hours theory) was divided into daily 8 sessions with two hours for each session, i.e. four days. A half-hour break was given in the middle of the session. The program lasted for two months, from the first of February to the end of March 2016. Program classes were conducted at the technical nursing Institute, Zagazig University. Different media were used, e.g., handouts, flip charts, and whiteboard. The first session was attended by the investigator who explained of the program aim, educational objectives, plan, content outline, and methods of program evaluation.

Teaching methods during the implementation of the program included small group discussions, lectures and role playing, class application, using teaching aids as whiteboard and handouts. Adult teaching principles were used in presenting the content.

Evaluation phase

1. To assess participants' knowledge and attitude, a post-test was done immediately after the program, following the same procedure and the same tools used in the pre-program assessment
2. -Evaluation of participants' retained knowledge and their attitude was assessed at the end of the three months post- program, using the same tools as in the pre- and immediate post- program tests.

[illegible]

Items	Study period	Pre-test		Post-test		Follow up test		χ^2 test	P value
		No.	%	No.	%	No.	%		
Disagree		32	26.9	16	13.4	13	10.9	120.761	<.001**
Not sure		48	40.3	15	12.6	13	10.9		
Agree		39	32.8	88	73.9	93	78.2		
Disasters planning is for a few people in the hospital								122.590	<.001**
Disagree		25	21.0	94	79.0	94	79.0		
Not sure		46	38.7	20	16.8	17	14.3		
Agree		48	40.3	5	4.2	8	6.7	124.774	<.001**
Identify potential risks that can cause disaster and deal with them									
Disagree		18	15.1	10	8.4	11	9.2		
Not sure		81	68.1	10	8.4	16	13.4	105.18	<.001**
Agree		20	16.8	99	83.2	92	77.3		
Training is essential for all health workers									
Disagree		49	41.2	10	8.4	6	5.0	102.189	<.001**
Not sure		33	27.7	20	16.8	20	16.8		
Agree		37	31.1	89	74.8	93	78.2		
I think it is necessary to have a disaster plan								127.179	<.001**
Disagree		48	40.3	13	10.9	21	17.6		
Not sure		51	42.9	7	5.9	7	5.9		
Agree		20	16.8	99	83.2	91	76.5	120.538	<.001**
Disasters plans should be regularly updated									
Disagree		48	40.3	10	8.4	12	10.1		
Not sure		33	27.7	15	12.6	19	16.0	109.709	<.001**
Agree		38	31.9	94	79.0	88	73.9		
Disasters are unlikely to occur in the hospital									
Disagree		22	18.5	98	82.4	88	73.9	116.442	<.001**
Not sure		49	41.2	10	8.4	9	7.6		
Agree		48	40.3	11	9.2	22	18.5		
Disasters management is for nurses and doctors only								109.709	<.001**
Disagree		23	19.3	94	79.0	94	79.0		
Not sure		32	26.9	15	12.6	13	10.9		
Agree		64	53.8	10	8.4	12	10.1	116.442	<.001**
Disasters training should be part of the internship program									
Disagree		30	25.2	15	12.6	22	18.5		
Not sure		43	36.1	6	5.0	8	6.7	116.442	<.001**
Agree		46	38.7	98	82.4	89	74.8		

**A highly statistical significant difference ($P \leq .001$)

Table 3 displays the distribution of the study subjects according to their attitude throughout the study period; there were highly statistically significant differences ($P < .001$) between the pre-test, post-test and the follow up test in relation to all items of the attitude scale about disaster preparedness.

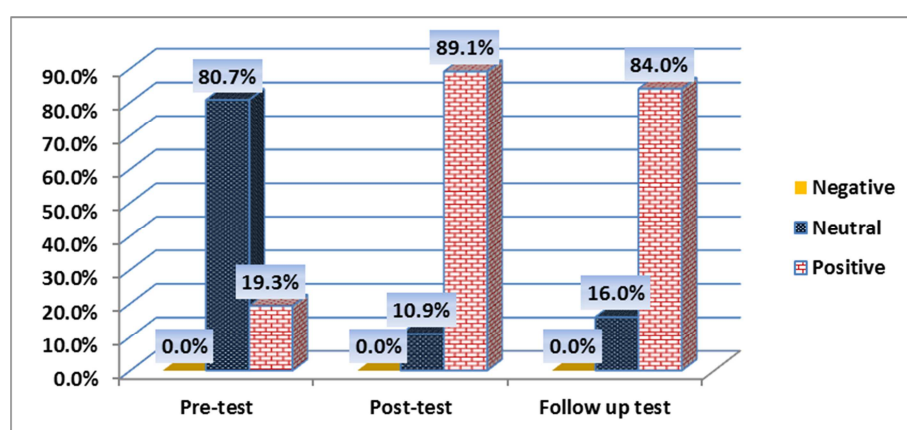


Figure 2. Study subjects total attitude throughout study period (n = 119).

Figure 2 demonstrates that, only 19.3% of the studied subjects had positive attitude toward disaster preparedness in pre-test. Meanwhile, in the post-test, 89.1% of them got positive attitude toward disaster preparedness that declined to 84.0% in the follow up test.

Table 4. Correlation coefficient between students' total knowledge score and their attitude score throughout the study period (n = 119).

Variables	Knowledge		
		r	P
Attitude	Pre-test	0.967	<.01**
	Post-test	0.853	<.01**

**Correlation is highly statistically significant at ($P \leq .01$)

Table 4: clarifies a positive highly statistical significant correlations ($P < .01$) between students' total knowledge score and their attitude scores throughout the pre-test, post-test and follow up test, $r = 0.967$ $p < .01$, $r = 0.853$ $p < .01$, $r = 0.923$ $p < .01$, respectively.

Table 5. Relation between Nursing students' mean knowledge score and their demographic characteristics throughout the study period (n = 119).

demographic characteristics	Pre-test			Post-test			Follow up test		
	Mean \pm SD	t test	P value	Mean \pm SD	t test	P value	Mean \pm SD	t test	P value
Gender		1.421	>0.05						
Female	6.41 \pm 1.51			12.34 \pm 1.53	0.937	>0.05	10.55 \pm 1.04	0.939	>0.05
Male	5.91 \pm 1.81			12.61 \pm 1.20			10.35 \pm 1.06		
Marital status		1.325	>0.05		1.554	>0.05			
Single	6.36 \pm 1.66			12.52 \pm 1.41			10.52 \pm 1.06	0.532	>0.05
Married	5.86 \pm 1.35			12.01 \pm 1.56			10.39 \pm 0.98		
Attendance of training program about disaster preparedness		1.984	<0.05*		0.606	>0.05		1.475	>0.05
Yes	7.12 \pm 2.06			12.62 \pm 1.36			10.12 \pm 1.08		
No	6.26 \pm 1.55			12.38 \pm 1.47			10.55 \pm 1.03		

T test= independent t test, * statistically significant differences ($P \leq .05$)

Table 5: shows the relationship between nursing students' total knowledge score and their demographic characteristics. It is illustrated from the table that, there were no statistically significant differences ($>.05$) between student' mean knowledge scores and their gender and marital status

throughout the study period. On the other hands, it was found statistically significant difference ($<.05$) between nursing student' mean knowledge score and their attendance of training program about disaster preparedness before educational intervention (pre-test stage).

Table 6. Relation between Nursing students' mean attitude score and their demographic characteristics throughout the study period (n = 119).

demographic characteristics	Pre-test			Post-test			Follow up test		
	Mean \pm SD	t test	P value	Mean \pm SD	t test	P value	Mean \pm SD	t test	P value
Gender		0.666	>0.05						
Female	19.18 \pm 5.15			27.17 \pm 2.76	0.393	>0.05	26.68 \pm 3.48	0.597	>0.05
Male	18.50 \pm 4.93			26.97 \pm 4.94			26.26 \pm 3.35		
Marital status		0.880	>0.05		0.153	>0.05			
Single	18.35 \pm 4.55			27.13 \pm 2.57			26.67 \pm 3.38	0.738	>0.05
Married	19.04 \pm 5.30			27.04 \pm 2.63			26.08 \pm 3.69		
Attendance of training program about disaster preparedness		0.693	>0.05		0.508	>0.05		0.511	>0.05
Yes	19.81 \pm 5.67			27.16 \pm 2.58			26.70 \pm 3.34		
+No	18.86 \pm 5.02			26.81 \pm 2.56			25.62 \pm 3.96		

T test= independent t test

Table 6: portrays the relationship between nursing students' mean attitude score and their demographic characteristics. According to the table there were no statistically significant differences ($>.05$) between nursing student' mean attitude scores and their gender and marital status, and attendance of training program about disaster preparedness throughout the study period.

4. Discussion

Disaster alludes to an occasion or circumstance that's of more noteworthy size than a crisis that disturbs care

fundamental administrations such as lodging, transportation, communications, sanitation, water, and health [11]. As from the Office of Country Security/Federal Crisis Administration Organization, preparedness of disaster may be ceaseless cycle of arranging, organizing, preparing,, working out, assessing, and taking remedial activity in an exertion to guarantee compelling coordination amid occurrence response [13]. The point of display considers was to evaluate the effect of educational intervention about disaster preparedness on knowledge and attitude of the technical nursing institute intern- nurse students.

The outcomes of this study shown that as it were 32.8%

of understudies were considering disaster preparedness at the institute, agreeing to [14]. the number of undergrad programs planning understudy nurses for disaster management is still restricted in numerous nations, resulting in professional nurses with limited competencies to participate effectively during a disaster. Different universal administrative associations have needed the consideration of disaster management substance in nursing instruction for all levels., the National Alliance of USA nurses detailed that three quarter of staff educating more than three hundred nursing programs ineffectively arranged to educate disaster management content. [15]. Announcing the content about disaster nursing at the undergraduate level l not only rises the ability or capacity of the health labor force to respond but provides graduates individual with a foundation that can be developed further by in-service training and ongoing continuing professional development (CPD) programs.

Unless the significance of nursing preparing almost disaster preparedness this study demonstrate moreover that as it were 13.4% of them were gone to preparing programs around disaster preparedness. Effective pre-training ensures the safety and health of health-care workers and responders during the disaster. Also Undergraduate nurse prepared in disaster management might moreover help in community education programs as portion of a community disaster preparedness activity [16]. A few obstructions exist to disaster training for student nurses. For a long time, training on disaster preparedness was reserved only for nurses in emergency departments or only offered as a post-primary specialized course. Moreover, present existing nursing educational module in numerous nations as of now at greatest capacity without adding more units on disaster preparedness. To manage, there's a need to review nursing curricula to recognize ranges where concepts coordinates into current courses within nursing programs. Moreover, teaching staff may need knowledge and confidence to teach disaster content [14].

Considering the knowledge scores of the understudies it were 18.5% of the considered subjects had adequate knowledge in pre-test, in agreement with this results the previous study that clarifies knowledge and attitudes of nurses regarding disaster preparedness at hospitals the larger part of the examined nurses had destitute level of information (75%) with respect to disaster preparedness, [12]. (87.4%) had unawareness about hospital disasters preparedness, this result is in differentiate with another study which demonstrate that Hypothetical knowledge regarding disaster preparedness was found to be satisfactory [17]. Another inquiry conducted in India uncovered that the KAP of the undergrad medical students about disaster preparedness is exceptionally scanty [18]. In any case this insufficiency in knowledge pre-test, within the post-test, and follow up test (after educational intervention) the satisfactory knowledge changed to be 84.9% and 68.1% respectively,, this can be in likeness with another study that appeared a shows there was a significant difference between the mean information pre-test

score and the post test score between nurses regarding disaster. in another semi-experimental ponder around the impacts of instructive program on wellbeing volunteers' information with respect to their approach to earthquake in health centers at Tehran, demonstrate that The differences between their knowledge pre and after the preparing was factually noteworthy [19]. The comes about too is in assenting with results of another study which appeared that there was a significant difference between knowledge pre-test and post-test among understudies [20].

Concerning attitude of students about the current study problem, the current study showed that there were neutral attitude about disaster management before applying the programme. It may be due to inadequate preparation of nursing internship student about disaster. On other hand, another study found that before implementation of guidelines, all nurses attitude was negative towards plan of disaster management [12]. His discovery is corresponding with another researcher who reported that the studied sample had poor attitude concerning disaster [18]. Otherwise, another study indicated that about (98%) showed positive attitudes in the direction of disaster relief work [21].

Agreeing to the participants attitude all through the consider period; there were highly statistically significant differences ($P < .001$) between the pre-test, post-test and the follow up test in connection to all items of the attitude scale almost disaster preparedness. These changes within the attitude of participants may be due to the palatable knowledge of participants after program execution so it highlights the significance of education in changing the attitude and behavior. These finding is comparable with another result which found that after going to disaster-related education/training depicting positive demeanor ($p < 0.05$, AOR=2.042, 95% CI=1.025-4.069) among community wellbeing nurture [22]. Moreover it is in understanding with another studies which perceived enhancement in nurses' attitudes after booklet application [12, 28].

As respects relationship between students' total knowledge score and their attitude score, there were highly statistical significant correlations ($P < .01$) between participant knowledge score and their attitude scores all through the pre-test, post-test and take after up test. This finding appeared consistent, particularly, the current finding was upheld another study which established that there was a measurably noteworthy strong positive correlations were found between knowledge, attitude of nursing student regarding disaster preparedness. [12]. These discoveries in assention with another study which illustrated noteworthy positive relationship between sample' attitude, knowledge and level of competence in nursing home and demonstrated strategies need to be developed for nurses to improve their knowledge [27].

Concurring to the show consider discoveries, there were no statistically significant differences ($> .05$) between student' mean knowledge scores and their gender and marital status throughout the study ponder period. The study finding in

comprised with another researcher who established sex and education level were significantly associated with increased knowledge and practice scores [22]. On the other hands, the consider result established that there was a statistically significant difference ($<.05$) between nursing internship student' mean knowledge score and their participation of preparing program around disaster preparedness (pre-test stage).

The current discoveries Our finding revealed that attendance of training program resemble one of knowledge sources for nursing internship student. This moreover may reflect the needs to upgrading nursing educational programs and curriculums for disaster preparedness.. The inquire about discoveries that knowledge, skills, and disaster preparedness need continual reinforcement to improve self efficacy for disaster management and there was a need for a consistent national nursing curriculum for disaster preparedness and nationwide drills to increase disaster knowledge, skills, preparedness, and confidence [23] In any case, Most nurses get little, in case any, disaster education in nursing school [24] Hence, nursing curriculum ought to incorporate disaster readiness to prepare nursing understudies to oversee catastrophe within the clinic setting [25].

With reference to the relation between nursing internship students' mean attitude score and their demographic characteristics, there were no measurably critical contrasts ($>.05$) between nursing internship student' mean attitude scores and their sex and marital status, and participation of preparing program almost disaster preparedness all through the ponder period. This finding concurred with another study which detailed that none of the socio-demographic variables examined had an impact on attitude [26]. Additionally, the larger part of the sample in another study detailed that most nurses who had previously training courses reported higher personal preparedness for disaster response [27]. Other study uncovered that knowledge and skills about disaster management where acquired from actual drills and disaster trainings [28]. In another ponders conducted in Philippine and Hong Kong, regular disaster or emergency drills were helpful in preparing nurses to respond to disasters. [29, 30]. In addition, real - time trainings, desk top exercises, pre - hospital life support and practice drills and scenarios were also cited as necessary experiences to adequately prepare nurses to respond to disaster situations [31] In one study, nurses expressed preference for an instructor led, small group disaster workshop online [21]

5. Conclusion

This study concluded that there was inadequate knowledge on the topic of disaster preparedness before the program Also; there were natural attitude between respondents before program. Concerning the effectiveness of the educational program, there were improvement in knowledge and attitude of the participants post program. It reflects the importance of preparing nurse-interne students for a disaster.

6. Recommendations

1. Training programs are fundamental for all nursing undergraduate in arrange to extend their awareness around disaster preparation.
2. Nursing curriculum should include disaster preparedness to equip nursing students to manage disaster in the hospital setting.
3. Additional area for investigation is nurses 'perceptions and misperceptions about disaster preparedness.
4. Further researches are needed to identify the best teaching strategies for nurses and students when faced disasters.

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