IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 8, Issue 4 Ser. VIII. (July-Aug .2019), PP 51-59
www.iosrjournals.org

Nurses' knowledge, Attitude and Practices (KAP) During Flood Disaster Affected East Coast Region in Malaysia

KhinThandarAung[1], Mohd Said Nurumal[2], Nurul'Ain Ahayalimudin[3]
[1](Critical Care Nursing Department, Faculty of Nursing, International Islamic University, Malaysia)
[2](Critical Care Nursing Department, Faculty of Nursing, International Islamic University, Malaysia)
[3](Critical Care Nursing Department, Faculty of Nursing, International Islamic University, Malaysia)
Corresponding Author: Khin Thandar Aung

Abstract : *The incidence rate of disaster and the severity of the resulted damages are increasing around the world. A disaster is a severe destruction of communities leading to great losses of human life. As the victims in disaster area might be required critical and intensive care, the roles of nurse are vital in disaster management. Most of studies that related to KAP of nurses regarding disaster management are present, however, little is known about the KAP of nurses during flood disaster. This study aimed to explore the nurses' KAP during flood disaster affected East Coast Region of Malaysia. A quantitative cross- sectional study was done on 197 registered nurses (RNs) who involved in flood disaster response in 2014 at three tertiary hospitals that affected flood in 2014. Purposive sampling was used to choose information-rich participants who were knowledgeable about or had a similar experience and willing to be involved in the study. The questionnaire developed by Nurul'Ain Ahayalimudin (2012) on 'KAP of nurses in disaster management' was used as a research instrument and analyzed with SPSS version 22. As the result, the majority of the participants had an adequate knowledge and practice, and portrayed a positive attitude towards disaster management during the flood disaster. As a conclusion, most of the nurses had good knowledge and attitude and also good practice during flood disaster management. Disaster management training should be more emphasized for hospital nurses and help them to improve their awareness and readiness for disaster response outside of the hospital environment.*

Keywords: *attitude , flood disaster, knowledge, nurses, practice*

Date of Submission: 03-08-2019 Date of Acceptance: 19-08-2019

I. Introduction

The incidence of natural disasters worldwide has steadily increased, especially since the 1970's; there was a 80% increase in the growth of natural disasters from 1980 to 2009 (Annis, Jacoby & DeMers, 2016). Between 1994 and 2013, the recorded disaster cases were 6,873 natural disasters in worldwide, which claimed 1.35 million lives or almost 68,000 lives on average each year. In addition, 218 million people were affected by natural disasters on average per annum during this 20-year period (Centre for Research on The Epidemiology of disease ,2015). In 2014, the number of reported disasters was slightly lower than the annual average reported from 2004 to 2013 around the world. (International Federation of Red cross and Red Crescent Societies, 2016).However, about 8000 people were killed by natural disasters in 2014 (International Federation of Red cross and Red Crescent Societies, 2016). Around the world, Asia is one of the most disaster affected areas in both the number of deaths and the number of disasters .It has been estimated that more than 97% of natural disasters related deaths occur in developing countries which are disastrous-prone places (Watson, Gayer &Connolly, 2007). In Malaysia, Flood is a very common among the natural disaster, especially in the East Coast region, which are Kelantan, Terengganu and Pahang. Flood disaster that happened in 2014 was stated the most incredible event that seriously affect the community than the previous years (Mohd Said Nurumal, et.al,2017). Disasters are complex physical, social, economic and political event that take place each day somewhere in the world and have an intense impact on individuals, families and communities(Bahadori, et.al,2015).Though, it may be impossible to control the nature and to stop the development of natural disaster, it could be avoided and preparedness to alleviate the effects on human lives. It is also the role of medical team, including nurses. Preparing for disaster or emergency is very crucial, vital and is a priority for everyone to be reckon with. In every discipline, the individuals or professionals are expected to be knowledgeable and equipped for the essence of preparing for emergencies or deal with emergency situations. In addition, there has needed the support from qualified nurses in term of their capability to provide care and perform disaster management activities in each phase of disaster management (Khin Thandar Aung, et.al, 2017). Since Florence Nightingale demonstrated the nurse have to take the front-line role in responding disaster in the field of public health. Public health nurses contribute with specific skills in disaster management and collaborate with other experts. Nurses"

competency and intellectual abilities are not left behind and as such, have a significant role to play in terms of emergency or disaster preparedness. Research on disaster experiences among nurses are given less attention and remains unclear (Stangeland, 2010), predominantly nursing profession in Malaysia. Nurses are known to be closely engaged in disaster response, for instance, floods, pandemics, mass casualty incidents, landslides and many more, yet their knowledge, attitude and practice have not been well studied. It is hard to find research conducted in Malaysia on nurses' knowledge, attitude and practice, although research has been conducted all over the world, in particular among disaster-prone countries. Indeed, the findings may not be transferable to Malaysia setting due to different in geographical location, diversity of disaster type occurred and resources available in each country. In addition, disaster training and education in Malaysia is still far behind. Thus the findings of this study should be applicable in Malaysia scenario, subsequently improving nurse's preparedness in handling flood disaster victims in future. Therefore, conducting research on the knowledge, attitude, practices of nurses during a disaster are crucial to preparing them for future disaster.

II. Methodology

A quantitative cross- sectional study was done on 100-150 nurses, registered nurses (RNs) who involved in flood disaster response in 2014 at Hospital Kuala Krai, Kelantan, Hospital Kemaman, Terengganu, Hospital Sultan Ahmad Shah, Temerloh, Pahang (HoSHAS) that affected flood in 2014. Purposeful sampling was used to recognize and choose information-rich participants who were knowledgeable about or had a similar experience and willing to be involved in the study. The list of participants obtained from the gatekeepers (matrons in charge) of the hospitals and the questionnaire developed by Nurul'Ain Ahayalimudin (2012) on 'KAP of Nurses on disaster management' disseminated to the nurses involved during a disaster. The questionnaire consists of 17-items for knowledge, 12-items for attitude and 14-items for practices. Based on the research objectives and questions, quantitative data were processed and analyzed with SPSS version 22.

III. Results

Total 197 participants participated from three hospitals. Among them, 102 participants from Kemerman which is 52% of the sample population, 55 from Kelantan which is 28% of the sample population and 39 from Temeloh which is 20% of the sample population. It showed in Table 1.

Table 1: Number of participants from three hospitals

Working Place	Frequency(n)	Percent (%)
Kemerman	102	51.8
Kelantan	55	27.9
Temeloh	39	19.8
Total	197	100.0

The following table (2) is regarding the demographic characteristics of the participants.

Table 2: Demographic characteristics of the participants

		Kemaman	Kelantan	Temerloh	Total
Gender:	Male	0 (0%)	1 (1.8%)	1 (2.6%)	2 (1%)
	Female	102 (100%)	54 (98.2%)	38 (97.4%)	195 (99%)
	Total	102 (100%)	55 (100%)	39 (100%)	197 (100%)
Age:	20-29	11 (10.8%)	8 (14.5%)	12 (30.8%)	31 (15.7%)
	30-39	49 (48%)	31 (56.4%)	24 (61.5%)	104 (52.8%)
	40-49	37 (36.2%)	16 (29.1%)	3 (7.7%)0 (0%)	57 (28.9%)
	50-59	5 (5%)	0 (0%)	39 (100%)	5 (2.5%)197
	Total	102 (100%)	55 (100%)		(100%)
Education:	Certificate	16 (15.7%)	15 (27.3%)	4 (10.3%)	35 (17.8%)
	Diploma	83 (81.4%)	36 (65.5%)	35 (89.7%)	155 (78.7%)
	Bachelor	2 (2%)	4 (7.3%)	0 (0%)	6 (3%)
	Master	1 (1%)	0 (0%)	0 (0%)	1 (0.5%)
	Total	102 (100%)	55 (100%)	39 (100%)	197(100%)
Year of experience:	<5	4 (3.9%)	5 (9.1%)	10 (25.6%)	19 (9.6%)
	5-10	36 (35.3%)	23 (41.8%)	17 (43.6%)	76 (38.6%)
	11-15	20 (19.6%)	11 (20%)	8 (20.5%)	39 (19.8%)
	>15	42 (41.2%)	16 (29.1%)	4 (10.3%)	63 (32%)
	Total	102 (100%)	55 (100%)	39 (100%)	197(100%)
Involvement in Disaster:	Yes	53 (52%)	29 (52.7%)	21 (53.8%)	104 (52.8%)
	No	49 (48%)	26 (47.3%)	18 (46.2%)	93 (47.2%)
	Total	102 (100%)	55 (100%)	39 (100%)	197(100%)
Disaster Training:	Yes	65 (63.7%)	28 (50.9%)	12 (30.8%)	106 (53.8%)

	No	37 (36.3%)	27 (49.1%)	27 (69.2%)	91 (46.2%)
	Total	102 (100%)	55 (100%)	39 (100%)	197 (100%)
Methods of Disaster Training:	Didactic Lecture	22 (21.6%)	4 (7.3%)	4 (10.3%)	31 (15.7%)
	Tabletop Exercise	2 (2%)	1 (1.8%)	0 (0%)	3 (1.5%)
	Field Simulation	9 (8.8%)	2 (3.6%)	3 (7.7%)	14 (7.1%)
	Functional Exercise	6 (5.9%)	0 (0%)	0 (0%)	6 (3.1%)
	Disaster Drill Exercise	26 (25.5%)	20 (36.4%)	4 (10.3%)	50 (25.4%)
	NA	37 (36.3%)	28 (50.9%)	28 (71.8%)	93 (47.2%)
	Total	102 (100%)	55 (100%)	39 (100%)	197 (100%)

100% are female in Kemerman, 98.2% of female in Kelantan, and 97.4% of female in Temeloh. In total, 99% are female in this sample population. The age of participants was mostly in between 30-39 (52.8%) and 40-49 (28.9%). Most of the participants are Diploma holders (78.7%) and certificate holders (17.8%). Only 3% are bachelor and 1% is master holder. Most of the participants had 5-10 years of experience (38.6%) and more than 15 years (32%). Only 9.6 % of participants had less than 5 years of experience and 19.8% had 11-15 years of experience. More than half of participants (52.8%) participated in disaster, however, nearly half (47.2) of participants did not.

More than half of participants (53.8%) had involved in disaster training, whereas nearly half of participants (46.2%) were still left to experience disaster management training. Nearly half of participants (47.2%) did not have any methods of disaster management training. Among the other more than half of participants, most of them had disaster drill exercise (25.4%) and didactic lecture (15.7%). The participants had only (1.5%) in tabletop exercise , functional exercise (3.1%) and field simulation (7.1%).

The following table (3) demonstrated the prefer places of the participants to work during disaster.

Table 3: Prefer places to work during Disaster (n=197)

		Kemerman	Kelantan	Temeloh	Total
Prefer to work in hospital/clinic	Uncertain	1(1%)	29 (52.7%)	19 (48.7%)	49 (24.9%)
	No	51 (50%)	0 (0%)	0 (0%)	51 (25.9%)
	Yes	50 (49%)	26 (47.3%)	20 (51.3%)	97 (49.2%)
Total		102 (100%)	55 (100%)	39 (100%)	197(100%)
Prefer to work in disaster area	Uncertain	0 (0%)	37 (67.3%)	25 (64.1%)	62 (31.5%)
	No	85 (83.3%)	1 (1.8%)	0 (0%)	87 (44.2%)
	Yes	17 (16.7%)	17 (31%)	14 (35.9%)	48 (24.4%)
Total		102 (100%)	55 (100%)	39 (100%)	197 (100%)

Concerning the responses for working in hospital/clinic during disaster, nearly half of them prefer to work in hospital/clinic (49.2%). The other more than half (50.8%) of participants do not want and uncertain to work in hospital/clinic during disaster.

Concerning the responses for prefers to work in the disaster area during a disaster, only 24.4% of participants have the will to work. The other 44.2% do not want and 31.5% are uncertain to work at disaster affected sides. It indicates the participants more prefer to work in hospital/clinic during disaster rather than going to work in the affected areas.

The following table (4) presented the knowledge of participants on disaster management.

Table:4: Knowledge of the participants on disaster management (n=197)

No.	Items	Yes (2)	No (1)	Uncertain (0)
1.	Have you heard about disaster management before?	144 (73.1%)	40 (20.3%)	13 (6.6%)
2.	Disaster is defined as a situation that overwhelms the health care system when it occurs.	181 (91.9%)	11 (5.6%)	5 (2.5%)
3.	Disaster management involves all measures taken to reduce the likelihood of damage that will occur.	190 (96.4%)	6 (3%)	1 (0.5%)
4.	Floods can be classified as a natural.	190 (96.4%)	5 (2.5%)	2 (1%)
5.	Famine is a type of man-made disaster.	93 (47.2%)	51 (25.9%)	53 (26.9%)
6.	Based on Malaysia guideline, disaster management phase can be divided into five phases.	66 (33.5%)	13 (6.6%)	118 (59.9%)
7.	Mitigation activities takes place before disaster happen.	81 (41.1%)	14 (7.1%)	102 (51.8%)
8.	Water level monitoring is an activity in the mitigation phase.	105 (53.3%)	12 (6.1%)	80 (40.6%)
9.	Preparedness activities take place during disaster event.	157 (79.7%)	19 (9.6%)	21 (10.7%)
10.	Field simulation of disaster management plan is an activity in the preparedness.	136 (69%)	8 (4.1%)	53 (26.9%)
11.	Response is to put your preparedness plans into action.	157 (79.7%)	10 (5.1%)	30 (15.2%)

12.	Disaster response shall involve the Ministry of Health without involvement of other private health care system.	89 (45.2%)	74 (37.6%)	34 (17.3%)
13.	Activities in recovery phase takes place during disaster event.	147 (74.6%)	26 (13.2%)	24 (12.2%)
14.	Recovery includes actions taken to return to a normal or an even safer situation.	174 (88.3%)	11 (5.6%)	12 (6.1%)
15.	Water supply and sanitation can give impact to health that result from disaster.	180 (91.4%)	6 (3%)	11 (5.6%)
16.	Disaster will not increase risk of developing communicable disease.	51 (25.9%)	129 (65.5%)	17 (8.6%)
17.	Population displacement can cause social burden to inhabitants.	165 (83.3%)	19 (9.6%)	13 (6.6%)

Regarding the knowledge of participants on disaster management, 73% of participants heard about disaster management before, whereas 27% of them did not. Total 92% of them know what disaster is and 96% of them know what involve in disaster management. In addition, 96% of them know a flood is a natural disaster; however, only 47.2% of the participants understand famine is a type of man-made disaster.

Moreover, 60% of them do not know the phases of disaster management based on Malaysia guidelines and 52% of them do not know mitigation activities takes place before disaster happen. Only 53% know water level monitoring is an activity in the mitigation phase. Total 80% of the participants know preparedness activities take place during a disaster event. Altogether 69% of the participants understand field simulation of disaster management plan is an activity in the preparedness and 80% of them know response is to put preparedness plans into action.

Only 38% know disaster response shall involve the Ministry of Health and involvement of other private health care system. Total 75% of the participants know activities in recovery phase take place during a disaster event and 88% of them understand recovery includes actions taken to return to a normal or an even safer situation. Altogether 91% of the participants know water supply and sanitation can give impact to health that result from disaster, and only 66% of them understand disaster will increase risk of developing communicable disease. In addition, 83% of the participants know population displacement can cause social burden to inhabitants.

The following table (5) demonstrated the attitude of participants on disaster management and involvement.

Table 5: *Attitude of the participants on disaster management and involvement (n=197)*

No.	Items	SDA (1)	Disagree (2)	Uncertain (3)	Agree (4)	SA (5)
1.	On my opinion, in mitigation phase, nurses shall be included in performing risk assessment to the respective area.	2 (1%)	3 (1.5%)	42 (21.3%)	116 (58.9%)	34 (17.3%)
2.	I think it is better for nurses to be educated on the long-term impact of disaster such as mental health problem.	-	1 (0.5%)	15 (7.6%)	116 (58.9%)	65 (33%)
3.	It is important for me to read and understand on my institutions' disaster management plan	-	-	10 (5.1%)	106 (53.8%)	81 (41.1%)
4.	I believe that collaboration among emergency and public health provider is really needed in managing disaster victims.	-	-	12 (6.1%)	94 (47.7%)	91 (46.2%)
5.	I find it hard to collaborate with other agencies (other than MOH) in managing disaster victims	39 (19.8%)	67 (34%)	46 (23.4%)	34 (17.3%)	11 (5.6%)
6.	I am willing to volunteer for any disaster response.	1 (0.5%)	10 (5.1%)	48 (24.4%)	93 (47.2%)	45 (22.8%)
7.	I am worried about the negative effects of disaster (e.g.: injury, post-traumatic stress disorder) to me if I volunteer in disaster response or relief.	10 (5.1%)	36 (18.3%)	49 (24.9%)	73 (37.1%)	29 (14.7%)
8.	I feel that medical/health personnel should not get involved during the disaster recovery phase.	65 (33%)	73 (37.1%)	26 (13.2%)	24 (12.2%)	9 (4.6%)
9.	It is become my responsibilities to deal with any disaster victims.	3 (1.5%)	6 (3%)	33 (16.8%)	116 (58.9%)	39 (19.8%)
10.	I feel that it is not my responsibilities to assist disaster victims in terms of their basic needs (e.g.: place to stay, water supply, clothing, and etc.)	59 (29.9%)	75 (38.1%)	33 (16.8%)	21 (10.7%)	9 (4.6%)
11.	I believe that disaster nursing management shall be incorporated in the nursing curriculum.	10 (5.1%)	12 (6.1%)	30 (15.2%)	108 (54.8%)	37 (18.8%)

Total 77% of the participants either strongly agree or agree that nurses should include in doing a risk assessment of the respective area in mitigation phase whereas 20% of them feeling uncertain about it.

Concerning whether nurses need to be educated on long-term impact of disasters, 93% of the participants either strongly agree or agree. Altogether 95% of the participants either strongly agree or agree that it is important to read and understand their institution's disaster management plan. Total 94% of the participants either strongly agree or agree that collaboration among emergency and public health provider is really needed while managing disaster victims.

Concerning difficult to collaborate with other agencies (other than MOH) in managing disaster victims, only 23% of the participants mention it is not hard to collaborate with other agencies other than MOH. The other 23% of participant uncertain about that and the rest 54% address it is difficult to collaborate with other agencies other than MOH in managing disaster victims.

Regarding the will to do as a volunteer, 70% of the participants admit they have willing to do and only 24% uncertain about it. Total 52% of the participants admit they have a feeling of worry about the negative effects of disaster while they do as volunteers; 25% of them uncertain about it and only 23% do not have a feeling of worry about the negative effects of disaster.

Altogether 70% of participants address that medical/health personnel should involve during the disaster recovery phase. Total 79% of participants admit that it is their responsibilities to deal with any disaster victims and 68% of participants address it is their responsibilities to assist disaster victims in terms of their basic needs (e.g.: place to stay, water supply, clothing, etc. Concerning whether disaster nursing management should be incorporated in the nursing curriculum, 74% of participants either strongly agree and agree.

The following table (6) demonstrated the practice of participants on disaster management.

Table 6: *Practice of the participants on disaster management (n=197)*

No.	Items	Yes (2)	No (1)	Uncertain (0)
1.	Do you know where the disaster plan is located?	109 (55.3%)	38 (19.3%)	50 (25.4%)
2.	Does the disaster management plan of your institution is located in a place that is easy to be access?	122 (61.9%)	11 (5.6%)	64 (32.5%)
3.	Have you read your institution disaster management plan?	120 (60.9%)	37 (18.8%)	40 (20.3%)
4.	Have you read other disaster response plan apart from your own institution plan?	75 (38.1%)	92 (46.7%)	30 (15.2%)
5.	Have you read or browse the internet to know more about disaster management?	77 (39.1%)	106 (53.8%)	14 (7.1%)
6.	Have you prepared yourself to be involved in any disaster response?	124 (62.9%)	36 (18.3%)	37 (18.8%)
7.	Are you willing to be involved in disaster training?	145 (73.6%)	26 (13.2%)	26 (13.2%)
8.	Are you familiar with the field triage system that is used during disaster?	61 (31%)	89 (45.2%)	47 (23.9%)
9.	Do you prefer to stay in the hospital/clinic and wait for the disaster victim being brought to you?	98 (49.7%)	61 (31%)	38 (19.3%)
10.	Does disaster education / training conductinvolve emergency and public health providers?	135 (68.5%)	18 (9.1%)	44 (22.3%)
11.	Does disaster training / education conducted in your institution involve other agencies? (e.g.: fire rescue team, JPAM, local authorities)	146 (74.1%)	17 (8.6%)	34 (17.3%)
12.	Is there specific disaster management plan catering for different specific type of event in your institution? (e.g.: for flood, fire, communicable disease).	94 (47.7%)	26 (13.2%)	77 (39.1%)
13.	Does disaster training / education being conducted regularly in your institution?	100 (50.8%)	27 (13.7%)	70 (35.5%)

Only more than half of participants (55%) know where the disaster plan is located; 19% do not know and 24% uncertain about it. However, 62% of participants mentioned that their institution's disaster management plan is easy to access and 61% of participants admit they read other disaster response plan apart from their own institution plan. In addition, only 39% of participants read or browse the internet to know more about disaster management, 54% of them did not.

Concerning self-preparedness to be involved in any disaster response, 63% of participants admit they had already prepared. Total 74% of participants address willing to be involved in disaster training. Concerning familiarity with the field triage system that used during a disaster, only 31% mentioned they are familiar with, 45% do not and 24% of participants admit uncertain about it. Total 50% of participants prefer to stay and wait the disaster victims in hospital/clinic, 30% of them did not and 20% uncertain whether will to stay and wait disaster victims at hospital/clinic.

Concerning disaster training, 69% of participants admit disaster education/training conducted involved emergency and public health providers and 74% of participants address that disaster training/education

conducted in their institution involve other agencies such as fire rescue team, JPAM and local authorities. However, only 48% address there has a specific disaster management plan catering for different specific type of event their institution such as for flood, fire and communicable disease and only 51% of participants mentioned disaster training/education being conducted regularly in their institution.

The influence of education level, involvement in disaster and training upon the level of knowledge, attitude and practice

The researchers investigate the influence of education level, involvement in disaster and disaster training (IV) upon their level of knowledge, attitude and practice (DV) by Kruskal Wallis Test as the IVs are not normally distributed.

Table 7: Influence of Education level on Knowledge, Attitude and Practice

Ranks

	Education	N	Mean Rank
Knowledge	Certificate	35	76.73
	Diploma	155	103.60
	Bachelor	6	121.67
	Master	1	30.00
	Total	197	
Attitude	Certificate	35	87.46
	Diploma	155	100.52
	Bachelor	6	136.67
	Master	1	41.00
	Total	197	
Practice	Certificate	35	90.40
	Diploma	155	100.06
	Bachelor	6	135.33
	Master	1	17.00
	Total	197	

Test Statistics[a,b]

	Knowledge	Attitude	Practice
Chi-Square	8.798	5.222	5.376
df	3	3	3
Asymp. Sig.	.032	.156	.146

a. Kruskal Wallis Test
b. Grouping Variable: Education

A Kruskal-Wallis test showed that there was a statistically significant difference in knowledge score between the different education level, χ^2 (3) = 8.798, p = 0.032, with a mean rank knowledge score of 76.73for certificate holders, 103.60for diploma holders,121.67for bachelor holders and 30.00 for master holder. However, there was not a statistically significant difference in attitude score between different education level, χ^2 (3) = 5.222, p = 0.156, with a mean rank attitude score of 87.46for certificate holders, 100.52for diploma holders,136.67for bachelor holders and 41.00 for master holder. In addition, there was not a statistically significant difference in practice score between different education level,χ^2 (3) = 5.376, p = 0.146, with a mean rank attitude score of 90.40for certificate holders, 100.06for diploma holders,135.33for bachelor holders and 17.00 for master holder.

Table :8 Influence of involvement in disaster on Knowledge, Attitude and Practice

Ranks

	Involvement in Disaster	N	Mean Rank
Knowledge	No	93	90.82
	Yes	104	106.32
	Total	197	
Attitude	No	93	95.45
	Yes	104	102.18
	Total	197	
Practice	No	93	90.84
	Yes	104	106.29
	Total	197	

Test Statistics[a,b]

	Knowledge	Attitude	Practice
Chi-Square	3.644	.688	3.618

df	1	1	1
Asymp. Sig.	.056	.407	.057

a. Kruskal Wallis Test
b. Grouping Variable: Involvement in Disaster

A Kruskal-Wallis test showed that there was not a statistically significant difference in knowledge score between those who were involved in disaster management and those who were not, χ^2 (1) = 3.644, p = 0.056, with a mean rank for those who involved in disaster is 106.32 and 90.82 for those who did not involve. In addition, there was not a statistically significant difference in attitude score between those who were involved in disaster management and those who were not, χ^2 (1) = 0.688, p = 0.407, with a mean rank for those who involved in disaster is 102.18 and 95.45 for those who did not involve. Furthermore, there was not a statistically significant difference in practice score between those who were involved in disaster management and those who were not, χ^2 (1) = 0.688, p = 0.407, with a mean rank for those who involved in disaster is 102.18 and 95.45 for those who did not involve.

Table:9 Influence of disaster training on Knowledge, Attitude and Practice

Ranks

	Involvement in Disaster	N	Mean Rank
Knowledge	No	93	90.82
	Yes	104	106.32
	Total	197	
Attitude	No	93	95.45
	Yes	104	102.18
	Total	197	
Practice	No	93	90.84
	Yes	104	106.29
	Total	197	

Test Statistics[a,b]

	Knowledge	Attitude	Practice
Chi-Square	20.023	8.855	34.001
df	1	1	1
Asymp. Sig.	.000	.003	.000

a. Kruskal Wallis Test
b. Grouping Variable: Disaster Training

A Kruskal-Wallis test showed that there was a statistically significant difference in knowledge score between those who had disaster training and those who had not, χ^2 (1) = 20.023, p = 0.000, with a mean rank for those who had disaster training is 106.32 and 90.82 for those who did not had. In addition, there was a statistically significant difference in attitude score between those who had disaster training and those who had not, χ^2 (1) = 8.855, p = 0.003, with a mean rank for those who had disaster training is 102.18 and 95.45 for those who did not have. Furthermore, there was a statistically significant difference in practice score between those who had disaster training and those who had not, χ^2 (1) = 34.001, p = 0.000, with a mean rank for those who had disaster training is 106.29 and 90.84 for those who did not have.

IV. Discussion

KAP of nurses on flood disaster

With regard the knowledge of nurses on flood disaster in this study, most of the participants heard disaster management, however, they did not know the phases of disaster management according to Malaysia guidelines especially in mitigation phase. Most of the nurses in this study knew about they should involve in disaster response led by the Ministry of Health and private health care centre in flood disaster management. In contrast, the study of knowledge of nurses in disaster in Pakistan, they had inadequate knowledge regarding disaster preparedness and are inadequate prepared for disasters. (Khan, Kauser and Ghani, 2017). In the study from Peshawar, the majority of participants did not know about the disaster management and there was no any training program in tertiary hospital and their view was disaster management is not only for doctors and nurses. (Sabiha, et.al 2015)

Generally, the attitude of nurses in this study regarding on flood disaster management was good. More than half of the participants strongly agreed that they should involve in risk assessment during disaster preparedness to the respective area. However, most of the participants explored that there was some difficulty in collaboration with other NGO agencies rather than the Ministry of Health during flood disaster response. One of the study regarding the knowledge and attitude of hospital staff at a public hospital in India mentioned that low

knowledge of disaster management among their staff and sensitive towards disaster management (Sharma, Koushal and Pandey, 2016).

Concerning the practices of nurses on flood disaster, half of the participants in this study had well known where is the disaster plan and that is easy to access. Most of the participants admitted they had already prepared and involved in disaster training. However, in the field triage system, only one third of the participants mentioned that they were familiar and other two third of participants did not have experience the field triage system. Moreover, half of the participants preferred to stay in their hospital or clinic rather than going outside to filed area at the time of flood disaster response. Regarding the disaster training, only half of the participants experienced disaster training and educational program conducted by their institution.

Disaster training must prepare for nurses in an anticipated condition. Disaster nursing does not simply 'transplant' the usual clinical practices into a disaster setting, and living conditions and working conditions will likely be far different than the nurses' regular employment setting. Training must occur in a 'not normal' environment with simulation the cumulative effects of fatigue, sleeplessness, the compounded failure of systems, total chaos, running out of supplies, public health aspects of the surge, and shelter. Another issue of training is that of physical fitness. Disaster work is physically and emotionally demanding. Disasters frequently occur in hot and humid regions, and these may likely be the nurses' working conditions. The sudden manual nature of many tasks compounds the physical demands of extended work shifts. Personal physical training and wellness prior to a disaster will help the nurses sustain their capability of giving care under extremely difficult situations. (Khin Thandar Aung, et.al, 2017).

Association between education level and KAP

In this study, there was a significant association between their knowledge and educational level, whereas there was no significant association between their attitude and practice and their educational level. In a questionnaire survey of knowledge, attitude and competency of Chinese nurses in typhoon disaster relief, there was a significant positive relationship between nurses' attitude and their practice (L.Jiang, et.al, 2015). In 2012, the study on Knowledge, Attitude and Practice of emergency and community health nurses on disaster management mentioned that both groups of nurses had similar inadequate knowledge but portrayed positive attitude towards disaster management and emergency nurses reported having had adequate practice compared to the community health nurses (Nurul'AinAhayalimudin,2012). A prospective Knowledge, Attitude and Practice study on disaster management of healthcare staff done by (Yadav, et.al, 2016) suggested that level of education and year of experience in a hospital had an effect on knowledge about disaster management and then nurses had positive attitude towards disaster management, they agreed with that hospital should have disaster management plan, they should know about disaster plan, effects of disaster can be reduced, mock drills should be conducted regularly and for all classes of staff, they know their responsibility during disaster (Yadav, et.al, 2016).

Association between KAP and involvement in flood disaster and disaster Training

There was no significant association between KAP and involvement in flood disaster in this study. In contrast, the study on the awareness and attitude of hospital management personnel of the flood disaster management at a Johannesburg hospital mentioned that their awareness and attitude were strongly positive, whereas the practice was still deficient and need to be done ongoing training and performance drill (Moabi, 2008). The cross-sectional study on hospital nurses' readiness on disaster response demonstrated poor readiness for disaster response and disaster-related training should be included in undergraduate programmes and continuing education courses to help hospital nurses recognize and improve their own readiness for disaster responses outside the hospital environment (W.-C. Tzeng et al., 2016). In the study of Jordanian nurses' perceptions of their preparedness for disaster management explored that the majority of respondents described their current disaster preparedness was weak (Al Khalaileh, Bond & Alasad, 2012).

V. Conclusion

At the end, nurses should possess the sound knowledge and competency skills in disaster management and collaborate with other experts, including environmentalists, epidemiologists, laboratorians, biostatisticians, physicians, social workers, and other nurses. Interprofessional practice is required to enhance preparedness, response, and recovery of disaster management at the local, regional, state, national and global levels.

Acknowledgements

The authors wish to thank the International Islamic University of Malaysia for the grant (RIGS-16) to support this study.

References

[1]. Annis H, Jacoby I, DeMers G. Disaster preparedness among active duty personnel, retirees, veterans and dependents. *Prehospital Disaster Medicine. 31(2),* 2016:132-140. doi: 10.1017/S1049023X16000157

[2]. Watson JT, Gayer M, Connolly MA. Epidemics after natural disasters. *Emerging Infectious Diseases*. *13(1),* 2007:1–5. doi: 10.3201/eid1301.060779. Retrieved from :https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2725828/

[3]. Mohd Said Nurumal, et.al. Community experiences at the aftermath of Flood disaster based on cultural context, *Journal of Advanced Research in social and Behavioral Sciences, 8(1),* 2017. 56-66. Retrieved from: http:// www. akademiabaru.com/arsbs.html

[4]. Bahadori M, Khankeh HR, Zaboli R, Malmir I. Coordination in disaster: A narrative review. *International Journal of Medical Reviews*;*2(2),* 2015, 273-281. Retrieved from : http://journals.bmsu.ac.ir/ijmr/index.php/ijmr/article/view/99

[5]. KhinThandar Aung, et.al. We are now standing on not normal Land: Nurses' competency in Disaster Management, *Scholar Journal of. Applied Medical Science, 5 (3E),* 2017, 1056-1060, DOI: 10.21276/sjams. 2017.5.3.64

[6]. Stangeland, P. A. Disaster Nursing: A Retrospective Review. *Critical Care Nursing Clinics of North America, 22(4),* 2010, 421-36. doi: 10.1016/j.ccell.2010.09.003. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/21095551

[7]. Ahayalimudin et al. Disaster Management: A study on Knowledge, attitude and practice of Emergency nurse and Community Health Nurse, *BMC Public Health, 12(Suppl 2):*A3, 2012. Retireved from: https://doi.org/10.1186/1471-2458-12-S2-A3

[8]. Khan, S, Kausar,S and Ghani, M . Knowledge of Disaster Preparedness Among nurses at Two tertiary care Hospitals In Lahore, *Biomedica ,33(1),* 2017, 29-38. Retrieved from: http://www.thebiomedicapk.com/articles/526.pdf

[9]. Sabiha, et.al. Knowledge, attitude and practice of nurses regarding disaster management. A study from Peshawar KPK, *International Journal of Endorsing Health Science research, 3(3),* 2015, 12-14. Retrieved from: http:www.aeirc-edu.com

[10]. Sharma, S Koushal, V & Pandey, N. Are our hospitals prepared for disasters? Evaluation of health care staff, vis-a-vis disaster management at a public hospital in India, *International Journal of health care system and disaster management, 4,* 2016, 63-66. doi: 10.4103/2347-9019.183231.Retrieved from: http:www. ijhsdm.org

[11]. L. Jiang, et.al, Knowledge, attitude and competence in nursing practice of typhoon disaster relief work among Chinese nurses: A questionnaire survey, *International Journal of Nursing practice, 21,* 2015. : 60-69. doi: 10.1111/ijn.12214

[12]. Yadav, N, Preetham, K & Anchalia, P. A prospective knowledge, attitude and practice study on disaster management of healthcare staff , *International Journal of Therapeutic Applications, 33,* 2016, 129-134 Retrieved from : http://journal.npaa.in/admin/ufile/1484188279IJTA_33_129-134.pdf

[13]. Moabi, R. M. Knowledge, *Attitude and practice of health care workers regarding disaster preparedness at Johannesburg Hospital in Gauteng Province, South Africa*, Master Thesis, Faculty of Health sciences, University of the Witwatersrand, Johannesburg., 2008.

[14]. W.-C. Tzeng, et. al . Readiness of hospital nurse for disaster response in Taiwan: A cross- sectional study, *Nurse Education Today, 47,* 2016, 37-42 , doi: http://dx.doi.org/10.1016/j.nedt.2016.02.025

[15]. Al Khalaileh, M.A, Bond, E & Alasad, J.A. Jordianian nurses' perceptions of their preparedness for disaster management, *International Emergency Nursing, 20(1) ,* 2012, 14- 23. doi:10.1016/j.ienj.2011.01.001

Khin Thandar Aung. " Nurses' knowledge, Attitude and Practices (KAP) During Flood Disaster Affected East Coast Region in Malaysia " .IOSR Journal of Nursing and Health Science (IOSR-JNHS), vol. 8, no.04 , 2019, pp. 51-59.