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Saudi EMS Students' Perception of and Attitudes toward their Preparedness for Disaster Management

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Abstract

Background: Disasters led not only to the loss of life and destruction of public infrastructures, but also resulted in consequent healthcare delivery concerns. Disaster preparedness is considered one of the key steps in emergency management. EMS students had very scanty knowledge, attitude and practices about disaster preparedness and mitigation.

Purpose: The purpose of this study is to assess Saudi EMS student' perceptions regarding their preparedness for disaster management.

Methods: A descriptive cross-sectional survey was used to examine the perception of Saudi EMS student' about their preparedness for disaster management, convenience sampling technique was adopted recruit study sample. Arabic version of Disaster Preparedness Evaluation Tool (DPET) was used to collect data in the current study. Ethical approval was obtained from the IRB in Prince Sultan Collage For Emergency Medical Services. Analysis of data will be carried out by using the Statistical Package for Social Science (SPSS) version 21.

Results: Respondents reported weakly to moderate knowledge, the means ranged from (M = 2.50, SD1.57 to M=3.40 SD1.30). The mean related to skills ranged from (M = 2.40, SD1.34 to M = 3.87, SD1.44). Respondents thought that integration of disaster courses in EMS curricula, accompanied with practical training, would help in preparing EMS students for disaster management.

Conclusion: EMS students expressed a need for integration of disaster knowledge in undergraduate curriculum. Furthermore, the participants of this study reported that they were unprepared to respond to disastrous events which make them unconfident in their abilities to response adequately in disastrous events.

Keywords: Disaster, preparedness, EMS students, knowledge and skills.

Introduction and background:

Disaster preparedness refers to the readiness of country organizations to fruitfully response to disastrous situations while reducing the negative consequences for the health and safety of individuals, as well as the integrity and functioning of physical structures and systems Conlon Wiechula (2011).

The Asian Disaster Reduction Center (2010) defined disasters as a serious disruption of the functioning of society, causing widespread human, material, or environmental loses which exceed the ability of affected society to cope using only its own resources. Disasters led not only to the loss of life and destruction of public infrastructures, but also resulted in consequent healthcare delivery concerns (Tichyet. al 2009). Disasters were classified into three types; 1) natural, 2) man-made, and 3) hybrid (Shaluf 2007). Although, all health care professionals are involved whenever disaster occurs, Emergency Medical Services (EMS) professionals have the key role in disaster management providing emergency care during all phases of disaster (Catlett et al 2011). To perform their role adequately EMS professionals must have adequate knowledge, organizational skills and leadership abilities.

Since disaster strikes without warning, all health care professionals need to be familiar with disaster procedures, and management (National Association of EMS Physicians 2010). However, disaster preparedness is considered one of the key steps in emergency management. Preparedness is simply preparing for an emergency before it occurs (Glow et al 2013).

A successful disaster response depends on the availability of disaster preparedness at all levels, phases and resources in particular. Moreover, EMS professionals as well as other healthcare professionals must take effective action in emergency situations and disasters (Alkhalaileh et al 2011). On the other hand, Langen and James (2005) indicated that people of various disciplines, particularly in healthcare and service organization must receive proper disaster preparedness education. For instance, EMS professionals are directly involved in the disaster management so that, they need to be well prepared. This preparation can be achieved through different method, such as; availability of plans to deal with various situations and disaster-related contingencies, continuing education courses in disaster management, regular disaster management drills, and integrating disaster management courses in curricula (Tichy et. al 2009, Dasgupta et al 2012). Furthermore, Hooke and Rogers (2005) indicated that having well integrated systems of preparedness is only one element in reducing the impact of disasters upon affected individuals and communities.

Disasters management considered as a challenging situation for health care providers in a variety of

settings.In their study conducted in Baltimore County, Maryland, Austin et al 2013 indicated that the curriculum is an ideal place to provide undergraduate students with an introduction to disaster management through simulation. Furthermore, they indicated that integrating disaster content in undergraduate curriculum encourage students to apply their knowledge, skills and ideas in disaster situation such as; patient safety, patient assessment, nursing intervention, leadership, teambuilding, and also give students opportunities for critical thinking can occur across the spectrum response to disaster. In another study, Joes and Dufrene (2014) stated that currently students are tomorrow's practitioners. Consequently, integrating disaster preparedness in the EMS curriculum is valuable in order to expose students to the right attitude and knowledge to be prepared for disasters Alrazeeni (2014). In their descriptive study conducted in India on 375 undergraduate medical students who volunteered for participating in the study Sinha et al (2008) found that medical students had very scanty knowledge, attitude and practices about disaster preparedness and mitigation. They also stated that undergraduate students' knowledge and awareness can be improved through exposing the students in terms of orientation workshops and mock drills which could develop an interest in the topic (Sinha et al 2008).

Significance of the study:

Recently, there is a significant concern in Saudi Arabia regarding disaster management, this concern appear clearly by great development in graduate and undergraduate education of emergency medical services in the kingdom in recent years Alrazeeni (2014). Although, there is no national disaster plan for disaster management found through searching in related institutions web sites. There was a national plan proposed by Ministry of Interior (MOI) with collaboration of other institutions and ministries in which each institution build their own disaster plan. Saudi Red Crescent Authority (SRCA) and Ministry of health participated in this plan as health sectors, prepare their own plans and sent it to MOI to put all together and distribute the plan to related governmental sectors. The main goal for this plan was to collaborate with other institutions and ministries to manage natural disasters that might occur in different parts of the Kingdom of Saudi Arabia (KSA).

An effective EMS system is also essential to any plan to mitigate and respond to the medical consequences of a disaster or other public health crisis, whether natural or man-made. Although KSA was exposed to different type of disaster in the last decade, no publicity about information was available on the preparedness of Saudi EMS professionals regarding disaster management. In fact, after the Jeddah floods in 2009 there were more concerns in establishing disaster management plan. Finally, up to date, there is no documented study in KSA that explores the preparedness of EMS students regarding disaster management. In a nutshell, what is obvious is that preparing EMS professionals and other health care providers for health risks must occur long before disasters strike. So, the purpose of this study is to assess the current status of EMS students' preparedness for disaster management in KSA.

Aims:

This study aims to answer the following research questions

1- What knowledge do Saudi EMS students have about disaster management?
2- What skills do Saudi EMS students have for disaster management?
3- How do Saudi EMS students perceive their preparedness for disaster management?

Method

Design: A descriptive cross-sectional survey was used to examine the perception of Saudi EMS students about their preparedness for disaster management.

Sample: This study was conducted in Prince Sultan Bin Abdulaziz Collage for Emergency Medical Services (PSCEMS) in king Saud University in Riyadh governance. All Students who were in their 3rd, 4th, 5th (residency year) were recruited in this study. A convenience sample of 150 students chosen to participate in this study, this number reflects the available students.

Instrument: The Arabic version of Disaster Preparedness Evaluation Tool (DPET) was used to collect data in the current study (Alkhalaileh, 2010). The tool consisted of 52 items, the first 36 items are rated according on a 6 point Likert-type scale, ranging from strongly disagree (1) to strongly agree (6). The remaining items are open ended and close ended questions, including demographic data. The original questionnaires had very high Cronbach's alphas of .91 to .93, which measure internal consistency (Alkhalaileh, 2010).

Procedure: Data was collected through self-reported questionnaires. The questionnaires were distributed, individually to each participant, accompanied by a cover letter, which clarifies the purpose, producer and duties of the participants. The participants were informed about the time involved in the completion of the questionnaire. The participants were instructed to submit the completed questionnaire to the Academic affair office, sealed in an envelope.

Ethical Consideration

Ethical approval was obtained from the Ethics Committee at Prince Sultan Bin Abdulaziz College for Emergency Medical Services (PSCEMS). Anonymity and confidentiality of the respondents was ensured throughout the study, Data was secured correctly, saved in the researcher's personal computer, with hard copies in a cabinet in a locked office. Moreover, the questionnaires were coded by numbers to maintain confidentiality,

and no one, except the investigator, had access to that data. There are minimal risks involved in participating in the study, which include the time it takes to fill out the survey which is as previously indicated twenty minutes, and responding to questions regarding disasters.

Results

The main aim of this study was to assess EMS students' preparedness for disaster management. Out of 150 distributed DPET questionnaires, 120 were returned, representing 80% response rate. Of returned questionnaires three incomplete questionnaires founds. These were excluded from the study sample, and were not included in the data analysis. One hundred seventeen questionnaires were deemed complete and usable for the study.

Sample Characteristics

Students aged from 19 to 25 years (M: 22, SD 1.43). Forty students (34%) in the third year, 42 students (36%) 4rth year, while 35 (30%) fifth year students in residency year. Twenty four (20.5%) students participated in real disaster events. Seventy students participated in disaster or emergency drills. To measure EMS students' perception of their preparedness toward disasters in general, and towards knowledge and skills, means and standard deviations of the collected data have been used for the DPET_ questionnaires, Alkhalaileh et al (2012) categorization followed. Alkhalaileh et al (2012) categorized the value of perception mean as follow; 1–2.99 weak; 3–4.99 moderate, and 5–6 strong.

First research question: knowledge

The first research question asked, "What knowledge do EMS students have about disaster management?" sixteen items on the DPET® were related to knowledge, with answers ranging from 1 to 6 (Strongly Disagree to Strongly Agree). Respondents considered themselves weakly prepared for participating in emergency plan drafting and emergency planning for disaster situations in their community (M = 2.50, SD1.57) and for having a list of contacts in the medical or health communities in which they practice. For all other areas of knowledge, the EMS students' perceived themselves weakly to moderately prepared. The means ranged from (M = 2.50, SD1.57 to M=3.40 SD1.30). (item 2, 11) see table 1.

Table 2: students' disaster knowledge.

No.	Items	Mean	Std.
1.	I participate in disaster drills or exercises at my workplace (clinic, hospital, etc.) on a regular basis.	2.84	1.40
2.	I have participated in emergency plan drafting and emergency planning for disaster situations in my community.	2.50	1.57
3.	I know who to contact (chain of command) in disaster situations in my community.	3.30	1.43
4.	I participate in one of the following educational activities on a regular basis: continuing education classes, seminars, or conferences dealing with disaster preparedness.	3.28	1.64
5	I read journal articles related to disaster preparedness.	2.55	1.74
6.	I am aware of classes about disaster preparedness and management that are offered for example at either my workplace, the university, or community.	3.11	1.64
7.	I would be interested in educational classes on disaster preparedness that relate specifically to my community situation.	3.09	1.81
8.	I find that the research literature on disaster preparedness and management is easily accessible.	2.61	1.40
9.	I find that the research literature on disaster preparedness is understandable.	2.93	1.18
10.	Finding relevant information about disaster preparedness related to my community needs is an obstacle to my level of preparedness	3.14	1.43
11.	I know where to find relevant research or information related to disaster preparedness and management to fill in gaps in my knowledge.	3.40	1.30
12.	I have a list of contacts in the medical or health community in which I practice. I know referral contacts in case of a disaster situation (health department, e.g.).	2.91	1.49
13.	In case of a disaster situation I think that there is sufficient support from local officials on the county, region or governance level.	2.76	1.49
14.	I am aware of what the potential risks in my community are (e.g. earthquake, floods, terror, etc).	3.05	1.61
15.	I know the limits of my knowledge, skills, and authority as an EMS student to act in disaster situations, and I would know when I exceed them.	3.17	1.71
16.	I feel confident recognizing differences in health assessments indicating potential exposure to biological or chemical agents.	2.83	1.58

Second Research Question: Skills

The second research question asked "What skills do EMS students have about disaster management?" There were 20 DPET items related to skills, with answers ranging from 1 to 6 (Strongly Disagree to Strongly Agree). Respondents considered themselves weakly prepared for participating in creating new guidelines, emergency plans, or lobbying for improvements on the local or national level (M = 2.40, SD1.34). The highest mean related to skills was (M = 3.87, SD1.44) item2 and item 8 in table 2.

Table 2: Students disaster skills

No.	Items	Mean	Std.
1.	I consider myself prepared for the management of disasters.	3.44	1.21
2.	I participate/have participated in creating new guidelines, emergency plans, or lobbying for improvements on the local or national level.	2.40	1.34
3.	I would be considered a key leadership figure in my community in a disaster situation.	3.44	1.57
4.	In case of a bioterrorism/ biological or chemical attacks, I know how to use personal protective equipment.	2.85	1.66
5.	In case of a bioterrorism/biological or chemical attacks I know how to execute decontamination procedures.	2.55	1.74
6.	In a case of bioterrorism/biological or chemical attacks I know how to perform isolation procedures so that I minimize the risks of community exposure.	2.75	1.52
7.	I am familiar with the local emergency response system for disasters.	2.96	1.05
8.	I am familiar with accepted triage principles used in disaster situations	3.87	1.44
9.	I have personal/family emergency plans in place for disaster situations.	2.97	1.67
10.	I have an agreement with loved ones and family members on how to execute our personal/family emergency plans.	2.95	1.73
11.	I am able to describe my role in the response phase of a disaster in the context of my workplace, the general public, media, and personal contacts.	3.21	1.60
12.	I am familiar with the main Groups (A, B, C) of biological weapons (Anthrax, Plague, Botulism, Smallpox, etc.), their signs and symptoms, and effective treatments.	2.49	1.52
13.	As an EMS student, I would feel confident in my abilities as a health care provider and first responder in disaster situation.	3.37	1.67
14.	As an EMS student, I would feel confident as a manager or coordinator of a shelter.	3.53	1.74
15.	As an EMS student, I would feel reasonably confident in my abilities to be a member of a decontamination team.	3.56	1.51
16.	In case of a bioterrorism/biological or chemical attacks, I know how to perform focused health history and assessment, specific to the biological or chemical agents that are used.	2.98	1.56
17.	I feel reasonably confident I can care for patients independently without supervision of a physician in a disaster situation.	3.29	1.73
18.	I am familiar with the organizational logistics and roles among local and national agencies in disaster response situations.	2.72	1.52
19.	I would feel confident implementing emergency plans, evacuation procedures, and similar functions	2.99	1.74
20.	I would feel confident in providing health education in case of stress	3.82	1.62

When students asked about specific areas of education, they stated they wanted additional information about their role in disaster; risks and resources in their communities; biological and chemical agents; signs, symptoms, diagnosis and treatments; and ways to address mental health issues (*Table 3*).

Table 3: areas of education needed

Items	n.	%
My role (my scope of practice, skills) in disaster situations.	92	78.6
What potential risks exist in the community	80	68.4
Biological and Chemical agents and ways to identify their signs and symptoms.	59	50.4
Biological and Chemical agents and their differential diagnosis and treatments.	58	49.6
Resources in the community such as agencies for referral, health departments, emergency contacts, the chain of command, and community shelters.	66	56.4

When asked to describe what would make them personally better prepared for the management of disasters, 86% (n = 101) of the respondents thought that integration of disaster courses in EMS curricula, accompanied with practical training, would help in preparing EMS students for disaster management. The majority of students

(84%) reported that they were unprepared to respond to disastrous events. Only 20% (n=23) participated in real disaster which include major accidents and big fire incidents.

To compare the differences of disaster knowledge and skills among students from three different groups (year of study 3rd, 4th, and 5th year) Kurskal-Wallis test was used. The use of ANOVA was not possible because of violation of the normal distribution assumption which may result in a less robust test and invalid interpretations (Field, 2009). However, there were significant differences in total knowledge mean rank in regard to year of study (Kurskal-Wallis T= 84.282, df=2, p< 0.001) and also, significant differences in total skills mean rank in regard to year of study (Kurskal-Wallis T= 87.829, df=2, p< 0.001).

To determine where the difference lay, the researcher conducted three Mann-Whitney Tests post hoc for each sub-scale. It was found that there were significant differences in the mean rank of total knowledge and total skills between groups (3rd and 4th year students, 3rd and 5th year students and 4th and 5th year students). In all cases, senior students (5th year) mean rank was higher than junior students (3rd and 4th year) see table 4.

Table4: Mann-Whitney Test Comparisons of students' knowledge and skills scale score distribution for year of study.

Variable Year of study	Total Knowledge			Total skills		
	u	*z*	*p*	*u*	*z*	*P*
3rd year & 4th year	66.000	-7.238	<.001*	54.00	-7. 340	<.001*
3rd year & 5th year	63.000	-7.213	<.001*	57.000	7.499	<.001*
4th year & 5th year	250.500	-4.962	<.001*	195.500	-5.527	<.001*

Significant at p<0·001.

Discussion:

Seeing that there is a dearth of information on Saudi EMS students disaster preparedness, this descriptive study assessed EMS students' perception of their preparedness for disaster, and assessed how they acquired disaster knowledge and skills. This comes at a time of exigency, explored clearly not only by the terror attacks and Jeddah floods, but also by the intensifying universal apprehension regarding disastrous events and disaster consequences.

This study demonstrates that Saudi EMS students lacked the required knowledge and skills to provide optimal emergency management and disaster response. EMS students reported weak to moderate levels of disaster preparedness (knowledge and skills) which enclose inadequacy of students' abilities to participate in disastrous events. Compared with previously conducted studies these findings are congruent with the results of Sinha et al (2008) who found that medical students had very scanty knowledge, attitude and practices about disaster preparedness and mitigation. However, Hubloue and Debacker (2010) stated that disaster and mass casualty events necessitate exceptional knowledge and skill to provide health care in primitive or aggressive environment and capability to systematize disaster response. Moreover, Duong (2009) indicated that health care professional education and training had limited focus on the preparation of health professionals for disaster through undergraduate education. He also stated that disaster education and training for health professionals may boost the level of disaster preparedness and help to make EMS professional confident in their abilities to response effectively in such devastating events.

An exciting results from this study show that the majority of EMS students (86.3%, n= 101) stated that integration of disaster preparedness in undergraduate curricula made the more prepared and should be the first priority. This reflects Saudi EMS students concern and acknowledgment about the significance of disaster preparedness. Moreover, these findings can be explained by the fact that EMS students may receive limited disaster management education in their undergraduate programs. This is consistent with Bajow et al (2015), who reported that integrating disaster preparedness in training make graduates student able to improve disaster preparedness. However, Joes and Dufrene (2014) considered preparation for disastrous events as a highest priority for healthcare professionals. They also stated that current students are tomorrow's practitioners. Consequently, integrating disaster preparedness in the EMS curriculum is very important in order to expose students to the right attitude and knowledge to be prepared for disasters.

The results of this study showed that senior students (5th year) mean rank of total knowledge and total skills was higher than junior students (3rd and 4th year), these findings are consistent with the results of Sinha et al (2008) who found that final semester students, obtained slightly higher mean marks, they also found that none of the observed difference was statistically significant. They also stated that whatever knowledge is there, it is due to their previous self-learned experiences and self-acquired learning about disasters. However, these results can

be explained by the fact that undergraduate students' knowledge and awareness can be improved through exposing the students in terms of orientation workshops and mock drills which could develop an interest in the topic Jones et al (2014). Moreover, Austin et al 2013 reported that integrating disaster content in undergraduate curriculum raise the level of students' preparedness for disaster, and also give students opportunities for critical thinking can occur across the spectrum response to disaster.

Recommendations:

Given that this was the first study of EMS students' disaster Knowledge and skills, more research needs to be done to validate these results as accurate reflections of perceived preparedness. Moreover, this study could also be replicated with EMS students studying in private colleges. Intervention studies may improve Saudi students' preparedness for disaster management. This study identified gaps in students' education in disaster preparedness, disaster plans, disaster training, and education. Uniform integration of disaster management courses into undergraduate EMS curricula is recommended to prepare the next generation of EMS professionals. Furthermore, development of graduate disaster management courses and programs will help in preparing EMS students for disaster management. Repeated and focused disaster drills and exercises are the best ways to prepare EMS students for a disaster. Consequently, it is very important that health care institutions incorporate drills into their in-service education to increase EMS students readiness and preparedness for disaster.

Conclusion

EMS students and professionals cannot prevent disasters, but they can help in minimizing their devastated consequences by joining with other health care providers and agencies, and being well prepared to respond to any unanticipated disaster. The findings of this study show that EMS students have low knowledge and skills levels of disaster management. Saudi EMS students expressed a need for integration of disaster knowledge in undergraduate curriculum. Furthermore, the participants of this study reported that they were unprepared to respond to disastrous events which make them unconfident in their abilities to response adequately in disastrous events.

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Conflict of interest statement

The author declares no conflict of interest.

References

Al Khalaileh, M.A.A., Bond, A.E., Beckstrand R.L., & Al-Talafha A. (2010). The Disaster Preparedness Evaluation Tool: psychometric testing of the Classical Arabic version. *Journal of Advanced Nursing* 66(3), 664–672.

Al Khalaileh, M., Bond E. &Alasad J. (2011). Jordanian nurses' perceptions of their preparedness for disaster management. International Emergency Nursing; article in press.

Alrazeeni D. (2014). Paramedic Students Practice Triage & Patient Care in The Kingdom Of Saudi Arabia. *Journal of Emergency Medical Services*, *online*, retrived n Oct. 2015 from: http://www.jems.com/articles/2014/08/paramedic-students-practice-triage-patie.html

Alriyadh News Paper (2009). Civil Defense Press Conference, Monday, 20 DHU Al-HIJJAH 1932- December 7, 20009- Issue 15141, retrieve in November 2-2014from http://www.alriyadh.com/479691.

Austin E., Hannafin N., and Nelson W. (2013). Pediatric Disaster Simulation in Graduate and Undergraduate Nursing Education. *Journal of Pediatric Nursing*, 28, 393–399.

Asian Disaster Reduction Center (2010). "Glossary on natural disasters", available at: www.adrc.or.jp/ (accessed December 2015).

Bajow, N., Djalali, A., Ingrassia, PL., Ageely, H., Bani, I., Della Corte F. (2015). Proposal for a community-based disaster management curriculum for medical school undergraduates in Saudi Arabia. *Am J Disaster Med,* 2015;10(2):145-52. doi: 10.5055/ajdm.2015.0197. PubMed PMID: 26312495.

Catlett, C., Jenkins, L., and Millin M. (2011). Role of Emergency Medical Services In Disaster Response: Resource Document For The National Association Of EMS Physicians Position Statement. *Prehospital Emergency Care*, July 15 (3), p 420-425.

Conlon, W., Wiechula. (2011), Preparing nurses for future disasters——The Sichuan experience. *Australasian Emergency Nursing Journal*, (2011) 14, 246—250

Dasgupta, S., French, S., Williams-Johnson J., Hutson. R., Hart, N., Wong, M., Williams, E., Espinosa, K., Maycock, C., Edwards, R., McCartney. T., Cawich, S., Crandon I. (2012). EMS response to an airliner crash. *Prehosp Disaster Med, 2*7(3):1-4.

Deeny, P., & McFetridge B. (2005). The impact of disaster on culture, self, identity: Increased awareness by health care professionals is needed. *Nursing Clinics of North America,* 40: 431-440.

Duong K. (2009). Disaster education and training of emergency nurses in South Australia. *Australasian Emergency Nursing Journal* (2009) 12, 86—92.

Field, A., (2009). *Discovering Statistics using SPSS*. (3rd ed.) London: Sage.

Glow, SD., Colucci, VJ., Allington, DR., Noonan, CW., Hall EC. (2013). Managing multiple-casualty incidents: a rural medical preparedness training assessment. *Prehosp Disaster Med,* 28(4):1-8.

Hooke, W., and Rogers, P. (2005). Public health risks of disasters: Communication, infrastructure, and preparedness national academy of sciences. Retrieved in 2008 from http://www.nap.edu/catalog/11201.html.

Hubloue L. & Debacker M. (2010). Education and research in disaster medicine and management: inextricably bound up with each other. *European Journal of Emergency Medicine,* 17:129–130.

Jones J , Kue R , Mitchell P , Eblan G , Dyer KS . (2014). Emergency Medical Services response to active shooter incidents: provider comfort level and attitudes before and after participation in a focused response training program. *Prehosp Disaster Med,* 29(4):1-7.

Jose M., &Dufrene C. (2014). Educational competencies and technologies for disaster preparedness in undergraduate nursing education: An integrative review. Nurse Education Today 34, 543–551.

Langan, J., & James D. (2005). Preparing Nurses for Disaster Management. New Jersey: Pearson Prentice Hall.

Ministry of Interior (MOI) (2010). national disaster response plan. retrieve in November 2-2014 from http://www.moi.gov.sa/wps/portal/moi/eservices/public/welcome/!ut/p/b1/

National Association of EMS Physicians (2010). Role of Emergency Medical Services in Disaster Response Retrieved on 2014 from: http://content.ebscohost.com/ContentServer.asp?T=P&P=AN&K=2010782563&S=R&D=rzh&EbscoContent=dGJyMMvl7ESeqLA40dvuOLCmr0yep7ZSs6%2B4S6%2BWxWXS&ContentCustomer=dGJyMPGpsFC1rLVLuePfgeyx44Dt6fIA.

Sloan H. M. (2011). Responding to a Multiple-Casualty Incident: Room for Improvement. *Journal of Emergency Nursing,* 37 (5), 484-6.

Shaluf, I. (2007). Disaster types. *Disaster Prevention and Management: An International Journal,* 16(5), 704-717.

Sinha A., Tiwari K. and A. Sharma (2008). Knowledge, attitude and practice of disaster preparedness and mitigation among medical students. *Disaster Prevention and Management: An International Journal,* 17 (4), pp. 503 – 507.

Tichy, M., Bond, A.E., Beckstrand, R.L., &Heise, B. (2009). Nurse Practitioners' perception of disaster preparedness education.). *American Journal of Nurse Practitioners,* 13(1)10-22.

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