

To Assess Preparedness in Disaster Management among EMS Professionals in Pune, India

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Abstract

Introduction: Natural disasters cause an estimated 60,000 deaths every year. Although low-frequency, high-impact events like earthquakes and tsunamis are not preventable, albeit loss of human lives can be prevented by developing an efficient disaster management system. In the last few decades robust emergency response systems, emergency preparedness, resilient infrastructure and accurate forecasting have significantly reduced the death rate caused due to such calamities. Similar to natural disasters, MCIs drastically impact the healthcare system and society at large.

Emergency medical services (EMS) professionals play a pivotal role during disasters, mass casualty incidents etc. and are an integral part of disaster management apparatus. The level of awareness and preparedness amongst EMPs with regards to disaster management is primordial. The areas requiring improvement include skillset training strategic and operational planning and familiarity with the emergency preparedness in disaster management. Designing an effective training program for Indian EMS professionals, would require a thorough understanding of the baseline level of preparedness among them.

Objective: To assess preparedness in disaster management among Emergency Medical Professionals.

Methodology: The study was conducted among Emergency Medical Professionals (EMPs) employed in various hospitals in the city of Pune, India. The questionnaire tool utilized for the study was Emergency Preparedness Information Questionnaire (EPIQ) a pretested and validated tool. The revised EPIQ tool comprises of 42 items and is divided into eight sections.

All 42 items were required to be mandatorily filled. The tool was administered through online mode. 119 respondents reverted with completely filled questionnaire.

Conclusion: Disasters although infrequent, cause significant morbidity and mortality. A high degree of preparedness is expected amongst EMP's which can only be achieved with regular training and feedback.

Keywords: Disaster, preparedness, emergency medical professionals, mass casualty

Introduction

Natural disasters cause an estimated 60,000 deaths every year. Although low-frequency, high-impact events like earthquakes and tsunamis are not preventable, albeit loss of human lives can be prevented by developing an

efficient disaster management system. In the last few decades robust emergency response systems, emergency preparedness, resilient infrastructure and accurate forecasting have significantly reduced the death rate caused due to such calamities.¹

Mass casualty incidents (MCIs) defined as “events which generate more patients at one time, than locally available resources can manage using routine procedures” are increasing in frequency across the globe. Similar to natural disasters, MCIs drastically impact the healthcare system and society at large.²

Emergency medical services (EMS) professionals play a pivotal role during disasters, mass casualty incidents etc. and are an integral part of disaster management apparatus.³ The role of EMS professionals in providing emergent healthcare services and upgrading the skill sets of the allied healthcare providers has been highlighted in a study by Catlett C.L *et al* (2011).⁴

Emergency Medical Professionals (EMP’s) can mitigate the damage caused by disasters only if they possess optimum levels of preparedness. Unfortunately, studies in the past have shown that the level of awareness and preparedness amongst EMPs with regards to disaster management is primordial. The areas requiring improvement include skillset training strategic and operational planning and familiarity with the emergency preparedness in disaster management.^{5,6} Regular training of EMS professionals, in disaster management is a need of the hour. Designing an effective training program for Indian EMS professionals, would require a thorough understanding of the baseline level of preparedness among them.

Objective

To assess preparedness in disaster management among Emergency Medical Professionals.

Methodology

The study was conducted among Emergency Medical Professionals (EMPs) employed in various hospitals in

the city of Pune, India. The questionnaire tool utilized for the study was Emergency Preparedness Information Questionnaire (EPIQ) a pretested and validated tool, developed by Wisniewski *et al* (2004)⁷ and later revised by Garbutt S.J. *et al* (2008)⁸. The reliability of the questionnaire is found to be high (Cronbach’s alpha value 0.97) for evaluating awareness about disaster preparedness among the healthcare professionals.

The revised EPIQ tool comprises of 42 items and is divided into eight sections viz., (i) Incident command system factor (eight items) (ii) Triage factor (five items), (iii) Communication and connectivity factor(six items), (iv) Psychological issues and special populations factor (six items), (v) Isolation, decontamination, and quarantine factor (five items), (vi) Epidemiology and clinical decision-making factor (four items), (vii) Reporting and accessing critical resources factor (four items), (viii) Biological agents factor (four items). Each item requires response on a five-point Likert scale ranging from scores of 5 to 1 wherein 5 stands for “Very Familiar”, 4 stands for “Somewhat Familiar”, 3 stands for “Familiar to Neutral”, 2 stands for “Somewhat Unfamiliar” and 1 stands for “Not Familiar”. Informed consent was taken from the participants for answering the questionnaire based on the subject

All 42 items were required to be mandatorily filled. The tool was administered through online mode. The respondents were given one-day deadline to revert with responses. Any queries pertaining to the questionnaire were clarified during data collection. 119 respondents reverted with completely filled questionnaire. The data was tabulated and statistically analysed with the help of SPSS version 23.

Result

Demographic Data

Table 1:

Participants	119
Age	
21 to 25 years	102 (85.71%)

Cont... Table 1:

26 to 30 years	11 (9.24%)
>30 years	6 (5.04%)
Experience	
< 1 year	64%
1 to 3 years	17%
>3 years	9%
Sex	
Female	74 (62.7%)
Male	45 (37.3%)
Qualification	
MBBS	1 (0.9%)
BHMS	54 (44.9%)
BAMS	37 (31.4%)
BUMS	24 (20.3%)
BNYS	3 (2.5%)

Mean Familiarity Score

Table 2

Parameters	Mean Familiarity Index (Out of 5)
Incident command system factor	3.39
Triage factor	3.78
Communication and connectivity factor	3.32
Psychological issues and special populations factor	3.61
Isolation, decontamination, and quarantine factor	3.75
Epidemiology and clinical decision-making factor	3.43
Reporting and accessing critical resources factor	3.48
Biological agents factor	3.67

As seen in the Table 2, the familiarity across all parameters range between 3 to 4 indicating moderate degree of familiarity with all the aspects of Disaster Management

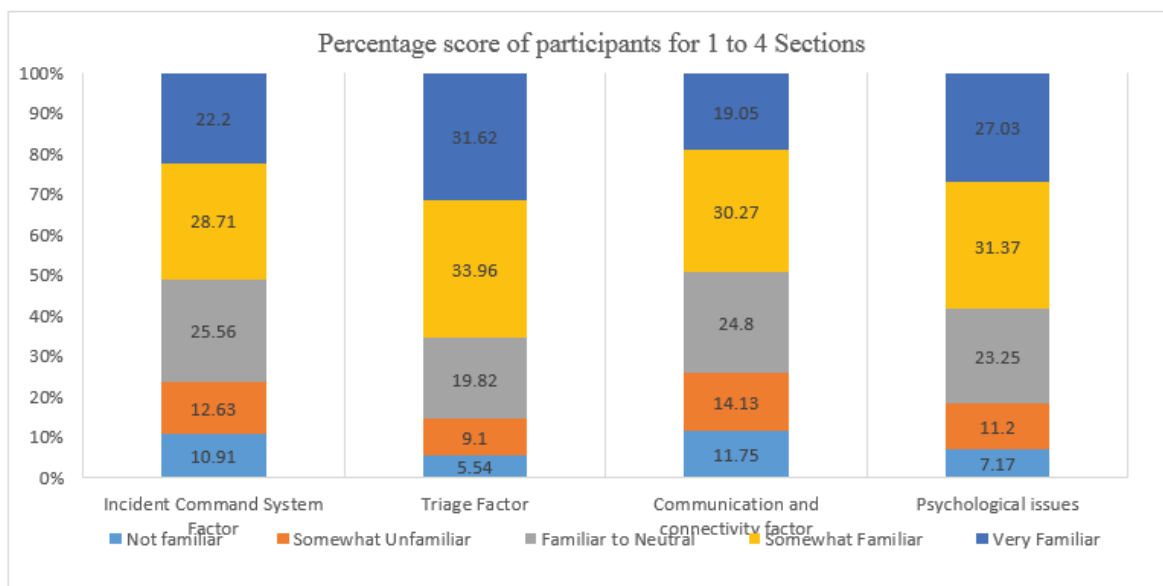


Figure 1:

As seen in Figure 1 the most common response across parameters was found to be, ‘Somewhat Familiar’

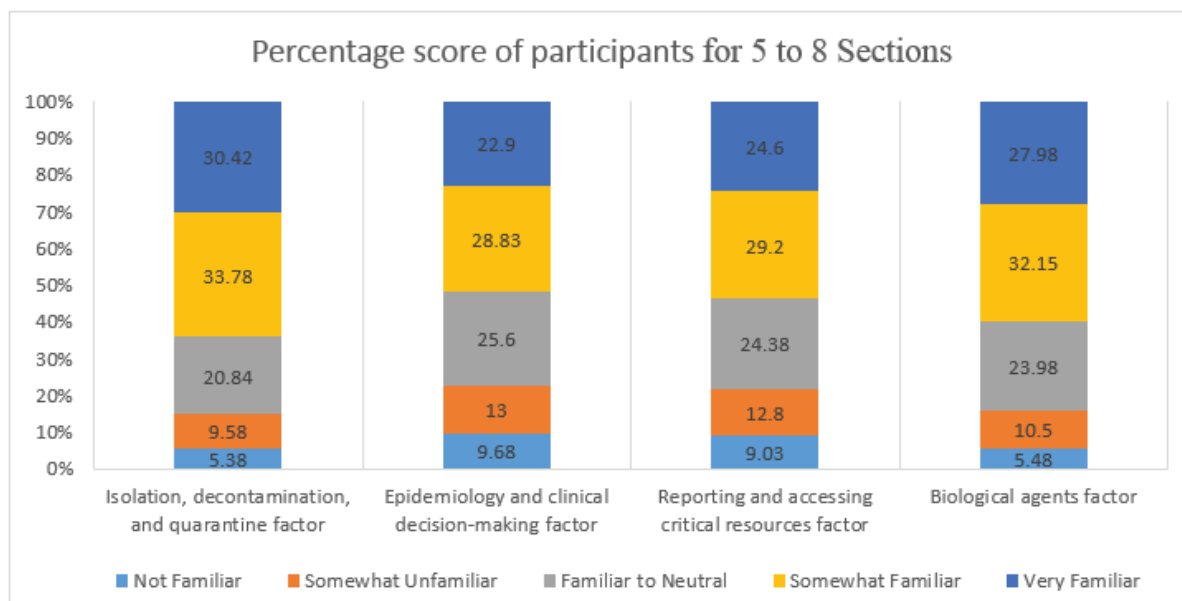


Figure 2 : Similarly, as shown in Figure 2 EMP’s were ‘Somewhat Familiar’ with the parameters regarding Disaster Management

Discussion

The study was conducted with an aim to assess the degree of preparedness with regards to natural disasters and mass casualty incidents (MCI) among EMP’s. The results are somewhat encouraging as majority of the respondents displayed some degree of familiarity with the all-round aspect of disaster management.

Significantly as many as 6 to 10 % of the respondents, inspite of being working EMP’s had no familiarity with any disaster management protocol. Approximately, 10 to 14 % of the respondents had some vague idea but displayed lack of preparedness across all parameters of disaster management.

It is crucial for working EMP's to possess a high degree of knowledge and skill set with regards to disaster management as they are first responders. The results therefore highlight the emergent need of continuing medical education (CME) and practical workshops to equip EMP's with the required skill set and knowledge. Although Disaster management is covered as a part of EMS curricula, periodic re –enforcement is essential to maintain optimum level of preparedness among EMP's. Pre and post testing during disaster management workshops can help in objectively identifying the degree of improvement in preparedness and the effectiveness of the practical sessions.

Conclusion

Disasters although infrequent, cause significant morbidity and mortality. The role of EMP's in positively impacting lives during disasters cannot be overemphasized. A high degree of preparedness is expected amongst EMP's which can only be achieved with regular training and feedback.

Conflict of Interest: None

Source of Funding: Self

Ethical Clearance: Obtained from IEC, SIU

References

1. Hannah R. Natural Disasters.[Online] Available from: '<https://ourworldindata.org/natural-disasters>' [Accessed 06 November 2020].
2. World Health Organisation. [Online]. Available from: <https://www.who.int/news-room/fact-sheets/detail/disastermanagement> [Accessed 06 November 2020].
3. Mattox KL. Hurricanes Katrina and Rita: role of individuals and collaborative networks in mobilizing/coordinating societal and professional resources for major disasters. *Critical Care*. 2006; 10:205
4. Christina L. Catlett, J. Lee Jenkins & Michael G. Millin Role of Emergency Medical Services in Disaster Response: Resource Document for the National Association of EMS Physicians Position Statement, *Prehospital Emergency Care*, 2011; 15:3, 420-425.
5. Hussein A. , Mahmoud N. Emergency Preparedness and Perceived Competence of Health Care Providers in Disaster: An Egyptian Study. 2016.;18 (2)
6. Nomani S., Barua P., Goyal V., Mishra D. , Khan I Perception Of Disaster Preparedness Among Emergency Physician In India. *International Journal of Advanced Research Res*. 2017; 5(3), 143-159.
7. Garbutt SJ, Peltier JW, Fitzpatrick JJ. Evaluation of an instrument to measure nurses' familiarity with emergency preparedness. *Military Medicine*. 2008;173(11):1073-1077. Wisniewski R, Dennik-Champion G., Peltier J. Emergency preparedness competencies assessing nurses' educational needs. *Journal of Nursing Administration* 2004; 34: 475-80.