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### RESEARCH ARTICLE

#### PERCEPTION OF DISASTER PREPAREDNESS AMONG EMERGENCY PHYSICIAN IN INDIA.

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#### Abstract

INDIA is a country that's more prone to natural Calamities & disasters [UNESCO Bangkok, 2007.] .No city in the India can be said to be free from Risk and Hazard of facing such acts.

Disaster is a serious public health issue and one of man's oldest concerns, and we have no control over when and where they happen, but with proper preparedness and planning for all phases of disaster, we can minimize the consequences of any disaster.

In last few decades frequency and intensity of various disasters have been significantly increasing all over the world.

Emergency physicians are main players in disaster responses but their knowledge levels of disaster medicine and their psychosocial status are not readily available. This study aimed to evaluate psychosocial preparedness levels and training needs of disaster medicine among potential disaster responders and presented a necessity to popularize disaster medicine education

**Methodology:** This study is a survey based descriptive study, to fulfill this purpose a questionnaire was developed and a pilot study was done to validate the questionnaire. A web link for this survey sent through email, to Emergency department directors of various multispecialty hospitals with accredited emergency department, requesting them to circulate this link among their consultant / postgraduate trainees and residents.

**Results:** 124 participants from 16 states of India completed this survey over a period of 6 months. Majority of emergency physicians agreed hospitals in India are inadequately prepared to handle various kinds of disasters, whereas around 50% emergency physicians are not aware of either stockpiles of PPE of their hospitals or their adequacy. Where about 44% respondents did not know the access to resources in case of emergency events. Interestingly, in the study; around 83% of Emergency physicians were ready for being trained in the form of classroom teaching despite their busy schedules, which needs to be appreciated properly.

**Conclusion :** The study results show that there is enormous scope of further improvement in various aspects of disaster preparedness.

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Though in certain areas the result were satisfactory, majority of the results demand improvement. In the current scenario there is a need for an organized effort for the spread of disaster preparedness amongst the Emergency physician in India. As per the outcome of this study ,it can be concluded that perception of disaster preparedness among Emergency physician in India is still an iceberg phenomenon. Thereby emphasizing upon the fact that hospital administration authorities, government and nongovernmental agencies should take a serious note on it and take measures to inculcate awareness among EPs and should treat finding of this study with seriousness and treat it as a base for further studies for improvement in this field.

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**Introduction:-**

Disaster is a serious public issue and one of man's oldest concerns, and we have no control over when and where they happen, but with proper preparedness and planning for all phases of disaster, we can minimize the consequences of any disaster.

In last few decades frequency and intensity of various disasters have been significantly increasing all over the world.

Floods, drought, hurricanes and other disasters in last few decades have caused severe environment disruption as well as huge economic losses.

Emergency physicians are main players in disaster responses but their knowledge levels of disaster medicine and their psychosocial status are not readily available. This study aimed to evaluate psychosocial preparedness levels and training needs of disaster medicine among potential disaster responders and presented a necessity to popularize disaster medicine education.

The term DISASTER originated to the French word "Desastre" which is a Combination of two words 'des' meaning bad and 'aster' meaning star. Thus the term refers to 'Bad or Evil star'.<sup>1</sup>

Disasters usually defined as "A serious disruption in the Functioning of the community or a society causing wide spread material, economic, social or environmental losses which exceed the ability of the affected society to cope using its own resources"<sup>1,2,3</sup>

A disaster is a result from the combination of hazard, vulnerability and insufficient Capacity or measures to reduce the potential chances of risk.<sup>3</sup>

If we think back around 25-30 years, we rarely heard about a major disaster happening, now think in the present context, today it seems like every time we turn around there has been another major disaster.

As an aftermath of the 9/11 World Trade Center, USA event, Attack on Indian parliament on December 13, Indian Ocean tsunami on 24th December 2004 ,Mumbai attack 2009 & Recent Tsunami in Japan , and several incidence like that around the world and in India, has given a new management of disasters on a large scale, hence the importance of disaster management and disaster preparedness become quite evident even to the layperson.

India is one of the most disaster prone countries of the world<sup>4,5</sup>.

It has had some of the world's most severe droughts, cyclones, chemical disasters, mid-air head-on air collisions, and earthquakes, rail and road accidents. India is also one of the most terrorist prone countries.

According to EM-DAT (2011) report Indian subcontinent acquired fourth position in term of reported disaster, after Philippines, USA, and China.

India is a huge country and it holds as many variations in religion, language, customs, art and cuisine as it does in topography and hence the disasters vary in their type and magnitude as well.

Disasters are typically viewed as low probability yet high impact events. Although various definitions have been used, a disaster is frequently viewed as a situation in which the number of patients presenting to the medical facility within a given time period exceed the ability of the hospital to provide care without external assistance. As such, the definition is institution specific, and therefore preparedness must be likewise institution specific.

The term “hospital preparedness” is a catch-all phrase, covering a multitude of inter-related areas of medical and non-medical disaster management. Although the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) mandates specific standards for hospital preparedness, in many institutions these standards never extend beyond the written page. Hospital preparedness is focused on either natural or unintentional man-made mass casualty events such as accidents, earthquakes, tornadoes, commercial building collapse, and airline or school bus accidents.<sup>5,6</sup>

Almost 85% of India’s area is vulnerable to one or multiple hazard. Of the 28 states and 7 union territories, 22 are disaster-prone. It is vulnerable to wind storms spawned in the Bay of Bengal and the Arabian Sea, earthquakes caused by active crustal movement in the Himalayan mountains, floods brought by monsoons, and droughts in the country's arid and semi-arid areas. India has also become much more vulnerable to tsunamis since the 2004 Indian Ocean tsunami.<sup>7</sup>

**The size and location of our country gives us:**

- i. 57% of landmass prone to earthquakes (high seismic zones III–V)
- ii. 68% of the total area are vulnerable to drought.
- iii. 12% to floods.
- iv. 8000 kilometers’ long coastline with an average of two cyclone seasons.

India is a country that’s more prone to natural Calamities & disasters [UNESCO Bangkok, 2007.] .

There is no city or district or village in India can be said to be free from Risk and Hazard of facing such events, hence the responsibility of the people functioning with government as well as private organizations increases manifold.

Beside as citizen of a country which has high risk of both natural and manmade disaster, we all have a certain amount of responsibility for facing and overcoming the socioeconomic as well as psychological impact of these incidents.

The medical impact of any major disaster is felt by the emergency physician and associated staff located within the geographical zone facing the event; they are first people to deal with victims of any disaster, especially Emergency Physician who has to lead a team in such kind of event and facing all challenges along with playing an important role in all phases of disaster, pre-disaster, in-disaster, and post-disaster.

Emergency medical services and emergencies physician should play a leadership role in preparedness activities such as training and education, development of performance metrics, establishment of memorandum of understanding (MOUs), and others planning.

So it is very important that most of the physicians have a good understanding about disaster preparedness. This study aimed to understand what is the current perception about disaster preparedness amongst the Emergency physicians of India.

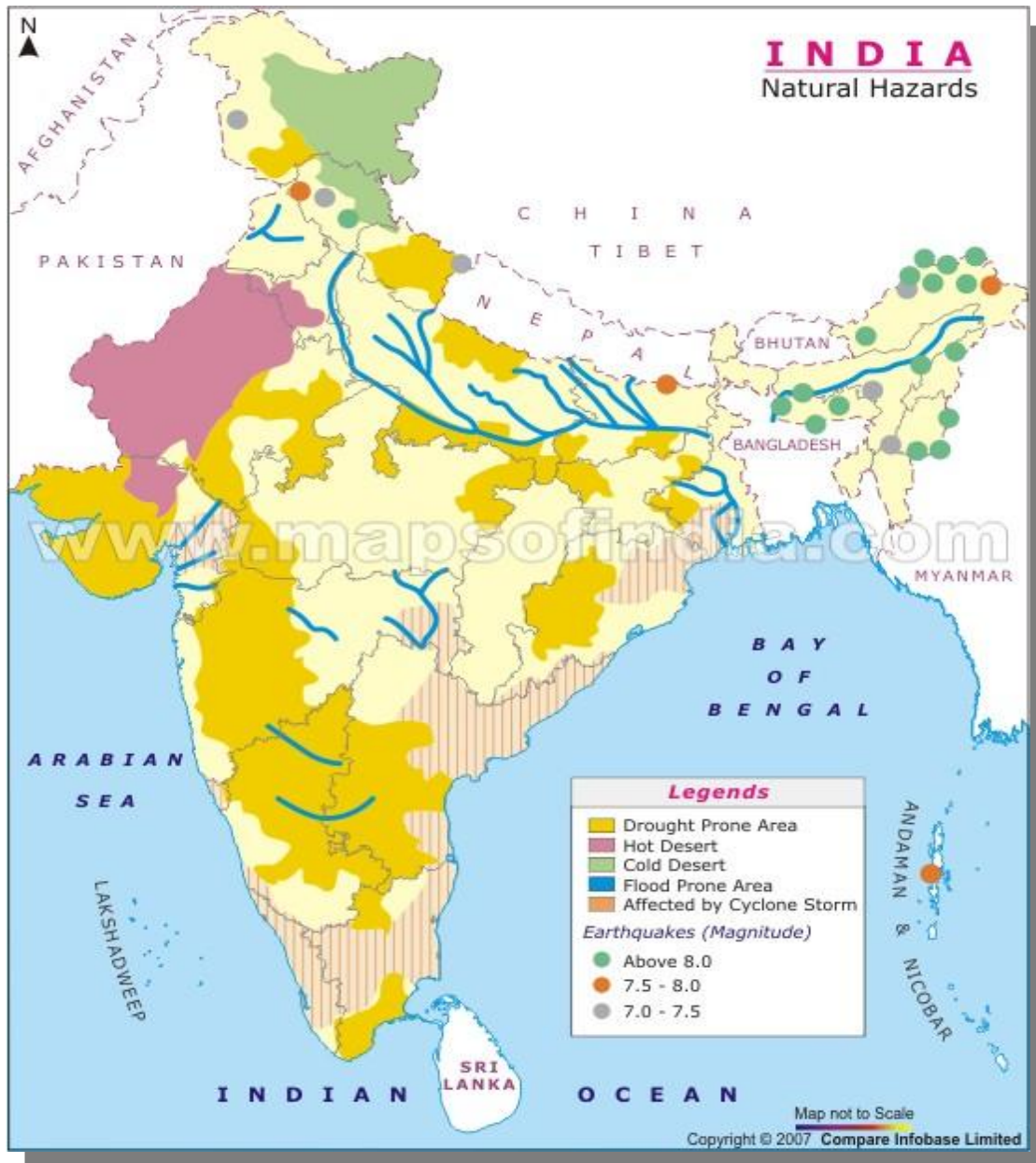


Fig 2.1:- showing Natural disaster prone zone in India.

Source: <http://www.mapsofindia.com>

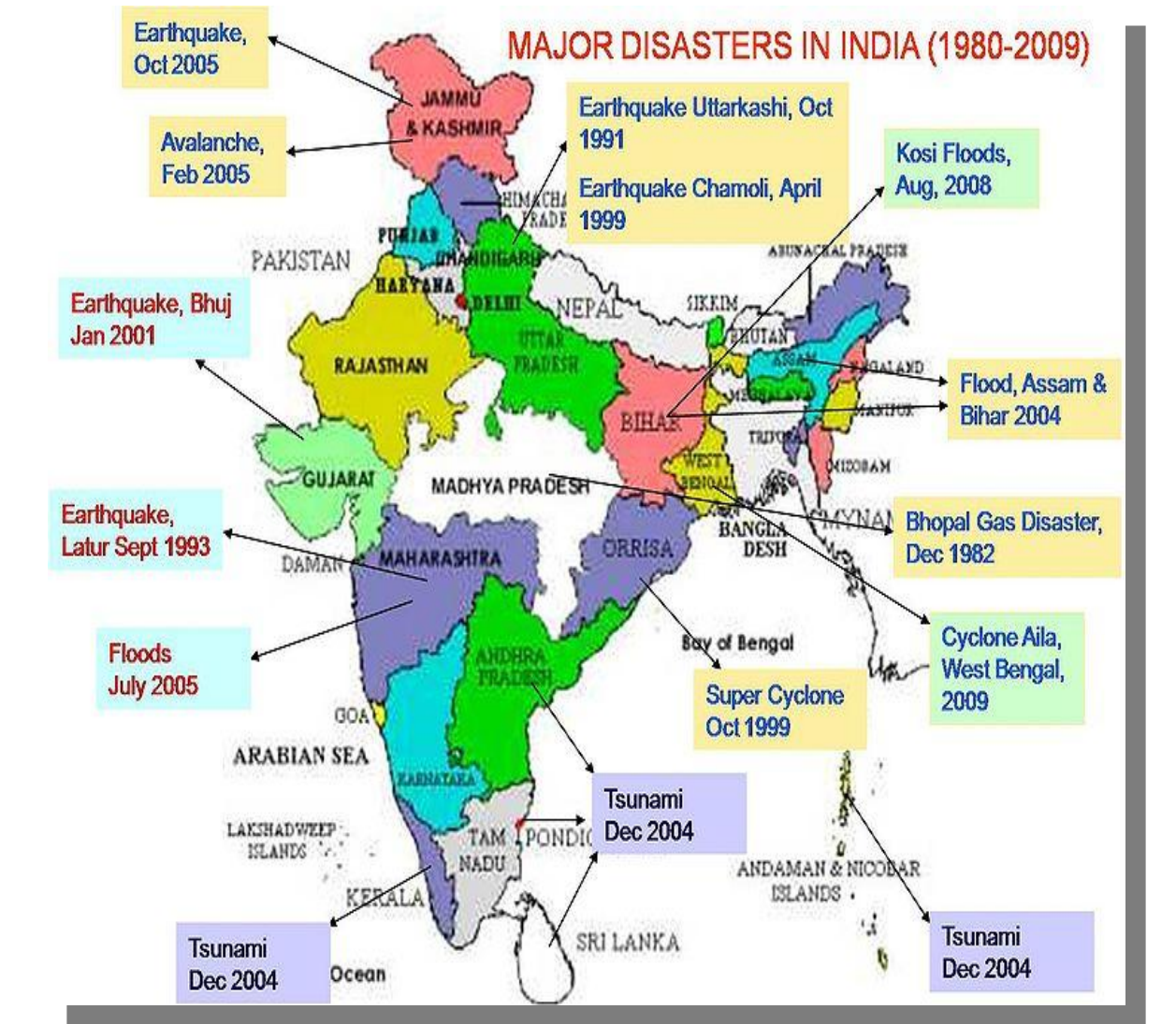


Fig.2.2:- major disasters in India in last 3 decades

### Literature Review:-

Online databases were used to identify relevant studies for this Literature review, The search was limited to human and English language. Search was restricted between the years 1995 to 2015 in order to provide only recent evidence. No previous study was identified on Emergency Physician's perception about disaster preparedness in India. Though no similar study was identified in the Indian context, the above search identified about 6 trials on nurse's perception, physician perception and preparedness done globally in last two decades, that was relevant to our topic. Also some textbooks and material from the internet were studied for the purpose.

A study was done to investigate Emergency Physicians' knowledge about the Superfund Amendments and Reauthorization Act (SARA) Title III legislation, passed by the United States Congress in 1986, and to determine the factors contributing to their level of preparedness in dealing with patients exposed to toxic chemicals. In this study, author found that out of 187 directors of EDs in New York, only 33% of the directors had heard about SARA. Despite the finding that some emergency physicians are involved in community preparations, two main problems persist in planning a medical response to environmental emergencies. First, the ED directors generally are unaware of the legislation that mandates these preparations and are not interacting with community planners. Second, there is not full involvement by the local EDs in the Local Emergency Planning Committee's planning efforts.<sup>8</sup>

A review of literature suggests that nurse's response to working during a bioterrorism event is not well described. The limited number of studies regarding nurses' concerns, fears, and anxieties is focused on nurses' experiences in natural disaster or war situations. Additional studies are needed to validate the appropriateness of applying findings from disaster response studies to bioterrorism events. During bioterrorism events, nurses will be expected to provide physical care and emotional and psychological support for victims and victims' families. Realistic bioterrorism plans should incorporate strategies to support nurses and address their physical, psychological, and emotional issues. Strategies to optimize safe working conditions and minimize psychological trauma such as technical training regarding bioterrorism agents and debriefing opportunities should be included.<sup>9</sup>

In another study author ranked nurses higher than physicians regarding their knowledge and skills in dealing with mass casualty events involving children, but the level of knowledge for mass casualty events involving children was low in both.<sup>10</sup>

Another study supported the above by concluding that considerably more training and information are needed to enhance preparedness for frontline healthcare workers (nurses) as important members of the disaster response community.<sup>11</sup>

The importance of physician involvement and leadership in crisis preparedness is recognized by Uddin *et al* (2008). Their literature also suggests that few physicians are adequately trained to practice effectively in a large-scale crisis situation.<sup>12</sup>

In a recent pilot study on disaster training program to improve emergency physicians' preparedness. They concluded that Disaster preparedness is an essential area of clinical competence for EPs. Participation in a yearlong pilot training program demonstrated a statistically significant increase in cognitive competence among a pilot sample of Emergency Physicians.<sup>13</sup>

The above literature review clearly identifies that, very few physicians are adequately trained to practice effectively in a large-scale crisis situation.

## **Methodology:-**

### **Participants:-**

Participants for this study was consultants Emergency department, emergency department residents, and postgraduate trainees of emergency medicine from varies multispecialty, tertiary care level hospitals of India which have a fully functional Emergency department.

Those doctors who were working other than emergency department were excluded from this study.

### **Questionnaire:-**

This study is a survey based descriptive study, to fulfill this purpose a 13 items questionnaire was developed including three demographic questions,(from question 1 to question 3) which included participant's gender, age, their professional role , residing state, contact number , and their emails.

Question 5 to question 10 had multiple sub-questions under their heading.

The questionnaire was divided in two part for understanding the following

1. Familiarity regarding specific term and activities in different emergency preparedness categories.
2. Participant's experience and training.

### **Survey:-**

This survey was conducted through a web based survey site <https://www.surveymonkey.net>, a web link <https://www.surveymonkey.com/s/SK3BPRK> sent through email, to Emergency department directors of varies multi specialty hospitals with accredited emergency department, requesting them to circulate this link among their consultant / postgraduate trainees and residents. A multi stage sampling method was use to fulfill the objective of this survey. Apart from web based collection, some sampling was done through printed questionnaire, which was manually entered in website for proper analysis.

**Questions Wise Result:-**

124 participants from 16 states of India completed this survey over a period of 6 months.

99 respondents participated through an online survey tool and 25 participants were directly administered printed questionnaire.

An accurate estimate of the response rate is difficult to assess, as it was not possible to ascertain, what proportion of emergency physician have indeed been exposed to the email invitation to participate in this survey.

We excluded 10 responses from the final analysis as these were incomplete.

Key demographic characteristics (Q.No.1-3) of the respondents are detailed in following tables.

**Table 5.1:-** Representing gender distributions.

Gender			
Answer Options	Male	Female	Response Count
Numbers of respondents	86	28	114

**Table 5.2:-** Representing distributions of participant's age group

Age( in years)							
Answer Options	25-30	30-35	35-40	40-45	45-50	>50	Response Count
Number of participants	55	15	16	12	9	7	114

**Table 5.3:-** Showing distributions in work experience

Work Experience in Emergency department(in years)						
Answer Options	0-1	1-5	5-10	10-15	>15	Response Count
Number of respondents	31	46	25	12	0	114

**Table 5.4:-** Distributions in professional role

Professional role						
Answer Options	Consultant	Associate Consultant	Junior Consultant	PG Student	EMO	Response Count
Number of participant	24	8	9	69	3	113

**Table 5.5:-** Distribution of states

States	A.P	Asm	Bh	DI	chg	Jh.	Kar	krl	MP	MH	OR	PN	RJ	TL	UP	WB	RC
<b>NOR</b>	6	4	4	18	7	1	11	8	2	9	1	2	2	9	3	27	114

A.P-Andhrapradesh;Asm-Assam;Bh-Bihar;Chg.-Chandigarh;Del-Delhi;Jh.-Jharkhand;Kar-Karnatka;krl-kerala;MP-MadhyaPradesh;MH-Maharashtra;OR-Orisha;PN-Punjab;RJ-Rajsthan;TL-TamilNadu;UP-UttarPradesh;WB-WestBengal

RC-Response Count;NOR-number of respondents

Among the respondents 76.11% (86) were male and 23.89% (27) were female.

48.67% (56) were aged between 25-30 years,

5.31% (6) were aged more than 50 years, rest of the respondents were aged between 30 to 50 years.

Of the 114 respondents, majority 61.06% (69) were postgraduate emergency medicine residents, while 21.24 % (24) were working as consultant(s) in emergency department. and a small portion of respondents were working as junior consultants 7.96%(9), Associate consultant 7.08%(8) and 2.65%(3) working as emergency medical officer.

Majority of respondents 40.35% (46) had working experience ( in the emergency department) between 1-5 years. 33.67%(33) had only 0-1 year working experience; while there is 13.27%(13) respondents had 5-10 years of experience, and only 4.27%(4) had more than 10 years of working experience in the emergency department .

#### Q.4: Familiarity with Emergency Preparedness Terms & Activities.

**Table 5.6:-** showing details percentage of familiarity with term and activities of emergency preparedness.

Answer Options	Not familiar	Somewhat familiar	Familiar	Very familiar	Rating Average	Response Count
Familiarity with triage in large scale emergency event	2	33	49	30	2.94	114
Assess and Respond to site safety issue for self, co-worker,& victim during a emergency event	10	26	49	27	2.83	112
Please provide an assessment of your overall familiarity with response activity/preparedness in the case of a large scale emergency event	7	36	60	11	2.66	114
Your hospital preparedness for responding to a large scale emergency event	10	40	50	14	2.60	114
Overall familiarity with sign/symptoms of exposure to different biological agent/contagious disease outbreak	18	38	47	8	2.41	111
Familiarity with emergency operations plan(EOP) in your hospital	19	56	32	6	2.22	113
Familiarity with incident command system(ICS)	27	26	36	24	2.50	113
Familiarity with rapid assessment of victim of emergency event	4	15	56	38	3.13	113
Familiarity with your facility's/community quarantine process	31	50	24	7	2.06	112
Use of all type of communication devices(fax/email/satellite ph.)	6	27	22	59	3.18	114
answered question						114
skipped question						0

The first question in this section was on *familiarity with triage in a large scale emergency event*. 42.98% (49) showed that they are familiar with triage, and 28.95% (33) respondents denoted that they are somewhat familiar .26.32%(30)respondents replied that they are very familiar with triage in large emergency event while, only 1.75%(2) were not aware about triage in large emergency event.

Out of 114 respondents 43.75 %(49) denoted that they are familiar with *self safety and site safety issues*, 24.11%(27) think that they are very familiar with safety issues and a small percentage 8.93%(10) said that they are not familiar with site safety issue for self and co-workers during emergency events.

When asked about *familiarity with sign and symptoms of exposure to different biological agent/contagious diseases outbreak*, 42.34%(47) said that they are familiar, and 34.23% (38)replied “somewhat familiar”, while 16.22%



(18) were not familiar and only a small group of respondents 7.21% (8) were confident and very familiar with this issue.

Majority of respondents 49.56% (56) said that they are somewhat familiar with their hospitals emergency operation plan (EOP), 28.32% (32) respondents think that they are familiar, and 16.81% (19) respondents denoted that they are not familiar with their hospital's EOP. Only 5.31% (6) were confident in their knowledge regarding hospital EOP.

In assessment of another important component of emergency preparedness the *Incident Command System (ICS)* we looked at familiarity with this concept and found that 31.86% (36) respondents were familiar with ICS, and only 21.24% (24) of total participants said that they are very familiar with ICS, while a significant percentage of 23.89% (27) of the respondents denoted that they do not know about ICS. When asked about *familiarity with communication devices*, majority of 51.75% (59), shows that they are very familiar with use of the all kind of communication devices.

#### Q.5: Rate your responses to your hospitals preparedness.

**Table 5.7:-** details percentage of hospital preparedness to various kind of emergency events.

Answer Options	No Preparedness	Inadequately Preparedness	Adequately Preparedness	Do not know	Rating Average	Response Count
Do you think hospitals in India are prepared for disaster	17	87	6	4	1.97	114
Do you think your hospital is prepared for disaster.	11	67	29	6	2.27	113
What is level of preparedness of your hospital for bioterrorism?	72	20	6	16	1.70	114
What is level of preparedness of your hospital for radiologic/nuclear incident?	71	18	6	19	1.76	114
What is level of preparedness of your hospital for infectious disease outbreaks?	16	47	44	7	2.37	114
What is level of preparedness of your hospital for flood/cyclones?	16	37	51	10	2.48	114
What is level of preparedness of your hospital for earthquakes?	19	31	49	15	2.53	114
What is level of preparedness of your hospital for in hospital terrorist attack?	34	35	28	17	2.26	114
What is level of preparedness of your hospital in hospital hazmat accident?	25	44	31	14	2.31	114
<i>answered question</i>						114
<i>skipped question</i>						0

This section deals with hospital preparedness to various kinds of emergency events.

Majority of respondents 76.32%(87) agreed that hospitals in India are inadequately prepared to handle disasters; 14.91% (17) said that there is no preparedness amongst Indian hospitals to face large scale emergency events; while a small percentage 5.26%(6) of respondents think that hospitals in India are adequately prepared for disasters.

When asked about participant's hospital disaster preparedness majority 59.29%(67) agreed that their hospital is inadequately prepared to face large scale emergency events, and 25.66%(29) of respondents think that their hospital is adequately prepared, while only 9.73% (11) think that their hospital is not prepared for facing disasters.

Majority of 63.16 % ( 72) and 62.28 % ( 71) emergency physicians think that their hospital is not prepared for bioterrorism activities and radio/nuclear incidents respectively, and only a small percentage 5.26 % ( 6) respondents said that they are adequately prepared for both events.

44.74 % ( 51) emergency physicians think that their hospitals are adequately prepared for flood/cyclone and 42.98%(49) replied that their level of preparedness is adequate for earthquakes.

#### Q. 6: Rate your responses to Accessing critical resources & Stockpiles.

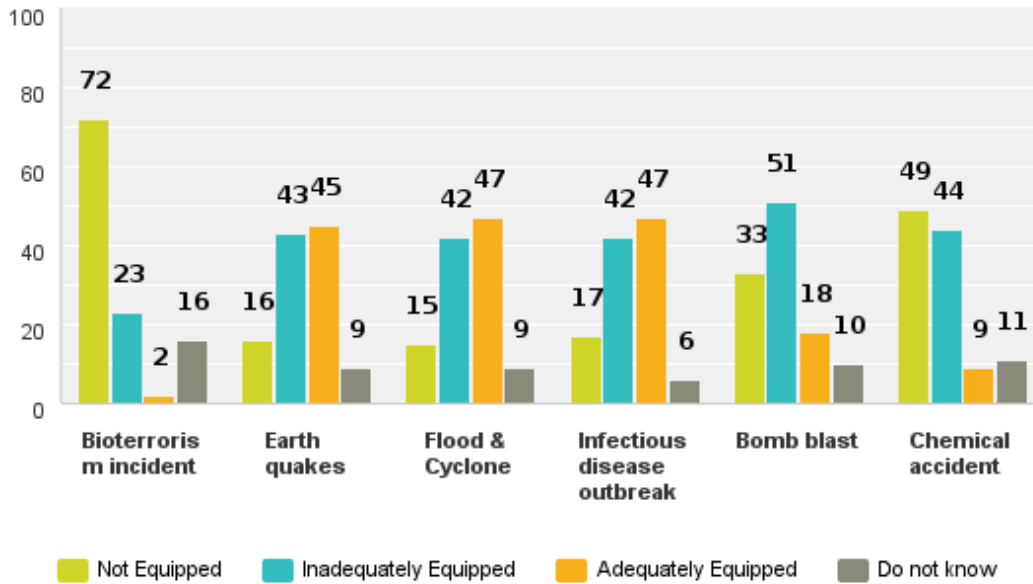
**Table 5.8:-** Represents emergency physicians' knowledge about availability of various stockpiles in their hospital

Answer Options	No	Yes	Don't know	Rating Average	Response Count
Do you know about your hospital's stockpiles of personal protective equipments?	58	35	21	1.68	113
Do you know about your hospital's stockpiles of personal protective emergency medication/antidotes?	54	42	18	1.69	113
Do you know about your hospital's stockpiles of oxygen/electricity backup?	39	47	27	1.89	113
Do you think your hospital has adequate stockpiles?	33	25	56	2.21	113
Do you know that, during an event, where to quickly access up-to-date resources about specific (Radiological, Chemical, Nuclear, Biological, and Explosive) agents	51	32	31	1.83	113
<i>answered question</i>					114
<i>skipped question</i>					0

Large number of emergency physicians 50.44%(58) and 46.90% (54) are not aware about stockpiles of personal protective equipments (PPE) and emergency medication/antidotes respectively in their hospital, while 30.97% (35) and 37.17%(42) said they know about stockpiles of PPE and medication of their hospital.

When asked whether available stockpiles are adequate or not most emergency physicians 49.56%(56) have no idea about this as they replied they do not know, and 28.32% (33) responded that the available stockpiles are not adequate and 22.12%(25) emergency physicians think that their hospital has adequate stockpiles of PPE and emergency medications. Out of 114 respondents 44.25% (51) replied that they don't know, from where to quickly access up-to-date resources about specific agents (radiological/chemical/biological/explosive) and 28.32 % ( 32) people know about this, while 27.43 % ( 31) of emergency physicians have no idea about this as their answer was "do not know".

**Q. 7: Do you feel adequately equipped to work during various kinds of disaster?**



**Fig 5.1:-** percentage of emergency physician’s perception about how well they are equipped, working in different type of disaster.

In this section we tried to access that how well Emergency physicians are equipped working in different type of disaster.

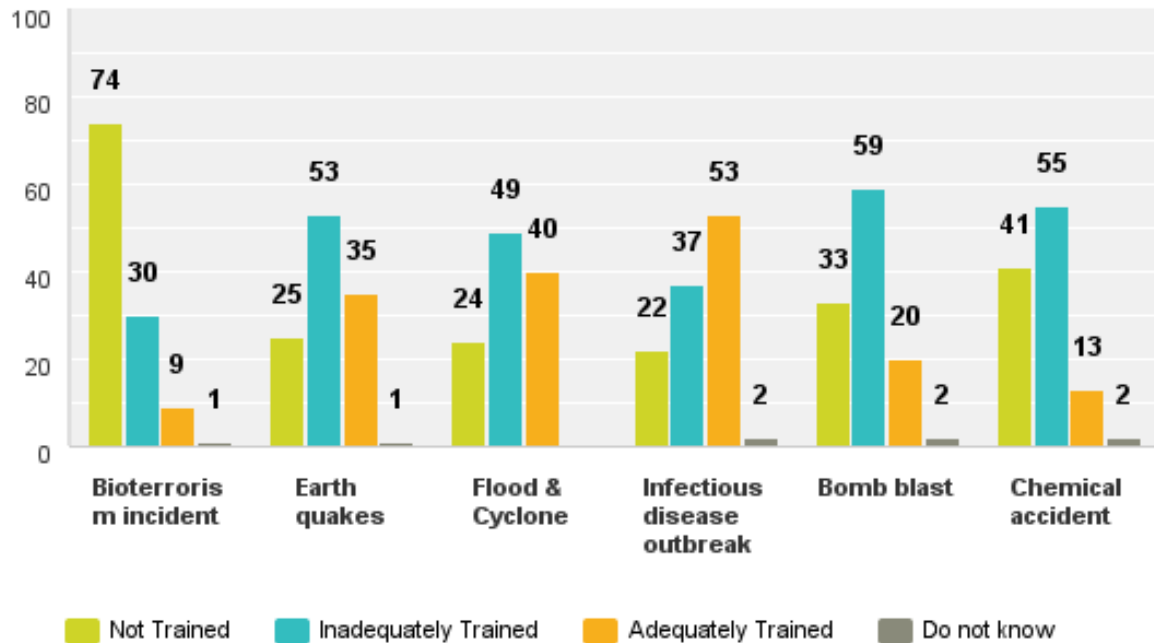
A majority of 63.72% (72)thought they are not equipped to work in case of bioterrorism event, while 20.35% (23)thinks inadequately equipped and only 1.77%(2 )respondents replied that they feel adequately equipped.

39.82%(45)thought that they are adequately equipped to work in a earthquake event, and 41.59%(47) replied that they are adequately equipped for flood/cyclone.

In case of bomb blast injuries 45.54% (51) and 29.46%(33) of the participants replied that their hospital(s) were ‘inadequately equipped’ and ‘not equipped’ respectively ,while 16.07%(18) replied that they were adequately equipped. Only 7.96%(9) respondents think that they are adequately equipped to face any bomb blast event.

When asked about an infectious outbreak 41.96% (47) emergency physicians said that they are adequately equipped for working in an infectious outbreak, and 37.50(42)replied that they are inadequately equipped. A major number of respondents 43.36 %(49) replied that they are not equipped for working in a chemical accident ,while 38.94%(44) said they are inadequately equipped.

**Q.8 : Do you feel adequately trained to work during various kinds of disaster?**



**Fig5.2:-** shows emergency physician's formal training on different kind of Disasters

Majority of the responding emergency physicians 64.91%(74) and 36.94%(41) have stated that they are not trained for working during bioterrorism and chemical accident respectively. While 26.32% (30)and 49.55%(55) denoted that they are inadequately trained for working in event of bioterrorism and chemical accident.

A small percentage of 7.89 % (9) and 11.71% (13)said they are adequately trained for working during such events. Majority of emergency physician 51.75% (59)said they are inadequately trained for working in a case of bomb blast event, and 28.95% (33)confirmed that they are not trained for working in bomb blast event(s),while 17.54%(20) were confident about the adequacy of their training for working on a event of bomb blast. Regarding training for working during earth quakes and flood/cyclone 46.49%(53) and 43.36%(49) respectively stated that they were not adequately trained.

35.40% (40) emergency physician stated that they are adequately trained for working during flood/cyclone, and 30.70 % ( 35) confirmed their adequate training for working during an earth quake.

46.49 % ( 53) respondents were confident about the adequacy in their training for working during an infectious disease outbreak.

A significant number of emergency physician 32.46% (37) denoted their training was inadequate for working during an infectious outbreak; while 19.30 % (22)stated that they are not trained for working in such a scenario.

**Q. 9 : Rate your responses to your experience & training.****Table 5.9:-** details of emergency physician's work experience in disastrous events and hospital's disaster plan and policies

Answer Options	No	Yes	Rating Average	Response Count
Have you had any training in disaster medical response?	39	75	1.66	114
Have you had any experience in working during mass casualty event?	38	76	1.67	114
Have you had any experience in working during mass infectious disease outbreaks?	75	39	1.34	114
Do you know in case of a disaster who commands the disaster response in your hospital?	42	72	1.63	114
Does your hospital have a plan and policies to respond to a large scale mass causality incident?	35	77	1.69	112
Did your hospital have a fire/disaster drill?	15	97	1.87	112
Have you had any experience in working during mass casualty event?	40	71	1.64	111
Have you been trained on the disaster plan?	47	64	1.58	111
As an emergency physician do you think that you will be legally liable by the Indian legal system for practicing altered level of care because of limited supply of resources, excessive loads of patients, as usually happens during disasters?	50	63	1.56	113
<b>answered question</b>				114
<b>skipped question</b>				0

This section deals with Emergency physician work experience in disastrous events and hospital's disaster plan and policies.

Majority of the respondents 65.79%(75) stated that they have received formal training for working during an external disaster; while 34.21% (39) were untrained.

66.67% (76) emergency physicians had experience working in a mass causality event.

When asked about their experience of working during infectious disease outbreak, majority of 65.79% (75) of the emergency physician stated that they have never worked in an infectious outbreaks.

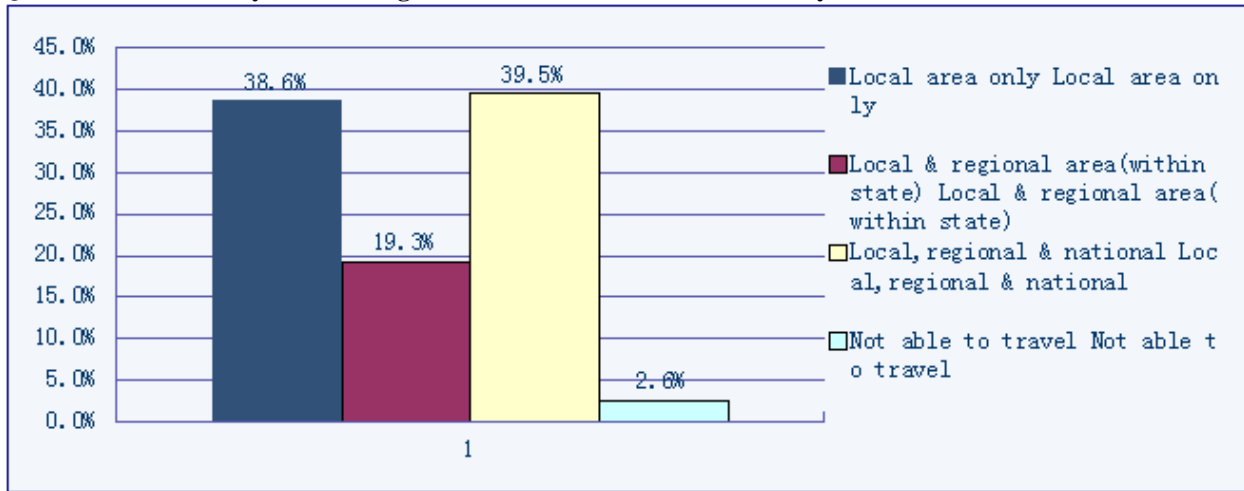
when inquire about their hospital's plan and policies of mass causality events and incident commander of their hospital 68.75% (77) and 63.16% (72),respectively said that they know about these while 31.25%(35) and 36.84% (42) emergency physicians stated that they are unaware about their hospital's disaster plan and policies and incident commander of their hospital.

A large number of emergency physician 86.61%(97) agreed that their hospital conducts simulation/disaster/fire drill, and 13.39%(15) replied 'NO'. to this question.

Majority of respondent 57.66% (64) had training on hospital disaster plan in their hospital and but a significant percentage 42.34% (47) of emergency physician did not receive any formal training on disaster management plan.

55.75% (63) emergency physician thinks that they are legally liable by "Indian legal system" for practicing altered level of care in emergency events because of limited supply and excessive loads of victims. While 44.25% (50) said they are NOT legally liable.

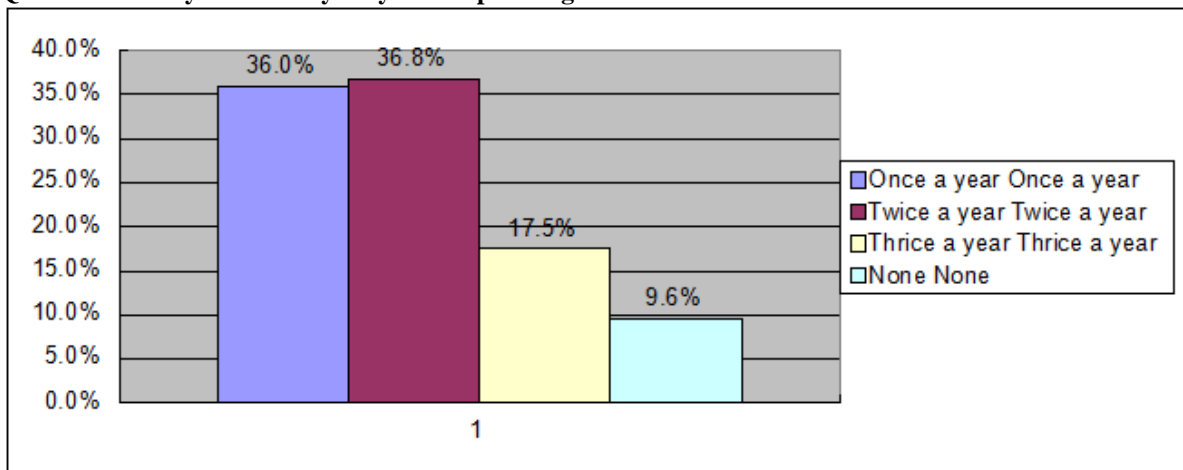
**Q.10 : How far would you be willing to travel if a disaster occurred today?**



**Fig 5.3:-** -explaining about willingness of travel to work in case of disaster.

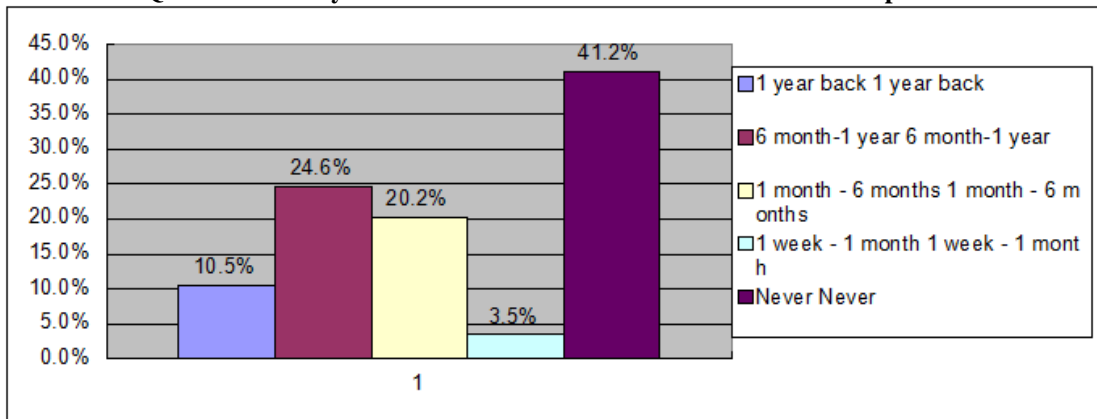
Only 39.50% (45) emergency physician agreed to travel nationwide to work in disastrous event, and 38.60% (44) said they can travel only locally. While a small number of 2.63% (3) respondents were not keen to travel to work in disaster.

**Q.11 : How many times in a year your hospital/organization conducts fire drill/simulation drill ?**



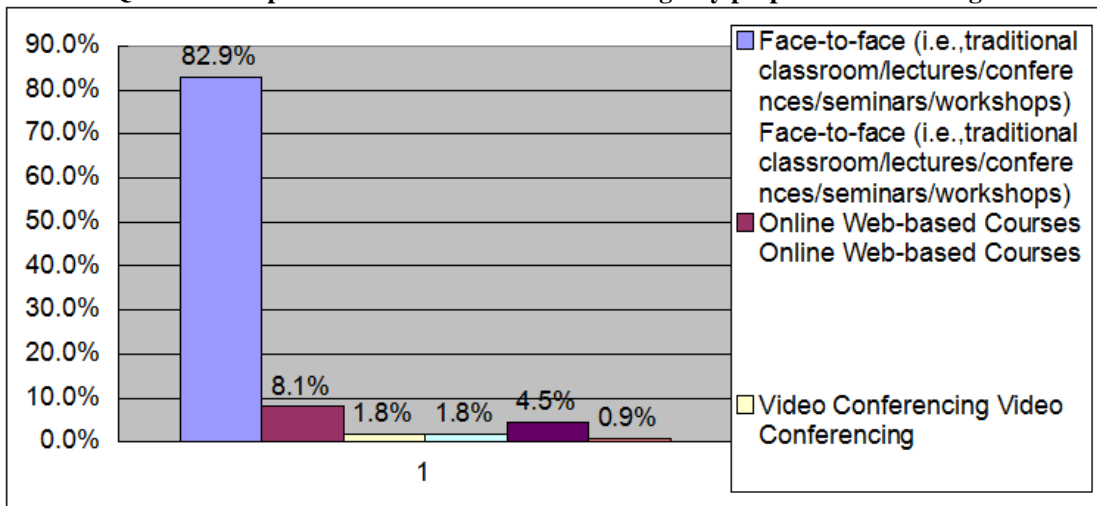
**Fig 5.4:-** Explaining about simulation drills at participant’s hospitals.

**Q.12: When did you last seek information on disaster medical response?**



**Fig.5.5:-** Participant’s last gathered information on disaster medical response.

**Q. 13 : Your preferred methods to receive emergency preparedness training?**



**Fig 5.6:-** Emergency physician’s preferred method of training

A significant number of 41.23%(47) participants agreed that they never sought information regarding medical disaster response.(fig 5.5)

82.90% emergency physicians are ready to take training on disaster response by traditional face to face method, while others are interested in others methods like web based courses, CV/DVD, or pocket reference books.(fig.5.6)

**Discussion:-**

Emergency medicine is a broad specialty comprising of disaster medicine as one of its vital branches. The knowledge of disaster medicine is a paramount importance among the emergency physicians playing the responsibilities of dealing with different kinds of calamities occurring in society.

Natural and human-induced disasters have significantly increased in last few decades which inturn called attention to the fact that emergency physicians play pivotal role in disaster planning.

Though emergency physician are involved in planning, mitigation, response, and recovery aspects of disasters as well as actively participating in actual disaster events, mock drills and further educational opportunities, specific to disaster preparedness; data regarding their knowledge level are not readily available.

This has led to the essence of a pioneer research work to assess “**Perception of disaster preparedness among emergency physician in India**”

This unique analysis of perception of disaster preparedness amongst the working emergency physician was conducted on pan India basis among 16 states over a period of 6 months, with a total 124 participants. The study questionnaires were divided in to several subsections which covered various aspects and facts of disaster preparedness.

The result has revealed several interesting findings. The salient features are as follows.. 26% of emergency physicians were found to be familiar with triage in large emergency event and a significant percentage of them,(around 24%) did not know about ICS ,an important aspect of disaster preparedness. This is the grey zone with enormous scope of improvement.

Majority of emergency physicians ( around 76% ) agreed that hospitals in India are inadequately prepared to handle various kinds of disasters, whereas around 50% emergency physicians are not aware of either stockpiles of PPE of their hospitals or their adequacy. Where about 44% respondents did not know the access to resources in case of emergency events. Thereby emphasizing upon the fact that hospital administration authorities should take a serious note on it and take measures to inculcate awareness among EPs.

On the other hand, Only 5.26% emergency physicians thought that their hospitals were adequately prepared to handle a bioterrorism activity as well as radio/nuclear incidents, while around 63% had an opposite view on the same.

When we tried to gather information that whether they are adequately equipped or not to work in various disastrous events, majority of emergency physicians (around 64% ) stated that their hospitals were not equipped to work in case of bioterrorism event, while around 40% and 42% thought that they are adequately equipped to work in earthquake and flood/cyclone respectively. Only a small percentage ,around 16% emergency physicians thought that their hospitals were adequately equipped to work in case of bomb blast injuries. On the contrary, other participants replied that either they are inadequately equipped or not equipped. The reason for such differences in views should be sorted out in a systematic way and should be addressed in a proper way accordingly. Thus opening an opportunity for further scientific study on the topic.

When enquired about their formal training dealing with various kinds of disasters, only around 8% and 12% were adequately trained in bioterrorism and chemical accident management respectively, where about only 18% were confident about adequacy of their training for working in bomb blast scenarios. Most of these participants were either working as consultant or having 5-10 years of working experiences in Emergency Medicine.

In due course, around 42% of Emergency physicians revealed that they did not receive any formal training on the hospital disaster management plan.

When asked, around 40% Emergency physicians were prepared to travel nationwide to contribute in the management of disastrous events.

Interestingly, in the study; around 83% of Emergency physicians were ready for being trained in the form of classroom teaching despite their busy schedules, which needs to be appreciated properly.

### **Limitations:-**

This study is limited to those who have access to internet because this is a questionnaire based survey .

This survey was limited to major cities of India. There are emergency physicians working peripherally in the interiors of India ,who are possibly working in more ouster conditions and facing natural calamities more closely .It would be really interesting to know their perception on disaster preparedness.

### **Conclusion:-**

Emergency physicians are forefront for dealing with disasters its consequences; they are important cadre of any hospital and society, as they play important role in all phases of disaster.

The study results show that there is enormous scope of further improvement in various aspects of disaster preparedness. Though in certain areas the result were satisfactory ,majority of the results demand improvement. In



the current scenario there is a need for an organized effort for the spread of disaster preparedness amongst the Emergency physician in India. The administrative authorities should treat these results with seriousness and treat it as a base for further studies for improvement in this field.

As per the outcome of the study, it can be concluded that the perception of disaster preparedness in Emergency Physicians of India is still showing an iceberg phenomenon. The level of understanding is still at primordial level, which needs proper standardization to meet the requirements of international standards. This is only feasible by following a proper scientific method to raise awareness among the Emergency Physicians of India & organizing regular mock drills as well as workshops for the expansion of the horizon of their perception about importance of disaster preparedness in India.

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