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Performances of Community Health Centres Based on Knowledge and Practice Regarding Disaster Preparedness in the Hilly Region of Uttarakhand

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Abstract: A disaster is a sudden and tragic consequence raised from events like earthquakes, floods, fires, and explosions that lead to harm to existence, goods, and the monetary and affect the community and their tradition. Disaster happens when risk meets the susceptible environment. Health facilities help protect the lives and lessen the pain of wounded people throughout the disasters. The effective management of healthcare services during disasters relies on a deep understanding of the knowledge and practices of hospital staff. Regular assessment of the knowledge and practices of hospital staff helps healthcare management identify areas for improvement in disaster preparedness plans.
The study aims to find out the community health centres in hilly region who were not performing well in knowledge and practice regarding disaster preparedness and provide a training session to those CHCs. A quantitative approach was applied to evaluate the knowledge and practice among 156 participants from 16 community health centres. Then qualitative method was used to rate the performances of the CHCs using 4- point scaling. It was found that 4 CHCs (CHC Ghat, CHC Jakholi, CHC Pratapnagar and CHC Khari) performed poor in Knowledge and practice assessment. A session on disaster plan was conducted in these four CHC to enhance the knowledge among hospital staff. Regular disaster training should be provided to all staff.

Keywords: Community Health Centres, Knowledge, Practice, disaster training and performances.

1. Introduction

Disaster happens when risk meets the susceptible environment. Disasters have an unnatural capacity to bring forward the vulnerabilities of systems, structures, processes & people which in turn causes damage to large scale [14]
Disasters have great impact on the health system of the hilly region as it difficult to implement preventive measures like social distancing hand hygiene etc. in flood disasters as many victims had to stay together in refugee camps and affect in delivering health services e.g. landslides cause roadblocks so it would be difficult for health professionals and other resources to reach hospitals [4]. Disaster management in health facilities gives the chance to develop and organize things in order and when it is required it is implemented logically during emergencies [16].
Uttarakhand is one of the vulnerable states of India. It lies on the southern gradient of the Himalayas. The southern slope receives more rainfall than the northern slope. The upper heights are covered by Glaciers. However, the lower ones are covered by dense forests. Ganges and Yamuna are two holy rivers that flow from the glaciers of Uttarakhand. Uttarakhand is divided into two regions; Garhwal region is situated on the west side and Kumaon is on the eastern side. It has 13 districts. Seven districts in Garhwal region and 6 districts in Kumaon. Six Kumaon regions are Nanital, Almora, Udham Singh Nagar, Bageshwar, Chapawat, and Pithoragarh. Seven districts of the Garhwal region are Tehri, Chamoli, Pauri, Uttarkashi, Rudraprayag, Dehradun, and Haridwar. Except for

Dehradun and Haridwar rest five Districts are hilly. The population residing in these areas is dependent on the government hospitals. According to IPHS guidelines CHCs cater to 80,000-120000 population.
Hospital disaster preparedness is defined as preparing the hospital for any means of crises by using expert team. The following are the work done for disaster preparedness

1. Risk Assessment- evaluating the specific natural disasters that pose a threat to the Garhwal hilly region, such as earthquakes, landslides, floods, or other climatic events and understanding the potential impact of these disasters on the healthcare infrastructure.
2. Emergency Planning-Examining the existing emergency plans and protocols in place at hospitals in the region and assessing the coordination and integration of these plans with local, regional, and national disaster management agencies.
3. Infrastructure & Resource Planning – analysing the structural integrity and resilience of hospital buildings to withstand natural disasters and evaluating the availability and functionality of critical resources such as medical supplies, equipment, and personnel during emergencies.
4. Training and Capacity Building-investigating the level of training provided to hospital staff for disaster response and providing trainings and conducting healthcare professionals to handle mass casualties, trauma care, and other emergency medical situations.
5. Communication and Information system- Evaluating the effectiveness of communication systems within hospitals and with external agencies during disasters.

Disaster management is the procedure of procurement, supervision and implementation of disaster information to comfort the victims who got struck in crises [20].
Preparedness programs for disasters should be well organized. This will help in formulating and directing the implementation of the series of actions conducted in the mitigating, preparing, response, and recovery phases of disaster management. A study showed that the impact of emergency management practice activity on the awareness and practice of nurses in natural crises [12]. Another study described that mockdrills, lectures seminars and workshop were the best approach to enhance knowledge and practice [13]. A study showed that the physicians were the main players in disaster response and therefore needs to be prepared all aspects of pre and post disaster impact. Healthcare managers make the preparation and layout of emergency plans and provide proper training to nursing staff according to the emergency plan [9].
A study showed that the disaster plans of the hospital that were not regularly updated had led to inefficiency in practices [1].
Every hospital staff working in any capacity needs to be aware of and trained in disaster management [18] Education promotes the mental wellness of the victims and hospital staff [19]. Disaster prevention requires an increased level of practice that should involve risk analysis, preventive measures for construction and non-construction parts, and preparation for continuity of planning and alert system and rescue [3] Enhancing the disaster planning and robust physical structure, coordination of society with multi agencies and local authorities and accessibility of logistics supply was the need of the hour [10] The role of health workers is to find and evacuate the victims from the impacted zone and transport the casualties to the nearest hospital after examining their condition. In the emergency phase, community people, local authorities, and NGOs are required to work together for effective outcomes. So, it was required to form an efficient team organization with high skills and awareness [8]
A study showed that Despite being good knowledge and attitudes towards disaster preparedness, hospital staff were lacking in practice in terms of frequency of ongoing and frequency of regularly updating the plans [11]. Hospital managers should strengthen the emergency guidelines enhancing the training for nursing staff and ensuring that all staff should participate regularly in it [6]. A study found that health facilities were poorly prepared for influx capacity, organizing the healthcare services and managing the support systems for their continuity) [15]. In fact, most of the hospitals did not perform the risk vulnerability analysis to form their disaster operation plan [2]. A study showed more practice through training would increase the confidence level among health professionals to face hazardous situations [7].

2. Methodology

Study Approach: The approach used for the study was Quantitative through close-ended questionnaire but performances were evaluated through Qualitative way on 4point scaling technique.
Study Design: Study was cross- sectionally designed.
Sample Size: 16 CHCs from hilly Garhwal region were surveyed to assess the preparedness in terms of knowledge and practice regarding disaster preparedness. 156 participants were the responders.

Sampling Technique: Judgemental sampling Technique was used in the study.

3. Result

Out of which 156 responders, 78 were doctors, 44 were Nurses,18 were pharmacists, 8 were lab technicians and 8 X-ray technicians (refer to table 3.1).

Table 3.1 Distribution of the Participants According to Their Designation

Participants (designation)	Frequency	Percent
Doctors	78	50%
Nurses	44	28%
Pharmacists	18	12%
Lab technicians	8	5%
X-ray Technicians	8	5%
Total	156	100

Table 3.2 showed the evaluation of hospitals based on the results obtained by the participants on knowledge and practice assessment. CHC Augustmuni scored highest in knowledge with 74% and CHC Jakholi scored lowest in knowledge with 45%. In regard to practice assessment, CHC Chamba scored highest with 58% and CHC Ghat scored lowest with 27%.

Table 3.2 Assessment of the Hospitals based on knowledge and Practice

S.No	Hospitals	Participants	Knowledge (%)	Practice (%)
1.	CHC Ghat	10	49 %	27%
2.	CHC Thatyur	10	65%	49%
3.	CHC Chamba	10	69%	58%
4.	CHC Joshimath	10	69%	44%
5.	CHC Khari	10	49%	31%
6.	CHC Pratapnagar	6	49%	33%
7.	CHC Ghandiyal	10	60%	41%
8.	CHC Nagaon	10	55%	48%
9.	CHC Chinyalisaur	10	55%	46%
10.	CHC Pokhri	10	61%	44%
11.	CHC Jakholi	10	45%	31%
12.	CHC Purola	10	71%	51%
13.	CHC Augustmuni	10	74%	46%
14.	CHC Gairsain	10	69%	44%
15.	CHC Barkot	10	67%	53%
16.	CHC Nainidanda	10	71%	48%
TOTAL		156		

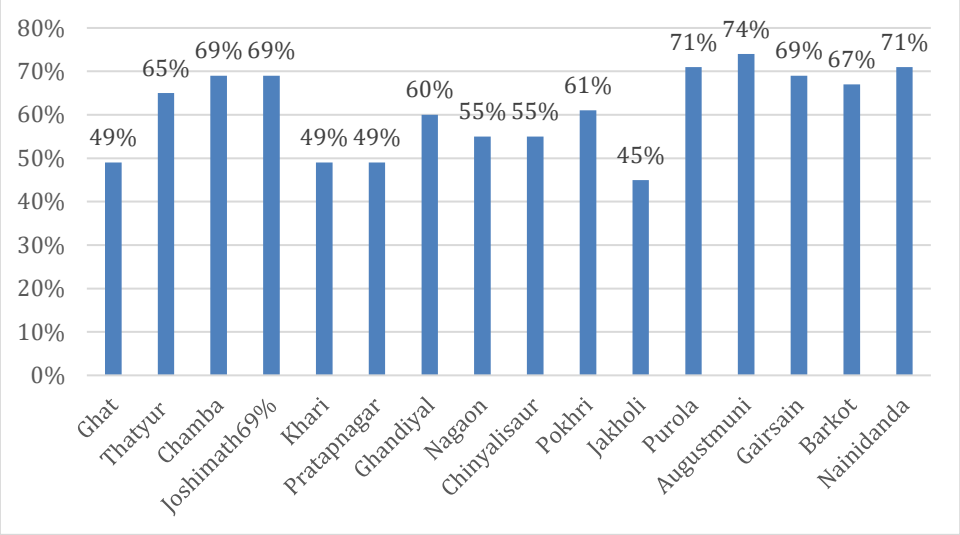

Figure 3.1 Assessment of Community Health Centres based on Knowledge regarding disaster preparedness

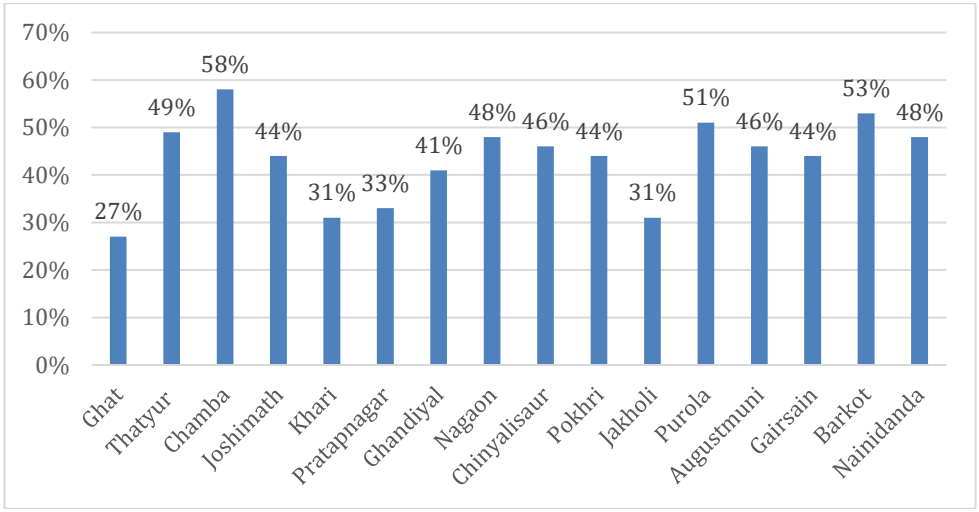

Figure 3.2 Assessment of Community Health Centres based on Practice regarding disaster preparedness

Performances of the Participating Hospitals

The performances of the hospital based on the knowledge and practice were analyzed on a 4-point scale. As per the US grading system, the mean percentage of knowledge and practice of each hospital is divided by 100 and then multiplied by 4 to get a GPA (Grading Per Average). Grades are provided according to GPA scores. Grade A comes under the range of 3.5 -4.0, Grade B in the range of 2.75-3.49, Grade C in the range of 1.75- 2.74, and Grade D in the range of 1.0-1.74. The interpretation of these grades is in four categories. Grade A- excellent, B – good, C- satisfactory, and D- poor (refer to table 3.3).

Table 3.3 Performance of Hospitals Based on Knowledge & Practice Regarding Disaster Preparedness

S.No	Hospitals	Mean of Knowledge & Practice	Scores on 4-point scale	Grades	Performance
1.	C.H.C Pratapnagar	42%	1.68	D	Poor
2.	C.H.C Chamba	64%	2.56	C	Satisfactory
3.	C.H.C Thatyur	58%	2.32	C	Satisfactory
4.	C.H.C Khari	41%	1.64	D	Poor
5.	C.H.C Ghat	39%	1.56	D	Poor

S.No	Hospitals	Mean of Knowledge & Practice	Scores on 4-point scale	Grades	Performance
6.	C.H.C Joshimath	58%	2.32	C	Satisfactory
7.	C.H.C Pokhri	53%	2.12	C	Satisfactory
8.	C.H.C Gairsain	54%	2.16	C	Satisfactory
9.	C.H.C Jakholi	39%	1.56	D	Poor
10.	C.H.C Augustmuni	62%	2.48	C	Satisfactory
11.	C.H.C Purola	62%	2.48	C	Satisfactory
12.	C.H.C Barkot	61%	2.44	C	Satisfactory
13.	C.H.C Chinyalisaur	51%	2.04	C	Satisfactory
14.	C.H.C Naugaon	52%	2.08	C	Satisfactory
15.	C.H.C Nainidanda	59%	2.36	C	Satisfactory
16.	C.H.C Ghandiyal	52%	2.08	C	Satisfactory

4. Discussion

In comparison to knowledge and practice, Hospitals showed poor performances in practice rather to knowledge regarding disaster preparedness. CHC Ghat, CHC Khari, CHC Jakholi and CHC Pratapnagar showed poor performances in knowledge and practice with 39%, 41%, 39% and 42% respectively and rest 12 CHCs showed satisfactory performances (refer to table 4.3). Reason behind their poor performances were that the doctors posted in these hospitals were bonded ones. They had just finished their MBBS degrees. Freshers might not had attended much trainings and practices towards disaster preparedness. These hospitals were situated in very interior part of the Garhwal region. Less accessibility to resources were also the reason for their poor performances. Thirdly they had less manpower to practice for disaster preparedness. To improve the knowledge and practice, a training session on disaster planning was conducted in these hospitals and good feedbacks were received from the participants. None of the studies had covered the performances of hospitals based on knowledge and practice regarding disaster preparedness.

5. Conclusion & Recommendation

16 community health centres participated in the study. The study was mixed cross- sectional designed. Doctors were participated in majority, then nurses, pharmacists, and technicians. Participants of 4CHCs showed poor performances. CHC Jakoli showed least performances in knowledge regarding disaster preparedness with 45% and Ghat showed least performances in practice regarding disaster preparedness with 27%. Training Session in low performer hospitals showed a great impact on their knowledge and practice regarding disaster preparedness. It is recommended that the training session should be provided on regular basis. Evaluation of training should be done. It should be made compulsory for all staff to attend the trainings as it would enhance the knowledge. Practice of mock drills should also be conducted on regular basis for efficient disaster response. Reward should be given to best hospitals which are found prepared for disasters. This would give a motivation to the hospital staff.

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