

Research Article

Assessment of Knowledge, Reported Attitudes and Practices Regarding Emergency Preparedness and Related Factors at Tertiary-Care Hospitals of Punjab Province Amid COVID-19 Pandemic

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Abstract

Hospitals need to maintain a high level of preparedness of staff and systems to mitigate the consequences of health emergencies and disasters. Therefore, the knowledge, attitude and practices of the hospital staff are of key importance in strengthening the emergency preparedness of the health system.

Objective: The objective of this study was to determine the knowledge, attitudes and practices of healthcare workers regarding emergency preparedness and factors related to them, at the tertiary care hospitals of Punjab Pakistan

Methods: This was an analytical cross-sectional study conducted at six tertiary care hospitals in Punjab from February 2022 to August 2022, approved by advanced studies and the research board of the University of Punjab. A self-administered questionnaire was distributed among 450 staff members of these hospitals to identify gaps in the knowledge, reported attitudes and practices of healthcare workers and their willingness to report for duty, selected by multistage sampling. Data were analysed by statistical package for social sciences (SPSS) Version 22.

Results: The results found that 49.8% of the participants were aware of disasters that occurred, 50% knew the hospital emergency plan, and 70% agreed that hospitals need written plans yet 72.4% were not aware of the major components of the plan.

Regarding attitude of the staff, 73.8% of accepted that it is their duty to take care of patients, 33.6% thought that hospital preparedness is adequate and only 36.7% agreed that the hospital had adequate staff in catering for the increased patient influx. Regarding hospital preparedness practices, only 29.3% stated that hospital conducts exercises and drills and 30.4% reported that the hospital conducts other training sessions and workshops for staff.

Conclusion: The majority of the staff at the studied hospitals had a positive attitudes and willingness to report for duties in case of health emergencies. But there were lacks in the knowledge and practices at these hospitals which needs to be addressed by making a written hospital emergency plan, conducting simulation drills and mock exercises and arranging training.

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Introduction:

A public health emergency and mass casualty event, as defined by Pan-American Health Organization

(PAHO)/World Health Organization (WHO) is a situation in which there are suddenly too many patients to handle with the available local resources and standard

procedures. To handle the crisis, special emergency plans and additional or extraordinary help are required.¹

Hospitals need to maintain a high level of preparedness to mitigate the consequences of health emergencies and disasters.^{2,3} The WHO classified the COVID-19 outbreak a "pandemic" on 11th March 2020.^{4,5} The COVID-19 Pandemic has altered how health systems operate in the developing world. It also showed the limitations of various health systems, not only developing ones but also some of those which were considered resilient and high performing.⁶

Hospitals are the places to cater for people affected by health emergencies and disasters. Therefore, they must be fully prepared, equipped and resilient to effectively respond to and recover from the effects of healthcare emergencies and disasters. The hospital staff plays the key part in making healthcare systems fully prepared during times of crisis. Not only the deficient healthcare workforce, but inadequate knowledge and experience, lack of properly following infection control guidelines, and non-availability of training for emerging diseases can also severely disrupt the effective response during emergencies.⁷ Therefore knowledge, attitude, willingness to report for duty and emergency preparedness practices are essential for strengthening the level of hospitals preparedness.⁸

Despite the country's vulnerable status to potential disasters, there was a considerable lack of studies for the evaluation of the preparedness of healthcare staff in respect to their knowledge, attitude and practices regarding the management of health emergencies in Pakistan. Majority of the research was done in the Pre COVID-19 Pandemic era so did not provide insight into emergency preparedness during the COVID-19 Pandemic. Therefore, this study having a large sample from six different hospitals and various cadres of healthcare provider staff would help to understand staff readiness and the hospital's preparedness for health emergencies.

The objective of this study was to determine the knowledge, attitudes and practices of healthcare workers regarding disaster and emergency preparedness and factors related to it, in tertiary care hospitals in the Punjab province of Pakistan. It also determined the willingness of hospital staff to report for duty in case of emergencies.

Methods:

This was an analytical Cross-Sectional Study conducted at six tertiary care hospitals in Punjab. The geographical area of the province was divided into three clusters i.e., central, south and north. Tertiary care centres in all three clusters were enlisted as a sampling frame and two tertiary care hospitals from each cluster were randomly selected by lottery method. Selected hospitals were approached for taking permission for data collection, and questionnaires were administered to the staff members after getting approval for the study from the Punjab University ethical review committee as it was part of academic research. A sample size of 75 doctors and paramedical staff was calculated at each hospital (total sample= 450) by taking that 75% of health care providers have the knowledge and good attitudes regarding emergency preparedness, by taking a 10% margin of error and 95% confidence level. A self-administered questionnaire to identify gaps in the knowledge, reported attitudes and practices of healthcare workers at the different tertiary care hospitals in Punjab province of Pakistan regarding disaster and emergency preparedness was used, which is a pre-validated questionnaire.⁹ Data were analysed using the statistical package for social sciences (SPSS) 22.00 for windows. Frequency and percentages were reported for qualitative variables Whereas quantitative variables were represented as mean and standard deviation. Independent sample t- test and linear regression model was applied to the mean scores of KAP variables. P value less than 0.05 was considered significant.

Results:

Out of 450 participants, a total of 224 (49.8%) were males, whereas, 226(50.2%) were females. The age of respondents was in the range of 20 to 60 years and 80.6% were 20-30 years age. A total of 25% of respondents were from Medicine, 63% from Surgery, 2% from ICU, 2% from Emergency, and lastly, 8 % from other departments. 56% of respondents were having an experience in the range of 1 to 5 years (shown in table 1).

The results in the knowledge section found that 49.8% of the participants were aware of disasters that occurred in their areas during the past 5 years, 50% knew that hospital emergency plan is available, and 70% agreed that hospitals should have written plans yet 72.4% were

not aware of the major components of the plan. A total of 49.6% rated themselves in the fair category of knowledge, followed by 34.4% in the good category. So, these results suggested the need for regular training, exercises and drills for increasing the knowledge of hospital staff about disaster plan and preparedness as was also suggested by 65% of the study participants.

Table 1: Demographic Characteristics of Study Participants (N=450)

Demographics	n	%	Demographics	n	%
Gender			Medical Officers	14	3.1
Male	224	49.8	House Officers	238	52.9
Female	226	50.2	Nurses	38	8.4
Age			Pharmacists	3	.7
20-30	363	80.6	Experience		
31-40	44	9.8	1-5 Years	250	55.6
41-50	21	4.7	5-10 Years	140	31.1
51-60	22	4.9	10-15 Years	33	7.3
Department			15-20 Years	12	2.7
Medicine	112	24.9	More than 20 Years	15	3.3
Surgery	284	63.1	Education		
ICU	9	2.0	Undergraduate	321	71.3
Emergency Department	11	2.4	Diploma	23	5.1
Others	34	7.6	Post Graduate	66	14.7
Current Position			Other	40	8.9
Teaching Staff	42	9.3			
Post Graduate Trainees	67	14.9			

The attitude of the staff towards hospital preparedness found that 73.8% of staff accepted that as healthcare workers it is our duty to take care of patients. Only 33.6% of staff said that hospital preparedness is adequate in catering for the increased patient influx and only 36.7% agreed that the hospital had adequate staff for dealing with emergencies. Regarding hospital preparedness practices, 29.3% of respondents stated that their hospital conducts exercises and drills regarding preparedness, and 30.4% reported that the hospital conducts other training sessions and workshops.

The majority of the staff showed a willingness to report for duty but females were more ready to report for duty than male respondents despite knowing that they can contract the disease during the job and this difference was also statistically significant (P-Value=0.003) as shown in Table 02.

Results were also presented as total scores in knowledge,

attitudes and practices which show that the disaster knowledge and awareness had means scores of 7.65 ± 2.127 . Similarly, the attitude towards disaster management part had a mean score of 14.15 ± 3.115 . Lastly, disaster preparedness practices subscale had a mean score of 12.13 ± 4.831 .

Table 2: Responses of Participants on Questions Regarding Knowledge, Attitude and Practices

Questions Regarding Knowledge and Attitudes of the Staff Regarding Emergency Preparedness	Dis-agree (%)	Not Sure (%)	Agree (%)
The hospital is adequately prepared to manage any type of disaster or emergency in which there is a sudden influx of patients.	14	52.4	33.6
The hospital is unlikely to be affected by disasters	51.8	30.9	17.3
The hospital provides adequate personal protective equipment for staff members during infectious disease outbreaks.	18.2	26.9	54.9
The hospital has an adequate staff complement to deal with a sudden large influx of patients during disasters or emergencies.	24.9	38.4	36.7
Healthcare workers need training and education on how to manage situations in which there is a sudden, large influx of patients during emergencies/ disasters.	15%	20%	65%
Hospitals should conduct regular drills/exercises on how to manage a sudden, large Influx of patients during emergencies.	8%	22%	70%
Questions Regarding Preparedness Practices of the Hospital	Yes %	No %	Don't Know%
Does the hospital conduct disaster drills or exercises regarding disaster situations?	29.3	41.6	29.1
Do the hospital conduct training/workshops to educate staff members on disasters?	30.4	40.4	29.2
Would you like to receive information regarding disasters and the role of hospitals and healthcare workers in disasters?	57.3	42.7	-

An independent sample t-test was performed to see the effect of gender on the KAP variables. The males had a higher score on the subscale of attitude towards disaster management as compared to females and the difference was statistically significant (p-Value <0.000). While females reported higher willingness as compared to males and this difference was also statistically significant, p-value <0.000. Females again showed a higher score on disaster preparedness practices and Total KAP

Scores as compared to males and again this difference was statistically significant with p -value <0.003 and <0.04 respectively. This shows that there were significant differences in KAP scores based on gender.

The effect of the perception of the study participants on political commitment measured on a scale of 1 to 10 was sorted out on KAP Variables. A simple linear regression indicated that political commitment explained 18.9% of the variance in the Total KAP Preparedness Score of tertiary care hospitals $F(1, 448) = 104.12, p < .001$, 1.6% of the variance in Disaster Knowledge and Awareness $F(1, 448) = 7.35, p < .007$, 4.6% of the variance in Attitude towards Disaster Management $F(1, 448) = 21.68, p < .001$, and the model was significant (See table03)

Table 3: Linear Regression analysis for effects of Political Commitment and Knowledge, Attitude, and Practices of Emergency Preparedness

Measures	F (1, 448)	p	R ²	R ² Adjusted	β
Total KAP Score	104.12	.001	.189	.187	1.38
Disaster Knowledge and Awareness	7.35	.007	.016	.014	.12
Attitude towards Disaster Management	21.68	.001	.046	.044	-.28
Willingness to Report to Duty	9.96	.002	.022	.020	-.195
Disaster Preparedness Practices	1201.01	.001	.728	.728	1.74

On willingness to report duty, regression analysis indicated that political commitment explained 2.2% of the variance in willingness to report to duty and that the model was significant, $f(1, 448) = 9.96, p < .002$. Lastly, regression analysis indicated that political commitment explained 72.8 % of the variance in disaster preparedness practices and that the model was significant, $f(1, 448) = 1201.01, p < .001$.

Discussion

The healthcare staff of tertiary care hospitals have to deal with emergencies of various natures including outbreaks of infectious diseases of public health importance. The most recent example is of COVID-19 pandemic. The objective of this study was to assess the knowledge, attitudes and practices of hospital staff to deal with health emergencies including COVID-19. These hospitals' staff efficiency, competence and skills are

important to save precious lives and promoting health in such emergencies of high importance.¹⁰ The health care professionals and other related staff of hospitals must have good knowledge, with a positive attitude to respond to the challenges of emergencies and readiness in terms of practices towards any disaster.¹¹

Knowledge of emergency preparedness is a predictor to have a positive attitude towards it.¹² The results in the knowledge section showed that most of the participants were informed about disasters that occurred in past in their areas. On asking about the existence of a written disaster plan in the hospital, only 38% of the staff said that a written hospital plan is available. This percentage is less than reported by the studies done in south African hospitals at Johannesburg and South Gondor hospital Ethiopia which showed that 92% and 58.9% of the study respondents were aware of the presence of hospital emergency plans. However, our findings are higher than that of a study done in a hospital in Lutheran Namibia where 33% of participants were aware of the hospital emergency management plan.⁹

Findings from this study showed that only 13% of nurses knew the existence of the hospital plan which is less than other health care providers from the hospitals, which is not in agreement as observed in a study done in Nairobi hospital at Kenyatta which reported that nurses had twice the knowledge of hospital disaster plan than doctors¹³ and the same was observed in a study done in Ethiopia.¹⁴

A total of 65% of respondents agreed with the need for training and education of staff for being able to deal with health emergencies. Similarly, another research study conducted at the trauma centre of an urban area in Australia highlighted the importance of training healthcare workers on emergency preparedness and informed that those who had attended drills (37.9 per cent, $n=53$) and were trained in the past (59.3 per cent, $n=83$) to handle emergencies were more prepared compared to those who were never trained.¹⁵

Responding to how would you rate their current knowledge about disaster preparedness of hospitals, most of the participants 49.6% rated themselves in the fair categories of knowledge, followed by 34.4% in the good category and 9.3 % rated poor, however, study results are not similar as reported by a study which informed that nurses, who are an important member of health

care professionals reported that their knowledge is not adequate and was not confident to respond in case of emergencies.¹⁶

In this study 70% of participants agreed that hospitals should have written plans, these results are different from the study done for Tikur hospital, Ethiopia in which 69.1% of participants strongly agreed, and 23% agreed and recommended having hospital emergency preparedness plans. As per our study results, 56% of respondents agreed that only doctors and nursing staff needs to know about the disaster plan at the hospital while 61% of the participants thought that disaster planning is only for administrative staff. These results are in contradiction to studies which found that 56.1% of informants are of the view that it is a matter of concern for everyone at the hospital and the perception that it is the duty of a limited staff is wrong.^{17,18}

A total of 33.6% of staff responded that hospital preparedness is adequate in catering for the increased patient influx during emergencies and disasters and only 36.7% of respondents agreed that the hospital has adequate staff and resources for disaster management. It was found that only 29.3% of staff reported that their hospital conducts exercises and drills regarding preparedness, these figures are more than the study where only 10.5% said that their hospital conducts drill or simulation exercises. In our study total of 30.4% of respondents stated that the hospital conducts training sessions and workshops. These results are lower than those reported by a study in Saudi Arabia which informed that 65% of staff had attended educational workshops related to handling disasters.¹⁸ The strengths of this study are The knowledge, attitude, and practices of healthcare workers regarding emergency preparedness helped us to understand the unmet needs for training and continuous professional development. This study would serve as a basis for further research in assessing the emergency preparedness of the healthcare system, and broaden the evidence base for the disaster and emergency preparedness policy and practices at these hospitals as well as others. The limitation of this study was that this was conducted in public sector hospitals of one province only. All private hospitals were not part of the study even though about 70% of people report to private sector hospitals for seeking medical care.

Conclusion:

This study showed that most of the participants knew the disasters that occurred in past in their areas, 50% of the participants knew of hospital plans and 70% of participants agreed that a hospital emergency preparedness plan is needed for strengthening hospital preparedness, yet 72.4% were not aware of major components of the plan. A total of 65% of respondents agreed with the need for training and education of staff for being able to deal with health emergencies. Most of them 49.6% rated themselves in the fair categories of knowledge, 34.4% in the good category and 9.3 % as poor. These findings favoured the need for regular training, exercises and drills for increasing the knowledge and awareness of the hospital staff about disaster plans and preparedness. Most of the staff showed a positive attitude and willingness to report to duty in case of emergency as 58% of staff reported that they would report for duty despite the risk of contracting the disease. But they were not satisfied with the level of preparedness and practices of the hospitals as only 33.6% of staff responded that hospital preparedness is adequate and 36.7% of them agreed that the hospital had adequate staff and resources in catering for the increased patient influx during emergencies and disasters. The findings also suggested that gender was a significant factor in determining knowledge, attitude and practices. It also suggested that political commitment is a contributing factor in improving knowledge, attitude and preparedness practices at the hospitals and strengthening the hospital's preparedness.

Ethical Approval: Given

Conflict of Interest: The authors declare no conflict of interest.

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