



RESEARCH PAPER

Assessing the Preparedness of Government Hospitals: A Case of Quetta City, Balochiatan

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PAPER INFO	ABSTRACT
<p>Received: July 29, 2021</p> <p>Accepted: October 25, 2021</p> <p>Online: October 27, 2021</p> <p>Keywords: Earthquake, Preparedness, Relative Important Index</p> <p>*Corresponding Author:</p> <p>saharmalik32@g mail.com</p>	<p>Earthquake with high magnitude is often resulting in massive destruction with more casualties and high mortality rate. Timely providence of critical healthcare facilities to affected people during an emergency response is the core principle of disaster resilient communities. The main objective of this paper is assessing the hospital preparedness of government hospitals in Quetta. Primary data was collected through questionnaire survey. Total of 165 sample size chosen via simple random sampling. Relative important index (RII) is used to analyze the overall situation of hospitals preparedness in term of earthquake disaster. Findings of the study showed that the preparedness level of government hospitals in Quetta is weak to moderate level. Based on the findings this study recommends the necessary measures to minimize the risk of earthquake disaster including training and exercise programs for the staff of hospital, proper resource management to efficiently use the existing machinery and equipment in the meeting of disaster to enhance employee's performance and preparedness of government hospitals in Quetta to deal with earthquake disaster.</p>

Introduction

Hospital's preparedness is defined by UNISDR (2009) as "The knowledge and capacities advanced by using governments, professional reaction and restoration businesses, communities and people to efficiently assume, respond to, and recover from, the effects of in all likelihood, drawing close or cutting-edge risk activities or conditions specifically in the context of earthquake and flood." Timely providence of critical healthcare facilities to affected people during an emergency response is the core principle of disaster resilient communities (Afkar, Mehrabian, Shams, & Najafi, 2013). Natural disasters like earthquake, flood, tsunami and landslides are impacting communities on a large scale because cities are becoming more populated and larger (Ainuddin & Routray, 2012). According to CRAD data base, it is estimated that sine 1900 worldwide more than 50% of natural disasters with the largest number of fatalities and injuries occurred during the last

two decades (Cutter, Boruff, & Shirley, 2003). These disasters put substantial demands on hospital preparedness because such disasters can cause a huge mortalities and injuries in a short period of time span. Similarly, natural disasters can also cause a massive destruction to the hospital system at the same time by damaging their supporting physical infrastructure (Afkar et al., 2013). Like the 1999 Turkey earthquake with magnitude 7.6 caused almost 50,000 injuries in Izmit and affected more than 10 popular hospitals in which patients required the relocation from those hospitals (Bazyar et al., 2020). Determining the hospital preparedness level for disasters is necessary and important issue. Preparedness can be defined as “condition or a set of conditions that set up to build a device for minimizing the risk and its effect through rapid and effective response and the feedback of preparedness is very crucial in disaster response phase. There are three common elements of disaster preparedness which includes structural, nonstructural and functional preparedness. Earthquake preparedness is of highest significance in hospital subsequently they are the first place where injured are referred to (Smith, Gorski, & Vennelakanti, 2010).

Literature Review

The vast literature on natural calamities suggests how the government machinery needs to be prepared for it. Samsuddin, Takim, Nawawi, & Syed Alwee, (2018) talked about the difficulties encountered by hospitals during earthquakes. Natural disaster, specifically earthquakes are a sudden phenomenon. It could affect an entire city, province, or even a country, leading to human injuries and deaths. With a blink of an eye, an entire region could go into a state of chaos. In a time like this, it is the job of hospitals and government health experts to make sure that they attend to the injured people in spite of being affected by the disaster equally themselves. Generally, a fully functional health care facility and hospital is considered a crucial part for disaster response. Having said that, hospitals and healthcare facilities need to be equipped enough to aid victims of not only earthquake but also those coming for routine checkups. It is essential to maintain health services in the local communities (Siddiqi et al., 2009). So in order to smoothen the health care facilities, governments all over the world formulate policies to ensure constant provision of services. It has been over a decade since the international organizations have taken concrete steps to reduce risk and vulnerability of hospitals. The prime focus of late has been how to make healthcare facilities better prepared for earthquakes and for this “Safe Hospitals” initiative was introduced (Wuthisuthimethawee, Rojsaengroeng, & Krongtrivate, 2021).

In order to have a quick response to a natural disaster, it is very important that the hospitals of that area are well prepared for all possibilities. Since the earthquakes are followed by extreme chaos and a state of emergency, only the trained individuals are able to cater to the needs of the injured. In times like these, hospitals play a key role in nursing the injured back to health in spite of being hit by the natural disaster themselves equally like the rest of the population.

Due to lack of detailed hazard vulnerability assessments of building in Hospitals' emergency plans, thus results in failure rather than to consider the effect of somatic destruction on damage of clinic functions (Hosseini Shokouh et al., 2014). Another issue that is generally being observed is that hospital managers, crisis planners, & the hospital staff are not educated on the function assessments of what they may expect in case of emergency. Since they are not fully aware of the realistic picture, they tend to underperform their duties in times of emergency.

Material and Methods

Study Area

Quetta is the capital city and headquarter of the province shares it borders with district Mastoong, Pishin, and Nushki. Being the largest city of the province with more than two million populations is selected for the said study. The two main government hospitals of the city are selected as a sampling unit. Government hospitals namely Bolan Medical College (BMC) and Provincial Sandemen (Civil) Hospital are the two main hospitals of the city.



Figure.1 Study Area Map

Prior studies have assessed earthquake preparedness via different ways whereas in this research study we used relative important index. Primary data was collected through questionnaire survey. The questionnaire encompasses the problems including. 1) Earthquake emergencies in terms of medical doctors. 2) Safety of hazardous material and equipment's. 3) Adequate space for the treatment of large influx of patients. 4) Enough medical equipment's available for handling critical patients. 5) Adequate/special budget allocated for earthquake emergency. 6) Special trainings are available for staff to manage earthquake emergency. 7) Building of hospital followed the building codes regarding to earthquake disaster and some other important indicators which is included in detail in Table (5.1). Total twenty-three indicators were asked from respondents regarding earthquake preparedness for hospitals. According to the relative important index score each question was categorized into 5 categories. A) very weak preparedness (0 - < 20%) weak (20 - < 40 %) Moderate (40 - < 60 %) High (60 - < 80 %) and very high preparedness (80 - < 100%). Based on the results we can conclude that government hospitals of Quetta city neither has very high preparedness nor very low. As the values of relative important index ranges from (0.36-0.56) which shows the level of preparedness from weak to moderate. But hospitals have no capacity to respond to a large influx of patients. Detail of the respondent's responses and the score of relative important index are given in Table (5.1 & 5.2) respectively.

Table 1
To Assess Hospital Preparedness for Earthquake Hazard in Quetta.

S. N	Statements	S. A	A	N	D.A	S.D. A
1	Government Hospitals of Quetta prepared for emergencies in terms of medical doctors	24	12	16	48	75
2	Government Hospitals of Quetta prepared for emergencies in terms of support staff (Nurses, Janitors, etc)?	19	13	28	50	55
3	Government Hospitals of Quetta for smooth running functionalities to avoid any discrepancies or disturbance of hospitals	5	12	42	28	78
4	Human resource of earthquake emergency cell established at hospital is adequate	9	8	19	52	77
5	Information desk established in the earthquake emergency cell in the hospital	23	13	38	51	40
6	Special numbers assigned for information desk of earthquake emergency cell	11	35	20	39	60
7	Adequate space for the treatment of large influx of patients of earthquake at emergency cell?	2	12	18	52	81
8	Adequate beddings at allocated space for the treatment of large influx patients of earthquake emergency cell	10	17	19	42	77
9	Enough medical equipment's available for handling critical patients of earthquake?	7	13	18	51	76
10	Enough medical equipment's available for handling moderate patients of earthquake?	21	23	38	50	33
11	Enough medical equipment's available for handling a First Aid patient of earthquake?	12	17	40	19	77
12	Adequate staff for handling critical patients at earthquake emergency cell?	4	12	17	51	81
13	Adequate staff for handling moderate patients at earthquake emergency cell?	10	17	19	43	76
14	Adequate staff for handling First Aid patients at earthquake emergency cell?	11	13	27	69	45
15	Adequate number of specialists available/assigned at earthquake emergency cell	9	20	38	23	75
16	Specified blood bank available at earthquake emergency cell?	4	13	17	51	80

17	Specified place assigned for the death bodies/expired patients at earthquake emergency cell?	20	17	19	42	67
18	Adequate budget allocated for earthquake emergency cells by government.	19	19	33	72	22
19	Communication is established among hospital and other NGOs and INGOs for earthquake emergency	11	10	23	98	23
20	Specific budget allocated for earthquake disaster for hospitals	9	10	48	80	18
21	Special trainings are available for staff to manage earthquake emergency	10	27	11	97	20
22	Building of hospital followed the building codes regarding to earthquake disaster	5	10	24	108	18
23	How safe is the hospital if a major earthquake of magnitude 7 or greater occurs	12	17	50	48	38

Relative Important Index

Relative important index is used to assess the Government hospital preparedness of Quetta city in the context of earthquake emergency.

Relative Important Index formula is given as

$$RII = \frac{5 * S.A + 4 * A + 3 * N + 2 * D.A + 1 * S.D.A}{N * A}$$

Where

RII = Relative important index

S.A = Number of respondents were agreeing for the statement of strongly agree

A = Number of respondents were agreeing for the statements of agree

N = Number of respondent’s agreeing for the statement of neutral

D.A = Number of respondents agreeing with the statement of disagree

S.D.A = Number of respondents for agreeing strongly disagree statement

A (Highest weight) = 5

And N is the number of total respondents which is 165.

Table 2
Relative Important Index Score

S. N	Statements	Total Score	Relative Score
1	Adequate space for the treatment of large influx of patients of earthquake at emergency cell?	297	0.360
2	Adequate staff for handling critical patients at earthquake emergency cell?	302	0.366
3	Specified blood bank available at earthquake emergency cell?	305	0.369
4	Human resource of earthquake emergency cell established at hospital	315	0.381
5	Enough medical equipment's available for handling critical patients of earthquake?	319	0.386
6	Government Hospitals of Quetta for smooth running functionalities to avoid any discrepancies or disturbance of hospitals	333	0.403
7	Adequate beddings at allocated space for the treatment of large influx patients of earthquake emergency cell	336	0.407
8	Adequate staff for handling moderate patients at earthquake emergency cell?	337	0.408
9	Adequate number of specialists available/assigned at earthquake emergency cell	360	0.436
10	Enough medical equipment's available for handling a First Aid patient of earthquake?	363	0.440
11	Adequate staff for handling First Aid patients at earthquake emergency cell?	371	0.449
12	Building of hospital followed the building codes regarding to earthquake disaster	371	0.449
13	Specified place assigned for the death bodies/expired patients at earthquake emergency cell?	376	0.455
14	Communication is established among hospital and other NGOs and INGOs for earthquake emergency	383	0.464
15	Government Hospitals of Quetta are prepared for earthquake emergencies in terms of support staff (Nurses, Janitors, etc)?	386	0.467
16	Government Hospitals of Quetta are prepared for earthquake emergencies in terms of medical doctors	387	0.469
17	Special numbers assigned for information desk of earthquake emergency cell	393	0.476
18	Special trainings are available for staff to manage earthquake emerg	405	0.490
19	Specific budget allocated for earthquake disaster for hospitals	407	0.493

20	How safe is the hospital if a major earthquake of magnitude 7 or greater occurs	412	0.499
21	Information desk established in the earthquake emergency cell	423	0.512
22	Adequate/special budget allocated for earthquake emergency cells by Government of Balochistan	436	0.528
23	Enough medical equipment's available for handling moderate patients of earthquake?	444	0.538

Discussion

Earthquake with high magnitude is often resulting in massive destruction with more casualties and high mortality rate (Bilham, 2019). We have asked total twenty-three questions from respondents related to hospitals preparedness in the context of earthquake emergency see Table (5.2). Values of the Relative Important Index lie between "0-1". Values closest to zero shows the low preparedness level of the system whereas values closest to 1 show the satisfactory sign of the system. All the values of the Relative Important index are arranged in ascending orders to understand it easily. According to the findings, the readiness of Quetta hospitals in the context of earthquake disaster was weak to moderate level. The minimum value of an indicator recorded is (0.36) of adequate space for the treatment of large influx of patients of earthquake at emergency cell. Based on the findings some of the areas need special attention from responsible authorities. These includes 1) Adequate space for the treatment of large influx of patients, 2) Adequate staff for handling critical patients at earthquake emergency, 3) Availability of blood bank at earthquake emergency cell and 4) expert human resource to deal earthquake emergency. At the other hand some of the indicators like 1) Building of hospital followed the building codes regarding to earthquake disaster, 2) Specified place assigned for the death bodies/expired patients at earthquake emergency cell, 3) Government Hospitals of Quetta are prepared for earthquake emergencies in terms of support staff (Nurses, Janitors, etc.), 4) Information desk established in the earthquake emergency cell, 5) Adequate/special budget allocated for earthquake emergency cells by Government of Balochistan and Enough medical equipment's available for handling moderate patients of earthquake in a comparative way had good preparedness against earthquake disaster. Suitable mitigation measures should be taken in the government hospitals of Quetta city to enhance the performance of the related fields of hospital preparedness against earthquake disasters, in order to efficiently minimize the death rate and physical impairment during an earthquake emergency.

Conclusion

Disaster like earthquakes not only causes problem to the general population but it also creates another disaster by damaging health facilities that counter the effect of that disaster (Tang, 2015). The main objective of the current study is to assess hospital preparedness for Earthquake hazard in Quetta The preparedness level of government hospitals in Quetta is weak to moderate level. Primary data was collected through questionnaire survey. Total of 165 sample size chosen via simple random sampling. Relative important index (RII) is used to analyze the overall situation of hospitals preparedness in term of earthquake disaster. Based on the findings this study recommends

the necessary measures to minimize the risk of earthquake disaster including training and exercise programs for the staff of hospital, proper resource management to efficiently use the existing machinery and equipment in the meeting of disaster to enhance employee's performance and preparedness of government hospitals in Quetta to deal with earthquake disaster. Similarly, the preparedness of hospitals can be improved by implementing proper measures in the fields of education, human resources and equipment as well as the rehabilitation and reconstruction of government hospitals.

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