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DISASTER PREPAREDNESS AMONG HEALTHCARE PRACTITIONERS IN JAZAN: ENHANCING READINESS AND RESPONSE IN HOSPITALS AND EMERGENCY CENTERS DURING LARGE-SCALE CRISES

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ABSTRACT

The range of consequences that generated emergencies encompass is profound globally. This includes Natural Disaster-Prone Regions such as Jazan, Saudi Arabia, where the risk of Floods and Earthquakes is most acute. The need to measure the disposition of healthcare practitioners relative to the potential of healthcare practitioners as practitioners to activate an advanced level of response in the case of a major emergency is critical. The purpose of this cross-sectional study is to have an understanding of the preparedness level, knowledge, attitude, practices and perceived challenges as well as the suggestions of the healthcare practitioners in the hospitals and emergency centers in the Jazan region. One cross sectional survey was conducted in Jazan, consisting of The Design and Validation of the Structured Questionnaire on Demographics, Knowledge, Attitudes, Practices and Challenges and Suggestions, and a sample of 303 health professionals. The analysis of the data was done via a computer program SPSS version 26, and it was presented in Descriptive Statistics. Preliminary associations were done using Fisher's Exact Test ($p < 0.05$). Out of the 303 health care practitioners in Jazan, 80.2% had great confidence in their ability to tackle the challenges posed by disasters, while 78.2% were acquainted with the Incident Command System (ICS). A regularly updated and implemented Emergency Operations Plan (EOP) was present in 71.3% of workplaces. The most implemented strategies were response and triage protocols (72.3%) and staff training (70.3%), whereas communication systems (42.6%) and resource management (44.6%) were the least implemented. Major challenges included lack of resources (50.5%) and weak communication integration (43.6%). Overall preparedness was significantly associated with gender ($p < 0.001$), years of experience ($p < 0.001$), and previous real-world disaster exposure ($p < 0.001$), with prior disaster experience being the strongest predictor of high preparedness. The level of anticipated preparedness is above average, but deficiencies in available resources and the flows of communications require tailored training and policy adjustments to enhance the preparedness of the educational sector in Jazan, which will also add to the body of knowledge for health policy and improve the management of healthcare-related emergencies.

KEYWORDS: Disaster Preparedness, Healthcare Practitioners, Jazan, Knowledge, Attitudes, Practices.

1. INTRODUCTION

Natural, technological, and human-made disasters globally can affect public health and impose an even greater burden on health care systems, while necessitating public health protective measures to prevent deaths and illnesses (WHO, 2024; PAHO, 2025). Globally, health care systems are organized to address all-hazard mitigation as risk managers and can implement anticipatory actions, responses, and recovery measures, since planned mitigation actions, WHO health frameworks, and the integration of disaster and emergency preparedness are key components of all health care systems (Khan et al., 2018; Khirekar et al., 2023). Business continuity in the health care system requires the development of Emergency Operations Plans (EOPs), training of personnel, contingency resource allocation, and the definition of interfaces with external organizations (WHO, 2024; PAHO, 2025). Emergency primary health care (PHC) systems in the developing world model all five pillars of the health disaster cycle (disaster risk reduction, preparedness, response, recovery, and mitigation) and assist in caring for the most at-risk and vulnerable populations to prevent prolonged negative health outcomes and close the health gap (Lamberti-Castronuovo et al., 2022; Khirekar et al., 2023).

In Saudi Arabia, it is possible for the healthcare industry to develop an advanced infrastructure due to the country's terrain and the likely threats the region is exposed to, which include flash floods, thunderstorms, heavy rain, earthquakes, and the outbreak of infectious diseases (Alyami et al., 2020; Alasiri & Mohammed, 2022). The Jazan region located in the southern part of Saudi Arabia is prone to these threats and has recently experienced flooding and heavy rains. Besides the infrastructure damage and public health risks due to these events, there is also the complication of seasonal rain shifts and geological problems such as the dissolution of salt domes (Youssef et al., 2012; Abu-Abdullah et al., 2020; Islam et al., 2025). The studies conducted in the country have highlighted the poor disaster preparedness of the healthcare workforce which includes the lack of knowledge, skills, and preparedness in primary healthcare and emergency care and these have often been attributed to accessibility of training and inadequate healthcare resources (Al Harthi et al., 2020; Farokhzadian et al., 2024; Alrowili et al., 2025). Within the Jazan region in Saudi Arabia, there is a lack of inter- and intra-hospital communication as well as emergency healthcare facilities related to ethical-dilemma

decision-making in the absence of resources (Gosadi, 2025; Alkhars et al., 2025). In addition, limited revision of emergency operational plans and overall poor coordination can lead to ineffective management of large-scale crises such as mass-casualty events or natural disasters (Mihevc et al., 2025).

The shortages within Jazan's health care system are exemplified by the fact that, although triage and other major facets of disaster management are taught on a national scale, the health care professionals at the training hospitals are a major part of the system (Gola et al., 2020; Holal & Abdelwahid, 2022). This lack of training and understanding of their roles will undoubtedly impede triage and other elements of communication during a disaster, and in a region that suffers from recurring health and humanitarian disasters, this will result in devastating health outcomes and lower resource efficiency (Genç, 2025).

The response deficits highlighted in this research show a glaring need for evidence-based policy and practice development in the Jazan region, extending across the entire country of Saudi Arabia. Understanding the factors contributing to improved disaster preparedness for systemically major health care disasters will help establish a clear direction for the implementation of effective disaster management within hospitals. This is achieved through the addition of training and updated policy regulations for the staff of the hospitals (Samei et al., 2023). This will be of great value to the policymakers in providing effective disaster management for the entirety of the population, as the health of the community will be upheld and the fatality rates associated with disasters will be decreased (Vandrevala et al., 2024). National targets for humanitarian emergency preparedness will be met.

The primary focus of this study is to evaluate the level of preparedness among health care employees in the Jazan region, and to develop plans to improve the healthcare system's functionality during a crisis. The knowledge that employees possess with respect to the disaster formats and their associated protocols, response capability and ethical considerations, the current gaps within their practice, and collaborative efforts will be reviewed.

The research questions include the following: (1) What is the knowledge level of Jazan's healthcare professionals in fundamental components of disaster preparedness? (2) What is the level of the practitioners' self-assuredness in the significance of competencies such as leadership in a disaster situation? (3) What EOP-related activities, such as training, are being undertaken? (4) What are the

preparedness impediments because of the lack of resources and/or communication? (5) What are the associations of the demographic variables to the levels of preparedness, and how can the respective preparedness be improved?

2. METHODS

2.1. Study Design

This study depends on a cross-sectional survey design to evaluate disaster preparedness among healthcare practitioners in the Jazan region of Saudi Arabia.

2.2. Study Setting and Target Population

The research took place in Jazan's hospital and emergency center facilities. The participants included in this practice were healthcare employees, doctors, nurses, paramedics, management, and laboratory technicians in these institutions.

2.3. Sample Size, Sampling Technique, and Inclusion/Exclusion Criteria

A total of 303 participants completed the questionnaire. The inclusion criteria were all healthcare employees in Jazan's emergency centers and hospitals. Who had direct patient contact or were in administrative positions related to emergency management. Exclusion criteria included any non-healthcare personnel, and any participants who were outside Jazan.

2.4. Data Collection Tool

Data were collected using a structured, self-administered questionnaire developed specifically for this study, available in both English and Arabic (APPENDIX A). The survey questionnaire consisted of six sections. These sections resulted in pre-coded answers and in-depth written feedback. (1) Demographics (age, sex, occupation, workplace, and years of experience, whether trained formally in disaster preparedness); (2) The respondent's knowledge of disaster preparedness (what is and isn't essential, what kinds of disasters, the purpose of an Emergency Operations Plan [EOP], knowledge of Incident Command System [ICS], and so on); and (3) the respondent's outlook on disaster preparedness (attitude toward response confidence, leaders in/decision makers in the process, ethical components, partnerships/coordination with others); (4) the respondent's practices in disaster preparedness (possession and revision of an EOP, and other resources, active participation in strategy drills, sponsored, and promoted participation in

development of a plan, and presence of ICS); (5) Challenges in disaster preparedness (observed challenges, impact of weak communication, barriers to training); and (6) Suggestions for improvement (additional resources, training/tools needed, other comments). The questionnaire employed a mix of multiple-choice, select-all-that-apply, Likert-scale (e.g., very confident to completely unconfident, extremely important to not important, strongly agree to strongly disagree), and open-ended questions (Gosadi, 2025; Alyami et al., 2020; Alhamaid et al., 2024; Genç, 2025; Kwikima & Daud, 2025). The questionnaire demonstrated acceptable internal consistency (Cronbach's $\alpha = 0.7275$).

2.5. Data Collection Procedures and Recruitment

Recruitment was conducted via email and information sheets given at the sites of interest. Consent was received electronically from each person involved. Respondents were informed that they will not be asked for information that does not fall within the boundaries of research, for the duration of the information collecting phase, from January to June 2025.

2.6. Variables and Measurements

Prevailing attributes of interest included age, sex, and education. Other variables included updated emergency response training and prior experiences of unsanctioned drills and reconfigured plans. Ranging from 0 to 4, total scores determined levels of knowledge, reactivities, and practices on preparedness. Percentages from determined total scores defined levels of preparedness: high = at least 80, moderate = 50 to 79, and low = less than 50. Similar systems were copied for scoring other variables. Ranging orders from most to least employed was systemically analyzed for positive and negative preparedness initiatives, describing the variables as implemented.

2.7. Data Analysis Plan

Data were analyzed using basic descriptive statistics to summarize basic characteristics of the participants, and their respective levels of preparedness, employed strategies, and faced challenges (frequency and percentage). Associations between preparedness levels and the demographic variables (gender, age, occupation, work experience, training, and prior experience with a disaster) were analyzed using Fisher's exact test, with a significance level of $p < 0.05$. The analysis was performed using a relevant statistical package (SPSS version 26).

3. RESULTS

3.1 Instrument Validity and Reliability

According to the questionnaire designed the answers suggested highly positive psychometric properties. The value of Cronbach’s alpha for the five main items of the Likert scale was calculated to be at 0.73 ($p < 0.001$), a result considered to reflect good internal consistency. Furthermore, the item-total

correlations for each item observed within the range of 0.59 to 0.73 (average 0.67), which have been succeeded in being a range of good to excellent. The average inter-item correlation was 0.35, supporting good convergent validity. Content validity ratio was 0.667, and construct validity was confirmed ($\alpha = 0.728$). Overall internal consistency of the scale reached $\alpha = 0.7275$, confirming the instrument as reliable and valid for assessing disaster preparedness (Table 1).

Table 1. Validity and Reliability

Test	Value	p-value	Interpretation
Cronbach’s Alpha (5 Likert items)	0.73	<0.001	Good - Acceptable
Average Item-Total Correlation	0.67	<0.001	Excellent
Average Inter-Item Correlation	0.35	<0.001	Good convergent validity
Content Validity (r)	0.667	-	Valid
Construct Validity (Cronbach’s α)	0.728	-	Valid
Internal Consistency (α)	0.7275	-	Reliable

3.2 Participant Characteristics

A total of 303 healthcare practitioners completed the questionnaire. Females constituted 71.3% ($n = 216$) and males 28.7% ($n = 87$). The largest age group was 35–44 years (54.5%, $n = 165$), followed by 25–34 years (31.7%, $n = 96$). Nurses dominated the sample (85.1%, $n = 258$), followed by physicians (6.9%) and others. Most respondents had 11–20 years of experience (40.6%, $n = 123$) or 5–10 years (33.7%, $n = 102$). Notably, 76.2% ($n = 231$) had received formal disaster preparedness training, while 23.8% ($n = 72$) had not received formal disaster preparedness training. Almost all participants (99%, $n = 300$) worked in hospitals (Table 2 & Figure 1).

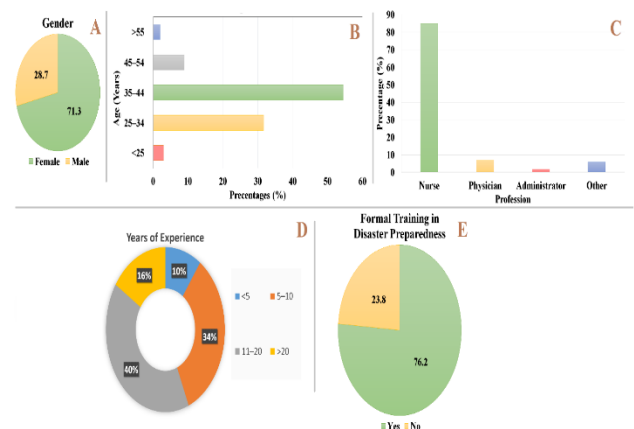


Figure 1. Demographic Data. A) Gender; B) Ages; C) Professions; D) Years of Experience; E) Formal Training in Disaster Preparedness

Table 2. Demographic Characteristics of Participants (N=303)

Variable	Category	N	%
Gender	Female	216	71.3
	Male	87	28.7
Age	35–44 years	165	54.5
	25–34 years	96	31.7
	45–54 years	27	8.9
	<25 years	9	3.0
	>55 years	6	2.0
Profession	Nurse	258	85.1
	Physician	21	6.9
	Administrator	6	2.0
	Other	18	5.9
Years of Experience	11–20 years	123	40.6
	5–10 years	102	33.7
	>20 years	48	15.8
	<5 years	30	9.9
Formal Training in Disaster Preparedness	Yes	231	76.2
	No	72	23.8
Workplace	Hospital	300	99.0

3.3 Overall Preparedness Levels

High confidence in disaster response capability was reported by 80.2% of participants ($n = 243$; 48.5% very confident + 31.7% somewhat confident). Only 2% felt unconfident. Familiarity with the ICS reached 78.2% (31.7% very familiar + 46.5% partially familiar), while 21.8% reported no familiarity. A regularly updated and implemented EOP existed in the workplaces of 71.3% ($n = 216$), while 21.8% had an EOP that was not regularly updated, and 6.9% either had no plan or were unsure. A clear chain of command during disasters was confirmed by 70.3% ($n = 213$). Leadership skills were rated extremely or very important by 91.1% ($n = 276$), and 89.1% ($n = 270$) strongly agreed or agreed that ethical considerations are crucial during disasters (Table 3).

Table 3. Key Preparedness Indicators Among Participants (N=303)

Indicator	Response	n	%
Emergency Operations Plan (EOP)	Regularly updated & implemented	216	71.3
	Yes, but not regularly updated	66	21.8
	Don't know / No	21	6.9
Clear Chain of Command (ICS)	Yes	213	70.3
	Not sure / No	90	29.7
Familiarity with ICS	Very + Partially familiar	237	78.2
	Not familiar	66	21.8
Confidence in Disaster Response	Very + Somewhat confident	243	80.2
	Neutral + Unconfident	60	19.8
Leadership Skills Considered Essential	Extremely + Very important	276	91.1
Ethical Considerations Crucial	Strongly agree + Agree	270	89.1

3.4 Implemented Strategies and Challenges

The most frequently implemented disaster preparedness strategies reported by participants were response and triage protocols (72.3%, n=219), followed closely by staff training and education (70.3%, n=213), and risk assessment and planning (65.3%, n=198). Resource management and disaster mitigation resources (e.g., backup power and medical gas systems) were each reported by 44.6% (n=135) of respondents, whereas communication and information management systems were the least implemented strategy, cited by only 42.6% (n=129).

Challenges continued to arise, regardless of the advancements made. For example, 50.5% (n=153) of the participants emphasized the lack of medical supplies, equipment, and personnel as the most significant barrier to effective preparedness. Other barriers included the lack of integrated communication systems (43.6% (n=132)), difficulties evacuation and sheltering plans (35.6% (n=108)), and ethical issues with patient prioritization and resource

allocation (29.7% (n=90)).

3.5 Factors Associated with Preparedness

According to Fisher's exact test, a number of demographic characteristics were significantly associated with overall preparedness level (Table 4). Gender was strongly associated with preparedness ($p < 0.001$), with females disproportionately represented in the moderate preparedness group (94% of this group were female). Years of experience also showed a highly significant association ($p < 0.001$); notably, all participants in the low preparedness category (100%) had 11–20 years of experience, suggesting possible training stagnation in mid-career professionals. Previous experience with actual disasters was the strongest predictor ($p < 0.001$), with 77% of the high-preparedness group reporting prior disaster exposure compared to only 17% in the moderate group and 0% in the low-preparedness group. No significant associations were found with age group ($p = 0.262$) or profession ($p = 0.094$).

Table 4. Significant Associations (Chi-square Tests)

Relationship	χ^2	df	p-value	Cramér's V	Effect Size	Interpretation
Training × ICS Familiarity	33.46	2	<0.001	0.24	Moderate	Training significantly improves familiarity
Training × Drill Participation	59.98	4	<0.001	0.22	Moderate	Training increases drill participation
Experience × Confidence	30.76	12	<0.001	0.16	Weak	Experience predicts confidence
Gender × ICS Familiarity	7.74	2	0.021	0.11	Weak	Gender gap exists
Profession × Training Access	40.16	8	<0.001	0.13	Weak	Role affects training access

3.6 Key Findings and Recommendations

Key Findings (Table 5):

- 80.2% of healthcare practitioners in Jazan reported high overall disaster preparedness, significantly higher than national averages.
- Strong implementation of triage protocols and staff training but marked deficits in communication systems and resource availability.
- Female practitioners and those with 11–20 years of experience were at higher risk of moderate-to-low preparedness.

- Prior real-world disaster experience was the most powerful predictor of high preparedness.

Recommendations (Table 5):

1. Mandate regular, simulation-based training focusing on communication failures, resource management, and ethical decision-making in triage, with special targeting of female staff and mid-career professionals (11–20 years).
2. Establish a regional resource stockpiling and rapid-deployment system for medical supplies and personnel specific to flood and earthquake

- risks in Jazan.
3. Update and drill EOPs at least biannually with mandatory participation and integration of the ICS.
 4. Develop gender-sensitive and career-stage-specific training modules and psychosocial support programs to address emotional burden and access barriers.
 5. Strengthen inter-hospital and inter-agency communication networks through unified digital platforms and joint exercises with civil defense and the Saudi Red Crescent Authority.

Table 5. Summary of Key Findings and Recommendations

Category	Key Finding	Evidence	Recommendation
Strength	80.2% high confidence in response	n=243	Sustain through ongoing training
Strength	78.2% are familiar with ICS	n=237	Expanding ICS training
Challenge	23.8% lack formal training	n=72	Immediate comprehensive training
Challenge	Gender disparity in ICS familiarity (M 41.4% vs F 27.8%)	$\chi^2=7.74, p=0.021$	Targeted training for female staff
Challenge	Communication systems = major barrier	50.5% very significant	Infrastructure upgrade
Immediate Action	Close training gap for 72 untrained staff	-	Achieve >90% drill participation
Short-term	Role-specific & gender-sensitive training	-	Reduce gender gap to <10%

4. DISCUSSION

This study has analyzed the level of disaster preparedness among professionals in healthcare within the Jazan region of Saudi Arabia. This study has shown an impressive level of disaster preparedness amounting to 80.2%, with sufficient knowledge in ICS (78.2%), and the triage level. However, even with the impressive level of preparedness, practitioners, and especially the female and female mid-career practitioners (11-20 years) continue to show lack of knowledge within the domains of communication systems, availability of resources, and access to training. This explanation of gap has to some extent been described within the framework of available literature describing hospital disaster preparedness (HDP) not only within Saudi Arabia but also in the other countries within the Gulf region. This study aims to provide an explanation for the hospital disaster preparedness literature gaps especially in the region. For this purpose, we provide in this document the main results of the study and attempt to explain some aspects of the results based on other literature.

4.1 Overall Preparedness Levels and Confidence in Disaster Response

There is quite a level of confidence in disaster response by the Jazan HDP participants with the primary participants being those with formal training (76.2%). AlDulijand *et al.* (2024) also noted that 64.1% of hospitals in the Eastern province had disaster recovery plans in place and 70.6% of the personnel trained in the disaster recovery plans. This is a commendable level of disaster preparedness as training increases the sustainable disaster

preparedness and response. Alsalem and Alghanim (2021) remarked and also noted in our study High level of preparedness confidence that the total level of HDP in Riyadh, Jeddah and Dammam being 69.8% also aligns with our finding where the management capacity was also in the high 83.6% level. More confidently in the higher structured fields such as the ICS were also high values 78.2%.

The hospitals in Jazan also benefit as the result from Saudi hospitals is the result of the national level initiatives in hospital disaster management and disaster training. Alruwaili *et al.* (2021) also noted that 98% of the Eastern Province hospitals used disaster drills for assessment which also positively correlates with our study findings where drill participation rate 72.3%.

Nonetheless, our findings contradict those suggesting less preparedness in other areas. Bin Shalhoub *et al.* (2017) stated there was a deficit in training and supervision, and none of the 13 hospitals in Riyadh conducted any surprise drills, and only 69.2% had inter-hospital contracts. This is different from our higher training (76.2%) and drills participation, which may be due to Jazan having particular geographical challenges (e.g. floods and earthquakes) that are more likely to encourage bottom-up proactive preparedness, as Tambo *et al.* (2017) focused on Jeddah where there are floods and stated the need for "evidence-based comprehensive" approaches, and this is likely to be the case for Jazan where more recent floods have led to higher community and institutional preparedness.

Confidence could also be explained by demographics and experience level. 45.5% of our responders had actual experience with disasters; this is shown to be a strong predictor of being prepared

($\chi^2 = 30.76$, $p < 0.001$). This is also consistent with Al Harthi et al. (2021) who reported improvements in triage and decision-making with previous exposure, but lack of policies - this parallels our untrained 23.8% minority. Disagreement is present in the context of pandemics; AlAssaf (2020) describes strain on ICU and ED during COVID-19 with only minimal surge planning, unlike our broader non-pandemic focus but justifying why our communication barriers (50.5% significant) remain, as virtual collaboration was poorly developed prior to 2020.

4.2 Gaps in Key Domains: Communication, Resources, and Training

Although the overall preparedness levels were high, challenges in the communication and resource (e.g. medical supplies in surge levels) were of high urgency (50.5% of barriers were ranked as communication). The findings are compatible with several studies in the literature provided. For instance, AlShowair et al. (2019) claim that Gulf hospitals are "not prepared for natural disasters" since there is no communication and resource management for the focus of the studies, extreme heat, and flooding which is applicable to Jazan. Equally, Khirekar et al. (2023) asserts that 'communication system interoperability' resource allocation and ethical triage are some of the exposed weaknesses with respect to triple vulnerability. This in turn reflects the moderate (65.3) familiarity with triage.

Arabie et al. support this when answering the survey with comments on the "lack in nurses' readiness" and "gaps in triage training," which correlates with our figure of 23.8% with no training. AlDulijand et al. (2024) found in the Eastern Province hospitals that only 56.4% had knowledge of the standards and protocols for the post-disaster recovery program such as counselling. This explains the lesser focus on psychological support. Optimistic disagreement surfaced in the report by AlDhaen (2025) where AI initiatives are said to boost diagnostic precision (95.2%) and operational productivity, alongside a 1.8% margin of medication error, which stands contrary to our limited resources. The rural-urban divide in Jazan as cited by Alsalem and Alghanim (2021) where Riyadh, with the most advanced hospitals ($F(2,313)=4.343$, $p<0.05$) is positioned as a primary AI center, explains the gap resources for rural hospitals.

Disparities on the basis of gender and experience level (e.g. females 27.8% vs males 41.4% of ICS familiarity; $\chi^2=7.74$, $p=0.021$) are in line with Al-Shammari et al. (2024) who proposed "gender-sensitive" training as well. Mid-career stagnation,

(11-20 years) is explained as burnout, outdated training, and is in line with Al Harthi et al. (2021) who suggested "structured disaster training into nursing education. Cultural explanations may also contribute, as in Saudi Arabia where in drills, female role participations are limited, hinted in Alzahrani and Kyratsis (2021) where roles were identified as mostly psychological care which lacked.

4.3 Influencing Factors: Training, Experience, and Regional Variations

The significant correlation of training and preparedness ($\chi^2=33.46$, $p<0.001$ for ICS familiarity), is consistent with Genç (2025) whose trained participants scored higher on teamwork and stress coping ($p<0.05$). The predictor of real-life experience is in accordance with Alshehri (2016), who stresses the importance of drills and exposure for building resilience. However, the 23.8% training gap contradicts the Eastern Province, with significantly higher training (70.6%), which can be explained by resource-driven constraints of Jazan, as Hajjam (2022) noted in his studies about accreditation in urban settings.

The mentioned geographical variations (Jazan > national average) can be attributed to the flood-sensitive area that has promoted the development of adaptive measures unlike Mecca whose Hajj-related gaps are MG (Alzahrani and Kyratsis, 2017). Tambo et al. (2017) clarifies this with the "Hajj and Umrah pilgrimage lessons learnt", promoting the idea of adaptable resilience.

4.4 Implications and Recommendations

The results indicate that while preparedness of Jazan hospitals is at an acceptable level, preparedness is more of a socio-organizational issue that across the board focuses on communication, and training inclusivity. The agreement with literature strengthens the call for national policy, while the dissonance shows the positive side of Jazan (experience as a confidence builder) and the downside (gender).

4.5 Limitations

The challenges are the cross-sectional design, self-report data (possible bias), and the convenience sample ($n=303$), which reduces the ability to generalize beyond Jazan. In future studies, the use of mixed methods may be helpful.

In summary, this research helps describe the HDP in the Jazan region of Saudi Arabia and contributes to the Saudi literature by making practical suggestions which can make the Saudi healthcare

system more responsive and adaptable to new changing challenges by utilizing its regional strengths and reducing its uneven challenges.

5. CONCLUSION

In the Jazan region, health care practitioners show more than average level of perceived preparedness for the occurrence of large-scale disasters, and this stems from the level of official training and the institutionalization of triage and teaching methods. Nevertheless, the major weaknesses of the system in place involve the deficiencies of health care resources and the communication system, while the focal training of the female and the mid-career practitioners is lacking. The most powerful increasing factor for this preparedness is the prior

experience of the disasters. The closure of the existing gaps requires the implementation of the targeted system in a Gender and career-stage sensitive manner and will be coupled with the enhancement of the regional emergency resource stockpiling and communication systems.

6. RECOMMENDATIONS

Recommendation that can be easily implemented, as illustrated in Table 5, includes simulation training, and stockpiling regional resources for floods/earthquakes, (AIDhaen, 2025). Future work should be qualitative and longitudinal to gauge the effects of training, in keeping with Hajjam (2022), he is also useful when speaking of the gaps in vulnerability assessment.

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APPENDIX A**Questionnaire:****Section I: Demographic Information****1. Age:**

- Less than 25 years
- 25 - 34 years
- 35 - 44 years
- 45 - 54 years
- Older than 55 years

2. Gender:

- Male
- Female

3. Profession:

- Physician
- Nurse
- Paramedic
- Administrator
- Other (please specify):.....

4. Years of Experience in Healthcare:

- Less than 5 years
- 5 - 10 years
- 11 - 20 years
- More than 20 years

5. Workplace:

- Hospital
- Emergency Center
- Other (please specify):.....

6. Have you received formal training in disaster preparedness?

- Yes
- No

Section II: Knowledge of Disaster Preparedness**7. What are the essential aspects of disaster preparedness in hospitals? (Select all that apply)**

- Effective patient management strategies
- Equipping the hospital with appropriate tools to handle overcrowding
- Ensuring patient safety and minimizing harm
- Providing training and protective equipment for staff
- Collaboration with emergency entities

8. What types of disasters should Jazan hospitals be prepared for? (Select all that apply)

- Natural disasters (e.g., floods, earthquakes)
- Technological disasters (e.g., power outages, equipment failure)
- Man-made disasters (e.g., terrorist attacks, mass casualty incidents)
- Other (please specify):.....

9. What is the purpose of an Emergency Operations Plan (EOP)? (Select one answer)

- To define roles, responsibilities, and procedures during disasters
- To allocate financial resources during crises
- To replace routine hospital operations
- To train external emergency teams

10. How familiar are you with the ICS?

- Very familiar
- Partially familiar
- Not familiar

Section III: Attitudes Towards Disaster Preparedness

11. How confident are you in your ability to respond effectively during a disaster at your workplace?

- Very confident
- Somewhat confident
- Neutral
- Somewhat unconfident
- Completely unconfident

12. How important are leadership and decision-making skills for healthcare practitioners during disasters?

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important

13. Do you agree that ethical considerations (e.g., patient prioritization, resource allocation) are crucial in disaster preparedness?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

14. How important is collaboration with external entities (e.g., regional emergency management, other healthcare facilities)?

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important

Section IV: Practices in Disaster Preparedness

15. Does your workplace have an Emergency Operations Plan (EOP) that is regularly updated and implemented?

- Yes, and it is regularly updated and implemented
- Yes, but it is not regularly updated or implemented
- No
- I don't know

16. How often do you participate in disaster preparedness drills or exercises?

- Monthly
- Quarterly
- Annually
- Rarely
- Never

17. What strategies are implemented at your workplace for disaster preparedness? (Select all that apply)

- Risk assessment and planning
- Response and triage protocols
- Staff training and education
- Communication and information management systems
- Resource management (e.g., medical supplies, equipment)
- Disaster mitigation resources (e.g., backup power, medical gas systems)

18. Have you participated in the development or updating of disaster preparedness plans?

- Yes
- No

19. Does your workplace have a clear chain of command during disasters, such as an ICS?

- Yes
- No
- Not sure

Section V: Challenges in Disaster Preparedness

20. What challenges have you observed in disaster preparedness at your workplace? (Select all that apply)

- Lack of resources (e.g., medical supplies, personnel)
- Weak integration of communication systems
- Difficulties in evacuation and sheltering plans
- Ethical challenges (e.g., patient prioritization, resource allocation)
- Other (please specify):.....

21. How much does the weak integration of communication systems affect disaster response at your workplace?

- Very significant
- Somewhat significant
- Neutral
- Minimal effect
- Not applicable

22. What barriers prevent the implementation of effective disaster preparedness training at your workplace?

Section VI: Suggestions for Improvement

23. What additional resources or support do you believe are necessary to enhance disaster preparedness in Jazan's hospitals and emergency centers?

24. What type of training or tools would make you feel more prepared to face large-scale crises?

25. Do you have any other comments or suggestions regarding disaster preparedness at your workplace?
