

Exploring the Emergency Planning Requirements: A Qualitative Research Study at the Kingdom of Saudi Arabia

Naif R Alrehaili

Institute for Risk and Disaster Reduction (IRDR), University College London (UCL), UK.

*Corresponding author: naif.alrehaili.19@ucl.ac.uk

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Abstract

This study aimed to explore emergency planning requirements for managing disasters in the Kingdom of Saudi Arabia (KSA). The study adopted interpretivism; an inductive approach; a descriptive survey; and qualitative methods to address its aim. The techniques used included a literature review and semi-structured interviews. The study sample consisted of 13 experts from the KSA General Directorate of Civil Defense (GDCCD). The data were analyzed by using content analysis. The study findings revealed that the emergency planning requirements are administrative requirements, including regulations and legislation; technical requirements, which include equipment; human resources, including staff and responders; identifying, analyzing, and evaluating risks; determining the tasks and responsibilities of the relevant agencies and stakeholders; qualified leadership; determining the chain of command at national and local levels; coordination and cooperation among stakeholders; knowledge gained from local or international experiences; updated database; the availability of sufficient financial resources; completed infrastructure; and improved training and practice. The study also found that although emergency planning requirements are more or less in place, there is a need for further improvement and development; specifically, there is a need for better understanding, knowledge, and awareness. Consequently, it strongly recommends that all emergency planning requirements developed from this study should be implemented simultaneously and as an integrated whole. By doing so, it could help decision-makers and emergency planners at government emergency agencies to improve, develop, and reinforce emergency planning, specifically in reducing disaster risks.

Keywords: Emergency Planning, Requirements, Managing Disasters, The Kingdom of Saudi Arabia

Introduction

The complex process of managing disasters, as well as the rapid escalation of emergencies, requires an understanding of how to better plan and respond to such situations. This highlights the importance and necessity of emergency planning, which is a process that enables the development of the capacity for managing disasters that have the potential to escalate or those that could hurt residents, properties, and the environment (Alshamsi, 2017). As a result, given the losses caused by disasters, and their complex effects on the population and infrastructure, the literature on managing disasters continues to develop. In particular, the central role of emergency planning has increased significantly (Alrehaili, 2021 a).

The planning of disaster response varies significantly from country to county. In the Saudi context, the General Directorate of Civil Defence (GDCCD) holds overall responsibility for managing and planning disasters and emergencies and the protection of life and property (GDCCD, 2022). Emergency planning for disaster response in GDCCD can be characterized as working from the top down. However, while the GDCCD has sufficient will in planning disaster risk, its policy, legislation, and regulation development about emergency planning for disaster response reveals an extremely slow process (Abosuliman et al., 2013). According to, Alrehaili (2021 a & b) the GDCCD has struggled to be proactive in planning present risks related to disaster response and maybe even less prepared for possible disaster events to come, with risk reduction approaches currently being mainly reactive.



The establishment of the Saudi Civil Defence began on 1st July 1927, when Royal Decree No. 133 was issued, which included the municipality system and the formation of the first fire brigade in Makkah. Then, in 1947 the fire brigade was separated from the municipality and joined the police department. After this, a fire brigade was established in Medina. After that, in 1948, two fire brigades were established in Jeddah and Riyadh. Subsequently, in 1956, the fire brigade department was created within the public security sector. Its tasks were defined so that it would fight fires and take preventive measures to prohibit their outbreak and limit their effects.

In 1960, the fire brigade department was separated from the public security sector and joined the Ministry of Interior with an independent budget. It was renamed the General Directorate of Fire Brigades, and a branch was established in each city in the Kingdom of Saudi Arabia (KSA). In 1962 the KSA joined the International Civil Defence Organization (ICDO). After that, in 1965, the Secretary of the ICDO visited the KSA and was briefed on the structure and functions of the General Directorate of Fire Brigades. One of the results of that visit was that the ICDO proposed changing the name of the General Directorate of Fire Brigades to the General Directorate of Civil Defence. Accordingly, the Royal Decree No. 6858 of 1965 was issued, which approved the name change. The newly-formed GDCD's tasks included firefighting, rescue, dealing with all hazards – whether natural or human-made – and mitigating, preparing for, and responding to all disasters, as well as being at the forefront of the recovery operations from them.

In 1986, Royal Decree No. M/10 was issued, which included approval of the legislation of the GDCD. The legislation defined the GDCD's tasks, responsibilities, and objectives. In addition, the tasks and responsibilities of each ministry were also defined for implementing civil defense measures and actions in emergencies and disasters. By that time, a GDCD department had been established in each Province of the KSA, totaling 13 Directorates. Thus, it can be concluded that the Saudi Civil Defence is within the military sector and is directly linked to the Ministry of Interior (GDCD, 2022).

The Saudi Civil Defence Legislation defined the concept of civil defense as a set of procedures and actions necessary to protect the population and public and private property from the risks of fires, other natural disasters, wars, and various accidents, as well as provide relief for the afflicted, ensure the safety of transportation, communication, and workflow in public facilities, and protect all national resources. The Saudi Civil Defence consists of the following:

- The Civil Defence Council.
- The GDCD.
- The Civil Defence Committees.

The main departments of the GDCD are:

- The Fire and Rescue Department.
- The Civilian Protection Department.
- The Safety Department.
- The Studies, Research, and Information Department.

These departments perform the tasks and responsibilities of civil defense in cooperation with stakeholders such as ministries, government sectors, companies, business owners, Civil Defence forces, internal security forces, the National Guard, the armed forces, and civil defense volunteers (GDCD, 2022). The Saudi Civil Defence Legislation has defined the GDCD's tasks, responsibilities, and duties as the following:

- Preparing for hazards, risks, and disasters.
- Mitigating hazards, risks, and disasters.
- Responding to hazards, risks, and disasters.

- Rescue, firefighting, evacuation, relief, and recovery services.
- Monitoring potential hazards and risks.
- Training and education.
- Structuring civil defense.
- Leading and managing civil defense.

This study leverages a social constructivism perspective and cultural theory of risk perception to explore the emergency planning requirements for managing disasters from experts' perspectives at the GDCD in the KSA. This study interviews participants regarding their perceptions of emergency planning requirements. The interview questions elicit participants' thoughts regarding area emergency planning requirements based on their understanding and shared cultural experiences in the emergency management field. The results of this study may contribute to an understanding of the overall effectiveness of emergency planning in the KSA from an organizational perspective.

Methods

A central aim of this study is to explore emergency planning requirements for managing disasters in the KSA. Research may be described as rigorous and systematized processes that aim to give descriptions of a certain topic or phenomenon to help build knowledge (Bowling, 2014). One popular research method is the aforementioned "research onion", which can be used to explain the reasons for the choice of the methodology presented here (Saunders et al., 2016). It is crucial to recognize and incorporate the various components of, and relationships between, each method used in the most effective way to improve data validity, reliability, and performance (Kagioglou et al., 2000). For this reason, the research onion was adopted because of its detailed method and its ability to connect one layer to the next (see Figure 1). Furthermore, to contribute to correct and accurate data collection, Saunders et al. (2016) state that each layer is structured and developed with careful planning.

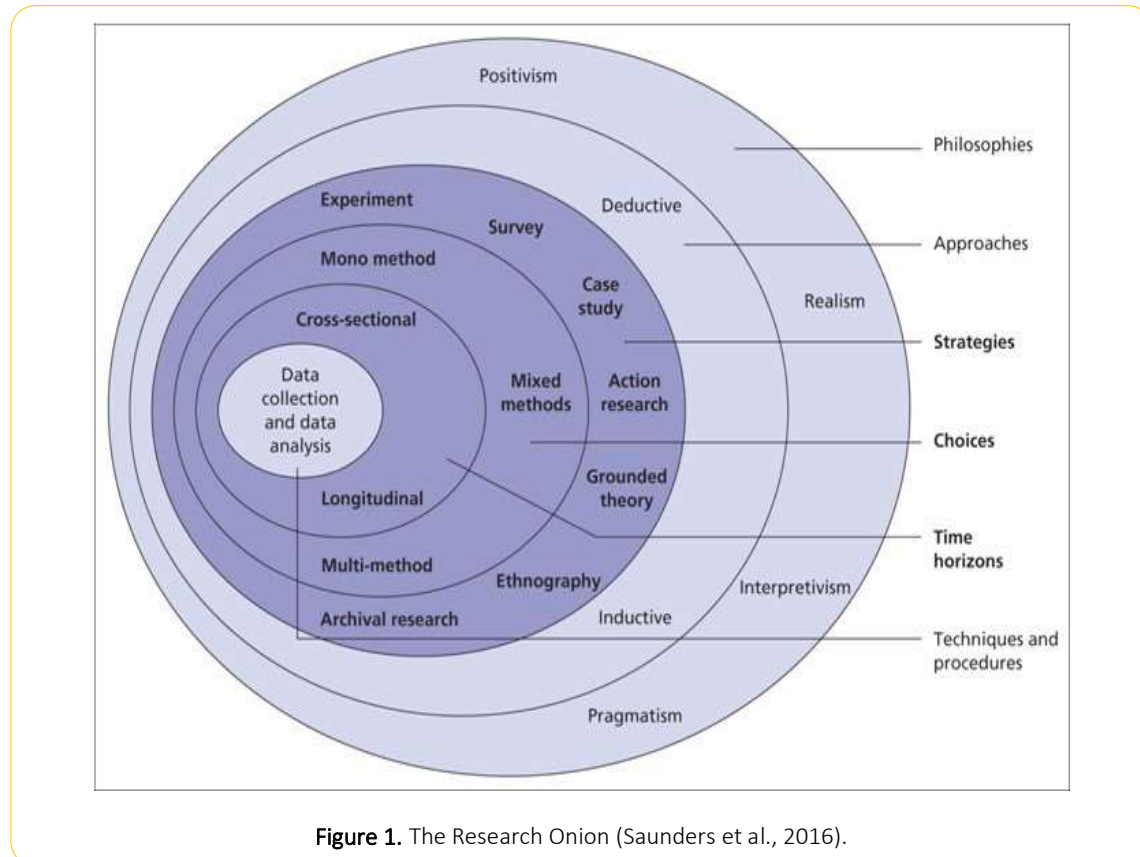


Figure 1. The Research Onion (Saunders et al., 2016).

In epistemology, the knowledge that leads the research of this study relates to emergency planning requirements for managing disasters, particularly in the KSA. The epistemological position consequently stems from this field, and here emergency planning requirements related to disaster management are considered "knowledge needing to be created" instead of "knowledge which exists". This philosophy assumes that emergency planning requirements for managing disasters do not exist. Hence, research focuses on comprehending GDCD experts' perceptions, interpretivism is found to best fit this study form. Accordingly, the epistemology assumption lies in interpretivism. In ontology, the meaning given to emergency planning requirements and how it relates to disaster management is highly subjective. Therefore, the intended research would be positioned towards the subjectivism aspect of ontology because it deals with the meanings that individuals attach to the way that emergency planning functions in disaster preparedness and how that affects the response to disasters. In axiology, the researcher is part of the data collection process; there is great importance on data collected, and individuals' perception is subjective and biased. Hence, the axiological assumption position is value-laden.

Based on epistemological (Interpretivism), ontological (Subjectivism), axiological (Value-laden) considerations, a research approach (inductive), and a research strategy (in-depth descriptive survey), this study would fall under the classification of qualitative research. Hence, it was decided that a qualitative method would be the most appropriate method for achieving the study's aim. A cross-sectional study is more suitable for this study due to being more compatible with the research scope and the resources available. The techniques employed in this study are a literature review and interviews to verify the GDCD experts' thoughts and perceptions on the study topic. Consequently, this study employs the literature review as a secondary data source and the interviews as a primary data source.

The literature review for this study was conducted on separate databases such as Google Scholar and Scopus since each database has different functionality. Furthermore, the research scope was expanded to include online database articles using keywords related to emergency planning and its requirements. The literature review considered the state of previous literature of both English and Arabic publications and was primarily taken from four major types of publications: books; peer-reviewed journals, articles, or papers; government documents; and national and international organizations' publications, including documents and statistics from the GDCD. However, the key source was journal articles offering scientific data and analysis, derived from various fields represented by journals that illustrate the significance of emergency planning requirements. Each paper was evaluated based on its link with emergency planning, each was reviewed and analyzed for examples of emergency planning that happened in the KSA, and any mention of emergency planning and its requirements were identified and explored. The findings from the literature review were evaluated using the analysis data steps suggested by Bryman (2016), and the theme of emergency planning requirements was processed and analyzed. Therefore, the study's aim was partially achieved through a review of the literature.

Literature reviews were the cornerstone for designing interviews, as the data gathered helped the author to form relevant questions and to decide what further information was needed from the participants. Therefore, this study's second data collection technique was an interview. It is the most common tool for data collection in qualitative research because it can provide an in-depth understanding of the subject being examined, assisting the researcher in collecting valid and reliable data relevant to the research questions and objectives (Saunders et al., 2016). Therefore, the semi-structured face-to-face interview explored experts' perceptions at the GDCD on emergency planning requirements for managing disasters. The author has a list of questions to cover during the interview. However, open-ended questions were asked, allowing participants to provide in-depth answers and for the interviewer to probe deeper and ask further questions. These questions were developed within the theme to collect critical data regarding emergency planning requirements for managing disasters. The first section of the interview questions included personal information such as name, rank, region, email, qualifications, and relevant

experience. The second section included a question based on the central theme: Expert perceptions of the emergency planning requirements at the GDCD in the KSA.

The population consisted of current officers within the GDCD in the KSA. This included all officers located in all cities across the KSA, in all ranks from lieutenant to major-general who are currently “in service”. Thus, GDCD officers in the KSA were chosen as the population for this study for several reasons:

- i. The GDCD is the agency responsible for preparedness and emergency planning for responding to flash floods in the KSA.
- ii. The GDCD officers are professionals in the field of emergency planning and flash flood response.
- iii. They have extensive knowledge and experience in flash flood response and emergency planning.
- iv. They have passed many training courses in emergency planning and flash flood response.
- v. They have been involved in the preparedness, planning, and response to many flash floods in the KSA.

However, the study seeks participants with expertise, experience, and knowledge of emergency planning. As a result, non-probability sampling was the most appropriate sampling technique. Therefore, purposive sampling was adopted in this study because the desired participants have specific characteristics and knowledge to provide the most meaningful data for the study topic. The participants are top management at the GDCD with extensive experience in emergency planning. Therefore, they can explore emergency planning requirements. The KSA is divided into 13 Provinces, as shown in Figure 2. Thus, a GDCD department exists in each Province. As a result, an expert from each GDCD department was selected to participate in the interviews, meaning that 13 participants took part.



Figure 2. Map of the KSA Showing the 13 Provinces (Barakat et al., 2014).

The author contacted potential participants via phone, email, and/or postal letter before the interview. Following this, each participant received the interview materials, such as a participant information sheet, as well as a participant consent form. They were also provided information about the research, its objectives, and the interview's structure and ethics. Each participant was then asked to sign the consent form and give their approval for the interview to be recorded. The author's contact information was provided in case the participants have any additional questions or concerns about the research, so they can be addressed before the interview begins. A mutually agreed date, time, and location were then set for each interview.

The author traveled to the KSA at the start of October 2022 to conduct the interviews for the study. Face-to-face interviews were conducted at the most convenient time and location for each interviewee. All personal information provided by the interviewees was treated with discretion and each participant remained anonymous. Each interview lasted between 60 to 90 minutes. All interviews were conducted without any difficulties, and everything went as planned. The time spent collecting data took about two months. The interviews were recorded, edited, translated from Arabic to English, and reviewed by the author and interviewees. Once data collecting was finished, the next step was to analyze the data.

The author employed a qualitative analysis technique. Content analysis is a technique used for systematically classifying words, phrases, sentences, and other text units into a sequence of relevant categories, whether written, spoken, or visual (Kalof & Dan, 2008, p.105). As such, the categorization of words or phrases and the coding of any themes relevant to the research field are possible through content analysis (Saunders et al., 2016). These aspects justify the use of content analysis in this research because emergency planning requirements need to be explored.

The secondary data were textual and qualitative in nature and derived from published literature and documents, which were analyzed using content analysis. Similarly, the primary data collected from interviews were analyzed using content analysis. Data from the interviews were transcribed electronically into a Microsoft Word document. The context was then carefully examined to reveal the key themes. To protect the participants' privacy and anonymity, the interview participants were coded as "Expert"; for example, participants 1, 2, 3, 4..., and 13 were coded as Expert_01, Expert_02, Expert_03, Expert_04..., and Expert_13, respectively. A main strength of this study was that the participants were all from diverse backgrounds and worked in different Provinces of the KSA.

Results

The theme that emerged from the interviews relates to experts' perceptions of emergency planning requirements for managing disasters. Participants were asked the research question: What are Saudi Civil Defence experts' perceptions of the emergency planning requirements for managing disasters? The perspectives of the interviewees on this theme were presented and analyzed in the following section.

The delimitations of the participants of this study included: a) gender; b) organization; c) rank; d) years of experience; and e) qualifications. The targeted participants used in this study were high-ranking experts at the GDCD in the KSA. It was clear that all participants were males since there are currently no females in leadership positions at the GDCD in the KSA. Out of the 13 participants, 12 were major generals, and one was a brigadier. After collecting the data and analyzing the participants' responses regarding their years of experience in emergency planning and disaster management, it was apparent that they all have over 30 years of experience in this field. All participants mentioned their post-college education. This includes continuous training on emergency planning and disaster management, which the GDCD imposes. Six of the 13 participants had earned doctoral degrees from an accredited university, four had obtained master's degrees, and three had completed only bachelor's degrees. Each interviewee is identified and described in Table 1.

Table 1. Participant Demographics.

Question	Option	Number of Participants
Gender	Male	13
Organization	General Directorate of Civil Defense in the KSA (GDCD)	13
	Major General	12
Rank	Brigadier	1
	Over 30 years	13
Years of Experience	Bachelor's	3
	Master's	4
	Doctorate	6

The study's results focused on exploring the emergency planning requirements for managing disasters in the KSA from the perspectives of experts at the GDCD. The participants stated that the emergency planning requirements that need to be met to achieve effective disaster management are: administrative requirements such as regulations and legislation; technical requirements such as equipment, devices, and tools; human resources; identifying, analyzing, and evaluating risks; determining the tasks and responsibilities of the relevant agencies; qualified leadership and management; determining the chain of command at national and local levels; determining staffing and technical capabilities; coordination and cooperation among all stakeholders; recruiting experts in the field; knowledge gained from local and international experiences; an updated database; availability of sufficient financial resources; completed infrastructure; conducting studies and research; and better training and practice.

Firstly, Expert_1 divided them into three main requirements:

"Administrative requirements such as regulations and legislation, technical requirements (which includes equipment), and human resources."

In more detail, Expert_3 mentioned that they include,

"Qualified leadership and management; an updated database; recruiting the experts; knowledge gained from international experiences; determining goals; availability of sufficient financial resources; [and] completed infrastructure."

Others, such as Experts_2, 4, 6, 8, 9, 10, 11, and 12, stated that they include,

"Identifying, analyzing, and evaluating risks."

On the other hand, Expert_5 pointed out that they include,

"Determining the tasks and responsibilities of the relevant agencies, determining the chain of command at national and local levels, and determining the staffing and technical capabilities for responding to hazards."

Similarly, Experts_2 and 13 added that they would include,

"Training and practice."

Furthermore, Expert_7 explained that,

“Studies, research, and reports are an important part of the emergency planning requirements.”

In addition, Expert_13 stated that one of the most important aspects was,

“Coordination and cooperation among stakeholders.”

To conclude, a summary of the emergency planning requirements that must be met to manage disasters effectively is presented in Table 2.

Table 2. Emergency Planning Requirements for Managing Disasters.

No.	Emergency Planning Requirements for Managing Disasters
1	Administrative requirements, including regulations and legislation.
2	Technical requirements (which include equipment).
3	Human resources (staff, responders, stakeholders).
4	Identifying, analyzing, and evaluating risks.
5	Determining the tasks and responsibilities of the relevant agencies.
6	Qualified leadership and management.
7	Determining the chain of command at national and local levels.
8	Determining the human resources and technical capabilities.
9	Coordination and cooperation among stakeholders.
10	Recruiting the experts.
11	Knowledge gained from international experiences.
12	Updated databases.
13	Availability of sufficient financial resources.
14	Completed infrastructure.
15	Conducting studies and research
16	Training and practice.

Discussion

This qualitative study generated valuable data and presented insights into the experts' perceptions at the GDCD in the KSA on the study topic. The results of the study are discussed and interpreted in this section. Firstly, the results are evaluated in the context of the cultural theory of hazard and risk. Secondly, the results of this study are compared to those of previous studies.

Results in Light of the Theory

The study's guiding theory was the cultural theory of hazard and risk. Using this theory, an author may study hazard and risk perceptions and ascertain how each member of a shared community considers hazards and risks (Cope, 2014). This allows an author to presume that the same professional community members will have comparable hazard and risk perceptions if certain factors are met (King, 2012). The participants in this study have training and experience in emergency planning and disaster management. Considering their links to the broader KSA emergency management community, learning about their perspectives on hazards and risks might shed light on how to better plan for emergencies in the country.

According to the cultural theory of hazard and risk, it stands to reason that those working in emergency planning and management roles will have a common understanding of what "preparedness and planning" mean when managing a disaster. Thus, this study was guided by the following research question: What are Saudi civil Defence experts' perceptions of the emergency planning requirements for managing disasters? The results that emerged from the data analysis were consistent with previous study findings such as Momani and Fadil, 2010; Alharbi, 2013; Abosuliman et al., 2014; Youssef et al., 2016; Bin Ottai, 2017; Ledraa and Al-Ghamdi, 2020; and GDCD, 2022. Due to these considerations, using the cultural theory of hazard and risk in emergency planning is a relevant explanation.

It was proved that employing the cultural theory of hazard and risk in the field of emergency planning for managing disasters is extremely useful, especially for employees in emergency agencies such as Civil Defence. All of the Civil Defence experts interviewed had high experience and academic qualifications in emergency planning and disaster management; for example, it was apparent that they all have over 30 years of experience in this field. In addition, they had completed extensive training courses in emergency planning and disaster management. Six of the 13 participants had earned doctoral degrees from an accredited university, four had obtained master's degrees, and three had completed bachelor's degrees, which provided them with sufficient knowledge of appropriate ideas that apply to the topic.

The bottom line is that all Civil Defence experts interviewed were knowledgeable of the emergency planning requirements needed for managing disasters, such as the relationship between climate change and disasters; hydrological, meteorological, and climatological studies; identifying, analyzing, and evaluating risks; cooperation and coordination among stakeholders; employing modern technologies; the availability of technical equipment; the availability of well-trained and qualified responders, which needs to be constantly updated and developed; continuously monitored and evaluated emergency plans; education of the community; and increased projects for preventing risks. In addition, the majority of these requirements were available in the provinces where the participants work.

Comparison of Results with Previous Literature

Previous studies on emergency planning related to the KSA are scarce. This study was the first to explore emergency planning requirements for managing disasters in the KSA. All previous studies on emergency planning have either focused on international or regional levels or have specialized in the medicine, trade, information technology, industry, finance, or business sectors. However, research studies that validated the results of this study were found in a review of the literature. Consequently, this study found that the perceptions of research participants and the previous literature on emergency planning for managing disasters were consistent with one another. Therefore, these results should be considered to completely comprehend what may be required of the organizations in charge of planning for emergencies, especially disaster management.

The participants' responses highlighted a variety of emergency planning requirements for managing disasters. One of the key emergency planning requirements is the administrative requirements, which include laws,

regulations, and legislation. Rong and Jia (2008) revealed that when an emergency breaks out, quick and effective command assignment is an important means of minimizing the losses. Emergency leaders and planners critically depend on relevant policy documents, such as emergency plans, laws, legislation, and regulations, to achieve quick and effective command assignments. There are many kinds of emergencies, and their related policy documents are miscellaneous, so when several emergencies occur simultaneously, a singular particular method has to manage these related documents.

The participants also emphasized that technical requirements, including equipment and tools, are crucial for emergency planning. Reddick (2011) examined the impact of information technology on emergency preparedness and planning by analyzing a survey of U.S. state government departments of emergency management. The results showed that there had been a significant impact of information technology on emergency planning. Information technology has proven to be effective for all phases of emergency management. Numerous technologies are used in emergency planning, ranging from the internet, Geographic Information Systems (GIS), and wireless technologies to more advanced hazard analysis models.

A study conducted by Lumbroso and Vinet (2012) on tools to improve the production of emergency plans found that tools such as checklists, guidance, and specialized software appear to be rarely used to enhance emergency planning effectiveness. An investigation was undertaken with emergency managers in England and France. The objective was to establish why tools that can usefully contribute to improving emergency plans are often not being used. They concluded that many emergency managers are unaware of the tools available to assist them in formulating emergency plans. Lumbroso and Vinet recommended that there is a need for guidance on the tools and how they can be used to help to improve emergency planning.

The participants also revealed that human resources, including staff and responders, are critical requirements for emergency planning. Chan et al. (2019) support this finding and concluded that a holistic strategy combining technical aspects, such as sustainable infrastructure, and human factors, such as employees and responders working in an emergency agency, is key to effective emergency planning in cities.

Identifying, analyzing, and evaluating risks is another requirement the participants mentioned. Hossain and Meng (2020) used Birmingham, Alabama, USA, as the study area to assess potential damage risks due to hazard exposure of buildings and the population in urban areas. They found that by revealing the population's and buildings' risks and their geographic information, this risk assessment could help local governments and communities prepare better to take action against future hazards. Therefore, this method of integrating GIS and cartographic analysis in acceptable risk assessments can also be applied to other urban areas for hazard mitigation and risk assessment.

The participants also stated that determining the relevant agencies' and stakeholders' tasks and responsibilities is essential for emergency planning. Box et al. (2013) examined the perception of the roles and responsibilities of four key stakeholders in risk management in Australia: local councils, the insurance industry, the State Emergency Service, and residents. Key informant interviews were conducted in Brisbane and Emerald in Queensland, Dora Creek in New South Wales, and Benalla in Victoria. They found that understanding each stakeholder's roles and responsibilities varied considerably between research participants. In the KSA context, participants stated that there is an urgent need for all stakeholders to familiarise themselves with the critical tasks for emergency planning to understand each other's roles and responsibilities better.

Qualified leadership and defining the chain of command at local and national levels is also a requirement for emergency planning identified by the participants. Abosuliman et al. (2013) investigated disaster preparedness and management in the KSA. They found that in a rigid bureaucratic structure such as the KSA, decision-making is slow, and the chain of command is so long that it lacks cohesion and breaks down quickly when under pressure.

Thus, all of the emergency organizations that responded to previous disasters lacked coordination between them. Despite the valiant efforts of trained individuals in the emergency response teams, they could only assist within their assigned area of operations.

The participants also indicated that coordination and collaboration among stakeholders are significant emergency planning requirements. The literature supports this finding. For example, Ledraa and Al-Ghamdi (2020) concluded that coordination and collaboration among stakeholders can lead to quick decision-making, improves resource mobilization, and manages emergency processes. Another study by Abosuliman et al. (2014) highlighted the need to identify and coordinate organizational responsibilities among stakeholders.

The participants also mentioned that knowledge gained from local or international experiences is crucial. McEwen and Jones (2012) discussed building local risk knowledge into community resilience plans after a natural hazard in Gloucestershire in July 2007. The study emphasized scale issues about knowledge types, suggesting that local knowledge can be to an “expert” level in the large-scale mapping of risk processes. It reflected how local risk knowledge could be captured, shared, harnessed, used, and assimilated into governance structures for resilience planning. It concluded that the 2007 UK experience has helped generate new understandings of the value of local knowledge and has shown how this knowledge might be successfully used in risk management practice.

In connection to this, Acharya and Prakash (2019) argued that local knowledge should not be recognized purely for disseminating early warning information but also as a place for knowledge generation on hazard forecasting. Moreover, strengthening local knowledge systems on hazard forecasting could counterbalance the drawbacks of centralized hazard early warning systems. They found that the production and consumption of hazard forecasting knowledge need local and scientific communities to work together to reduce knowledge gaps. Likewise, Hartmann and Spit (2016) examined the European risk management plan. It presented a spatial turn and a scenario approach in risk management and led to differentiated hazard protection levels. They concluded that risk management could profit from past experiences and approaches in spatial planning.

The participants also stated how important it is to keep the database up to date. Williams and Archer (2002) discussed using historical hazard information in the English Midlands to improve risk assessment. The study concluded that historical hazard data provides a better basis for risk assessment and planning. Additionally, Barrientos et al. (2014) argued that the database is suitable for use in multidisciplinary hazard analysis techniques.

The participants also expressed that having adequate financial resources is critical for emergency planning. Török (2018) focused on a qualitative assessment of Romania’s social vulnerability to natural hazards. The study revealed that the adverse effects of natural hazards are often associated with communities with high social vulnerability. Thus, the analysis provided a more comprehensive picture of communities in desperate need of financial resources to have the ability to reduce the negative impacts of natural hazards and build a more sustainable community.

The participants also emphasized the need for completed infrastructure. Crespo et al. (2019) revealed that natural hazard protection is influenced by planning decisions such as housing development in hazard-prone locations. This result supports the use of guided planning strategies about future natural disasters, such as the role of natural and built infrastructure in reducing the consequences of natural hazards and the impact on human health.

Similarly, Gaitan et al. (2014) stated that urban areas must continuously observe the weather to reduce the effect of natural hazards. So, data describing climate change and environmental conditions at high spatiotemporal resolution is vital for responding quickly and avoiding loss. As a result, they suggested a secure, efficient, and inexpensive information and communication technology infrastructure that combines data from all relevant sources, sensors, social media, and user-contributed data into a single, cloud-based interface. The suggested

infrastructure would increase the effectiveness of emergency planning for managing disasters, hence ensuring the community's protection.

Finally, the participants also stressed the importance of training and practice for emergency planning. This result supports Rahman et al. (2016), who investigated the vulnerability of natural hazards in Riyadh in the KSA. The study found that training and practice are essential in planning natural hazard mitigation and adaptation strategies. It concluded that higher training and frequent simulation exercises on natural hazard management for city residents and government officials are needed to improve disaster and emergency preparedness.

Conclusions

This study aimed to explore emergency planning requirements, focusing on disaster management in the KSA, from the perspectives of experts at the GDCD. Precise results were derived from the data collected through the literature review and interviews, which were analyzed through the content analysis technique. Therefore, the study's aim has been achieved.

This study has contributed to the theory by reviewing the emergency planning requirements. Thus, the outcomes of this study contribute to knowledge by improving and developing a better understanding of emergency planning and its requirements in particular. Additionally, this research will be an added value to the theory of emergency planning for all emergency agencies and countries that deal with such issues. Although these findings focus on emergency planning for managing disasters, especially in the KSA, it contributes to a theory that may be applicable in an international context.

It also concluded that the emergency planning requirements in this study guide emergency agencies and local communities in the KSA on how and what they need to develop effective emergency plans for managing future disasters. However, emergency planning requirements should be developed carefully and consider each country's regulations and legislation. According to this understanding, emergency planning requirements developed in this study were best set to contribute to the practice of emergency planning for managing disasters in the KSA.

The author encourages conducting research exploring the relationships, interactions, and contributions in emergency planning between government emergency agencies and the local community that could also be investigated. It would be interesting to compare the perceptions of government emergency agencies and the local community regarding emergency planning. Additionally, conducting a similar study in another country would be an interesting topic. Examining the perceptions of other government emergency agencies is also a worthy topic. Lastly, this research adopted a qualitative methodology for developing the emergency planning requirements for managing disasters. Thus, conducting studies using other approaches, particularly quantitative or mixed methods, would be valuable.

Finally, based on the above conclusions, it is strongly recommended that all emergency planning requirements developed from this study should be implemented simultaneously and as an integrated whole.

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