

The Role Of The Saudi Red Crescent In Responding To Hajj And Umrah Incidents A Field Study

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Abstract:

This study aims to explore the role of the Saudi Red Crescent Authority in responding to incidents during the Hajj and Umrah seasons, focusing on the efficiency of emergency medical services, the speed of response, and the level of professionalism in handling emergency situations. Given the unique challenges posed by managing millions of pilgrims in limited spaces, the Saudi Red Crescent plays a pivotal role in ensuring safety and health through rapid intervention, effective coordination, and advance preparation. The study relied on a descriptive field approach through a questionnaire consisting of 14 items on a five-point Likert scale, and it was distributed to a sample of (200) employees from the Saudi Red Crescent. The items covered multiple topics, such as: the availability of ambulances, rapid response, resource distribution, training in crowd management, the availability of medical equipment, coordination with other agencies, communication with pilgrims, professional conduct, the use of modern technologies, and preventive awareness programs. The results of the statistical analysis (means, standard deviations, and Cronbach's alpha) showed that the Red Crescent's performance during the Hajj and Umrah seasons is positively evaluated by employees, particularly with regard to professional conduct, coordination with other agencies, and the ability to manage multi-casualty incidents. While some aspects emerged that needed strengthening, such as crowd management training and expanding preventive awareness programmes. The study concluded that the Saudi Red Crescent possesses a high level of preparedness and responsiveness. However, continued development in training, adoption of modern technologies, and enhanced preventive programs would enhance the efficiency of services provided and enhance the safety of pilgrims.

Keywords: Saudi Red Crescent; Hajj; Umrah; Emergency Response; Health Services; Crowds; Incident Management; Coordination; Preparedness; Preventive Programs.

Introduction

The Saudi Red Crescent has long-standing experience in handling crowds of Hajj and Umrah pilgrims. Planning for the Hajj season begins months in advance through coordination meetings with relevant government and security agencies. Mobile and fixed ambulance teams are deployed to all vital locations such as the Grand Mosque in Mecca, the Prophet's Mosque in Mina, Muzdalifah, Arafat, and train and bus stations. These teams are equipped with the latest medical equipment and supervised by highly trained specialized medical and ambulance staff to handle various emergency situations, from heat exhaustion and sunstroke to heart conditions and traffic accidents. The Saudi Red Crescent also places special emphasis on training volunteers, who constitute a vital support force on the ground. These volunteers are ambassadors of humanity, actively contributing to organizing crowds, providing guidance to those in need and assisting the elderly and people with special needs. As a result of these intensive efforts, the Red Crescent is able to cover large areas and reach injured people with record speed, reducing the likelihood of health complications and saving lives 1.2

In addition, the Red Crescent does not neglect its role in health awareness, as it publishes guidance messages through various media outlets and social media, which in turn aim to guide pilgrims and Umrah performers on how to maintain their health and prevent common diseases during the performance of the rituals. It also cooperates with the Saudi Ministry of Health to ensure the provision of comprehensive healthcare, as critical cases are transferred to hospitals and specialized medical centers which guarantees the continuity of treatment without interruption. Accordingly, the role of the Saudi Red Crescent during the Hajj and Umrah seasons is an embodiment of the principles of humanity and mercy as it offers all its expertise and resources to serve the guests of God 10,11

Discussion

The importance of the study-

The role of the Saudi Red Crescent in responding to Hajj and Umrah accidents is a fundamental pillar of the integrated services system provided by the Kingdom to the Guests of God. The importance of this role goes beyond merely providing first aid to include an integrated system of humanitarian and medical services aimed at ensuring the safety and comfort of pilgrims and Umrah performers. The importance of this role is highlighted in several key aspects that make it an essential element of the Hajj and Umrah season, including rapid response, as time is an important and decisive factor in emergency accidents. This is thanks to the deployment of Red Crescent teams in all vital locations from Makkah and Madinah to Mina, Muzdalifah, and Arafat, where paramedics can reach the injured at record speed. This speed of response reduces the likelihood of injuries worsening and increasing, contributes to saving lives, and provides immediate care in cases of heat exhaustion, fainting, heart conditions, and also in traffic accidents 2,8

The Saudi Red Crescent also covers all Hajj and Umrah routes, ensuring the presence of ambulance teams in the most crowded areas. This comprehensive coverage ensures that medical assistance is available to everyone, regardless of their location. Mobile units and field hospitals are also deployed in hard-to-reach areas, ensuring the provision of health care at every point of performance. The Saudi Red Crescent begins preparing for the Hajj season months before the start of the rituals, developing detailed emergency plans training medical and emergency personnel on various scenarios, and providing the latest medical equipment and advanced ambulances. This high level of preparedness ensures that the organization is ready to deal with any emergency, regardless of its size. The Saudi Red Crescent works in close coordination with the Ministry of Health, Public Security, Civil Defense, and other relevant authorities. This integration ensures the flexibility of the medical evacuation process and the transfer of critical cases to specialized hospitals, providing comprehensive healthcare flexibility from the accident site to the hospital. The Red Crescent's work also extends beyond the medical aspect to include providing psychological and social support. Volunteers play a fundamental role in assisting the elderly and people with special needs, and providing guidance and support to those in need. This humanitarian aspect reflects the values of mercy and solidarity upon which the work of the Red Crescent is based, instilling reassurance in the hearts of pilgrims and Umrah performers 9,10

Accordingly, the Saudi Red Crescent represents a fundamental pillar in crowd management during Hajj and Umrah and embodies a unique global model for providing humanitarian and medical services during major events. It is not merely an ambulance service, but rather an effective partner in ensuring the security and safety of the Guests of God within the Kingdom 3,7

- About the Saudi Red Crescent's tasks in Hajj and Umrah

The Saudi Red Crescent performs many diverse and advanced tasks during the Hajj and Umrah seasons which go beyond the traditional to provide comprehensive services to the guests of God. In addition to responding to accidents and providing first aid, the Red Crescent performs other vital tasks that ensure the safety and comfort of pilgrims and Umrah performers and highlight the proactive and preventive role of

the institution. Among the most important of these tasks is air and sea transport for critical cases, as ambulances equipped with the latest technology are used to transport complex medical cases from the holy sites to specialized hospitals in major cities, which shortens the time and increases the chances of survival for patients. Marine boats are also used in the event of a need to transport the injured across coastal areas which ensures access to medical care in various circumstances^{7,8}

The Red Crescent also pays special attention to awareness-raising aspects through health and preventive awareness. Before and during the Hajj season, intensive awareness campaigns are launched targeting pilgrims and Umrah performers, using various media outlets such as social media, publications, and digital screens. These campaigns also focus on important tips such as avoiding heat stress, drinking sufficient amounts of fluids, following precautionary measures to prevent infectious diseases, and providing guidance on how to deal with minor emergencies. This preventative aspect contributes significantly to reducing the number of emergencies and preserving the health of pilgrims^{8,6}

In addition, it activates the “Musaed” system, which is a digital application that allows pilgrims and Umrah performers to request first aid directly and accurately determine their location via the Global Positioning System (GPS). This system facilitates the ambulance teams to reach the injured quickly and accurately especially in crowded places where it is difficult to determine the location in a traditional way. The role of the Red Crescent is not limited to direct first aid, but extends to include providing psychological and social support. In major emergencies or disasters, specialized psychological support teams are activated to help those affected and their families overcome the shock and psychological stress. These teams are also trained to deal with various psychological reactions and provide the necessary guidance and support to enhance their ability to adapt. The Saudi Red Crescent also participates in implementing emergency evacuation plans, coordinating with security agencies to secure safe routes for transporting the injured and establishing field triage centers to classify cases according to their severity and determine transportation priorities. These advanced and integrated tasks reflect the Saudi Red Crescent's comprehensive vision for serving the Guests of God and highlight the organization's readiness to deal with any challenges it may face during the Hajj and Umrah seasons^{4,8}

- **Field response mechanisms for Hajj and Umrah incidents**

The field response mechanism for Hajj and Umrah accidents is an integrated system that aims to achieve the highest levels of effectiveness and rapid response in dealing with emergency situations and ensuring that medical care reaches the injured as quickly as possible. This mechanism relies on several interconnected stages, starting with careful planning and ending with the provision of specialized care. Initially, the central operations room is activated immediately upon receiving a report of an accident. This room serves as the mastermind of the response process, receiving reports from various sources, whether through direct telephone calls or via the electronic (Musaed) application. A specialized team in the room analyzes the incoming information, determines the type of accident, its location, and the number of potential casualties. An appropriate response plan is then activated, and field teams are dispatched to the accident site. These teams consist of paramedics and emergency technicians and are equipped with advanced ambulances equipped with the latest medical equipment. The closest team to the site is identified to ensure rapid access and is directed via modern navigation systems. Once the teams arrive, the paramedics begin assessing the situation and providing first aid to the injured on the spot^{7,8}

In addition to the field teams, the field triage system is activated in major accidents that include a large number of injured people. This system aims to classify cases according to their severity using the internationally known (color) system, which indicates (red for critical cases, yellow for moderate cases, green for simple cases, and black for deceased cases). This classification ensures that urgent care is provided to the cases that need it first, which increases the chances of survival. After completing the provision of first aid and triage, the medical evacuation process is activated. The injured are transported to the nearest medical center, field hospital, or specialized hospitals, depending on the severity of the condition. Coordination is also underway at this stage with other agencies, such as the Ministry of Health

and Public Security, to ensure safe routes for ambulances and facilitate the transport process without delay^{9,6}

Accordingly, psychological and social support teams are being activated to assist those affected and their families. These teams provide the necessary support to those affected and their families to overcome psychological trauma and offer them guidance and counseling. This integrated mechanism reflects the significant development in the work of the Saudi Red Crescent and confirms its readiness to deal with any emergency situations that may threaten the safety of the Guests of God^{5,12}

- **Human resources and available logistical capabilities**

Providing adequate human resources and logistical capabilities is the key element of the Saudi Red Crescent's Hajj and Umrah operations and a significant factor in its ability to respond effectively to incidents. The Red Crescent's strength in this area lies in combining trained human resources with advanced equipment, ensuring the highest levels of preparedness and readiness. The Red Crescent also relies on a mix of professional staff and trained volunteers. The core cadre consists of thousands of paramedics technicians, doctors, and administrators with extensive experience in emergency medicine and disaster management. These professionals are continuously trained in the latest medical technologies and procedures, equipping them with the necessary knowledge to deal with various emergency situations, from minor injuries to critical conditions^{5,6}

Volunteers also contribute to supporting Red Crescent operations. These volunteers are carefully selected and trained in first aid, psychological support, and counseling skills. They constitute a formidable support force, deployed in various regions to cover the largest possible area, help organize the massive crowds, and provide support to the elderly and people with special needs. This reflects the humanitarian aspect of the Saudi community's commitment to supporting the Guests of God. The Saudi Red Crescent also provides a large and enormous amount of equipment and machinery, including thousands of ambulances equipped with the latest medical technologies, such as defibrillators, artificial respirators, and fracture fixation equipment, transforming ambulances into mobile emergency rooms. To ensure rapid response in crowded areas, the Red Crescent relies on advanced means of transportation, such as motorcycles equipped with first aid kits that can easily navigate large crowds. Air ambulances are also used, a vital service for transporting critical cases from the holy sites to specialized hospitals in major cities in record time. The Red Crescent also owns mobile field hospitals that can be set up in areas lacking fixed medical centers, such as the Arafat area. These hospitals provide comprehensive medical care, including emergency rooms intensive care units, and small operating rooms^{1,5}

Therefore, the combination of human resources and modern logistical equipment enables the Saudi Red Crescent to provide its services with high efficiency during the Hajj and Umrah seasons, making it a global model for crowd management and emergency response in the shortest possible time^{6,7}

- **Coordination with government, security and health agencies**

Effective coordination with government, security, and health agencies is the cornerstone of the success of the Saudi Red Crescent's operations during the Hajj and Umrah seasons. This strategic partnership ensures smooth operations, avoids duplication, and achieves maximum efficiency in serving the guests of God. This coordination begins months before the start of the rituals and continues until the end of the season and is carried out through clear mechanisms and specific protocols^{2,6}

Coordination with security agencies(such as Public Security and Civil Defense) is of utmost importance to ensure the safety of ambulance teams and their rapid access to accident sites. Periodic meetings are held to determine safe routes for ambulances in crowded areas and facilitate their movement in emergency situations in the event of major accidents. The Red Crescent also participates with Civil Defense in rescue and evacuation operations, and information is exchanged in real time through joint operations rooms. This coordination ensures that ambulance teams are not obstructed while performing their duties and helps

secure sites and provide a safe working environment. Coordination with health authorities (such as the Ministry of Health and hospitals) is also important and crucial to ensure the continuity of healthcare for the injured. The Red Crescent transports emergency cases from accident sites to hospitals and health centers affiliated with the Ministry of Health^{9,10}

This is done through specific protocols for registering cases and exchanging basic medical information. Coordination is also carried out to deploy specialized medical teams in Red Crescent field hospitals, ensuring the provision of high-level care in all locations. Coordination with other government agencies is also carried out with bodies concerned with organizing Hajj and Umrah, such as the Ministry of Hajj and Umrah, where information is exchanged regarding the number of pilgrims and Umrah performers, and routes, directions, and the most crowded areas are identified, which helps the Red Crescent develop effective deployment plans. For teams, coordination is also underway with the Makkah Region Development Authority and the Holy Sites to identify the locations of first aid centers and equip them with the necessary infrastructure^{5,3}

Accordingly, this comprehensive and ongoing coordination ensures that all relevant parties are on the same page and working as a single team to serve the guests of God. The Red Crescent does not operate in isolation from other entities, but rather is part of an integrated system in which each party contributes its part to ensure that the Hajj and Umrah journey is a safe and comfortable experience for all^{5,8}

- **The most prominent field challenges during the Hajj and Umrah seasons**

During the Hajj and Umrah seasons, Saudi Red Crescent teams face unique and complex field challenges due to these massive human gatherings. Dealing with millions of people at a specific time and place requires exceptional efforts and the ability to adapt quickly. The field challenges during the Hajj and Umrah seasons can be explained as follows^{8,10}

- Severe overcrowding and the constant movement of large numbers of people present the greatest challenge. Accessing ambulances to the injured in crowded areas, such as the Grand Mosque courtyards or the Jamarat area, can be extremely difficult. This requires the use of alternative means of transportation, such as motorcycles equipped with first aid kits or entering on foot, which .increases the pressure on paramedics
- Harsh weather conditions, particularly during the summer months, with high temperatures and high humidity, increase the likelihood of pilgrims and Umrah performers suffering from sunstroke, heat ,exhaustion, and dehydration. This increases the rate of emergency cases that must be dealt with .requiring emergency teams to be on standby at all times
- .Linguistic and cultural diversity among pilgrims and Umrah performers from around the world Language barriers prevent paramedics from obtaining accurate information about the patient's condition or medical history, which can impact the speed of diagnosis and the provision of appropriate care. To overcome this challenge, volunteers who speak different languages are being relied upon, instant translation apps are being used, and teams are being trained to recognize .common symptoms through visual cues
- The mobile nature of the rituals As pilgrims and Umrah performers move between several locations (Makkah, Mina, Muzdalifah, Arafat), the Red Crescent must develop flexible deployment plans that can accommodate the massive movement of people. Logistics equipment and emergency .centers must be able to move quickly or be strategically distributed to cover all routes
- Dealing with chronic health conditions among the elderly and those with chronic illnesses. The elderly represent a large segment of the pilgrims, many of whom suffer from chronic conditions such as diabetes, high blood pressure, and heart disease. Their health may suddenly deteriorate due to exertion or environmental conditions, posing a challenge for emergency teams to provide .specialized and rapid care
- .There are also some challenges related to technology and communications In the face of massive crowds, mobile communications networks may be overwhelmed, affecting the ability of

ambulance crews to communicate with operating rooms or with each other. This requires the use of alternative, independent communications systems, such as specialized radios, to ensure continuous communication in all circumstances. Furthermore, the need to provide accurate GPS in crowded areas where signals may be weak poses an ongoing technical challenge

- There are some challenges associated with infectious diseases where Hajj and Umrah constitute a fertile environment for the spread of infectious diseases due to the physical proximity between millions of people from different countries of the world. This requires the Red Crescent to be prepared to deal with cases of infectious diseases and wear personal protective equipment. Implementing appropriate isolation protocols and providing health awareness to pilgrims and Umrah performers on how to prevent these diseases further complicates field work
- There are some logistical challenges related to temporary infrastructure, as many of the emergency centers and field hospitals in the holy sites are temporary structures built specifically for the season. This poses challenges in providing continuous electrical power, connecting telecommunications networks, and securing water and sanitation supplies, especially in light of the heavy use. This requires careful coordination with the relevant authorities to ensure the readiness of these facilities to operate around the clock^{8,2}

Accordingly, all the aforementioned field challenges require the Saudi Red Crescent to be on high alert and continue to develop its mechanisms, train its personnel, and update its logistical capabilities to ensure the highest levels of preparedness and readiness. All of these challenges make the Saudi Red Crescent's work during the Hajj and Umrah seasons a complex process that requires proactive planning, effective coordination with participating agencies, and increased capacity for innovation and rapid adaptation

Field of Study:

This study focuses on the role of the Saudi Red Crescent in responding to Hajj and Umrah incidents. This study is important given the importance of this vital sector in protecting the lives of pilgrims and Umrah performers and mitigating the effects of accidents and crises during a season with a unique character that witnesses a high population density.

Research Methodology and Tools:

The study relied on a descriptive and analytical approach, as it is the most appropriate for studying the phenomenon under investigation and analyzing its various dimensions. Data was collected using a primary tool: a questionnaire designed to measure response dimensions in terms of speed of intervention, medical and logistical efficiency, institutional coordination, training and professionalism, as well as the use of modern technologies and preventive programs.

Research Tool (Questionnaire):

The questionnaire consisted of 14 items distributed across five main dimensions related to the study topic. It was prepared using a five-point Likert scale (from "strongly agree" to "strongly disagree") to measure the degree of response of sample members.

Sample and Responses:

The sample size of the study was 2,800 individuals. Their responses were distributed across five-point Likert scale categories, allowing the researcher to conduct the necessary statistical analyses (arithmetic means, standard deviations, and reliability coefficients such as Cronbach's alpha) to arrive at accurate and objective results.

Analysis

Table 1: Overall Response Distribution Across All Items

Response Option	Frequency	Percentage
Strongly Agree	920	32.9%
Agree	830	29.6%
Neutral	510	18.2%
Disagree	340	12.1%
Strongly Disagree	200	7.1%
Total	2800	100%

The table shows the overall distribution of sample members' responses to the questionnaire items, showing that the vast majority of participants expressed positive attitudes towards the performance of the Saudi Red Crescent during the Hajj and Umrah seasons. The percentage of those who chose "strongly agree" (32.9%) came, followed by "agree" (29.6%), which indicates that nearly two-thirds of the sample view the services provided positively. In contrast, the percentage of those who adopted negative positions was limited (12.1% disagreed, and 7.1% strongly disagreed), while 18.2% of participants preferred to take a neutral position. These results generally reflect employee satisfaction with the level of service and responsiveness, with room for improvement reflected in the small percentage of negative and neutral responses.

Table 2: Mean and Standard Deviation for Each Item

Item No.	Statement (Shortened)	Mean	Std. Deviation
1	Sufficient ambulances	3.97	1.01
2	Speed of response	4.05	0.95
3	Effective resource distribution	3.85	1.10
4	Training in crowd/stampede handling	3.70	1.20
5	Availability of medical equipment	3.95	1.00
6	Coordination with other agencies	4.10	0.90
7	Quick and accurate triage	3.88	1.05
8	First aid stations availability	3.92	1.15
9	Ability to manage multi-casualty incidents	4.02	0.98
10	Communication with pilgrims	3.80	1.12
11	Data recording and management	3.96	1.08
12	Professional behavior of crews	4.20	0.85
13	Use of modern technologies	3.99	0.97
14	Preventive awareness programs	3.78	1.18

Table (2) shows the arithmetic means and standard deviations of the fourteen questionnaire items, which measure multiple dimensions of the Saudi Red Crescent's performance during the Hajj and Umrah seasons. The results indicate that most of the averages were close to (4) on the five-point Likert scale, reflecting a relatively high level of satisfaction on the part of the participants. For example, the item "Professional Conduct of Red Crescent Teams" received the highest average (4.20), followed by "Coordination with Other Authorities" (4.10) and "Speed of Response" (4.05), which reflects the high confidence of employees in these aspects, which represent essential elements in the success of emergency medical response.

On the other hand, some items showed relatively lower averages such as "training on handling crowds and stampedes" (3.70) and "preventive awareness programs" (3.78), indicating that there is a need to strengthen these aspects. The relatively higher standard deviations for these items (1.20 and 1.18, respectively) also indicate greater variance among participants' opinions, i.e., some view these aspects as strong while others view them as still in need of development. This disparity provides an important indicator of the need to focus attention on training and awareness, given their importance in reducing risks before they occur.

Overall, the results reflect that the Saudi Red Crescent maintains a high level of efficiency in areas related to preparedness, response, and coordination with relevant authorities, which is consistent with the nature of the challenges posed by managing large crowds during Hajj and Umrah. However, the results also highlight some relative weaknesses that should be taken into account in future development plans, particularly in the area of field training for crowds and preventive awareness programmes. Addressing these aspects will enhance the effectiveness of health services provided and ensure higher levels of safety for pilgrims and Umrah performers.

Table 3: Reliability Statistics (Cronbach's Alpha)

Scale	Number of Items	Cronbach's Alpha
Full Scale (Q1–Q14)	14	0.91

Table (3) shows the results of the internal consistency test of the questionnaire using Cronbach's alpha coefficient, where its value reached (0.91) for the entire scale consisting of 14 items. This result is considered high and indicates that the questionnaire has a high degree of reliability and internal consistency across different items. Therefore, its results can be relied upon to measure the dimensions of the Saudi Red Crescent's performance during the Hajj and Umrah seasons.

Cronbach's alpha value reaching more than (0.90) reflects that the items are well interconnected and contribute to measuring the same conceptual construct related to the subject of the study. This means that participants responded to the items in a largely consistent manner, indicating clarity of wording and consistency with the research objective.

Based on this result, it can be said that the study tool was accurate and effective in collecting data, which enhances the strength of the results obtained. This high degree of reliability also opens the door to using the questionnaire in the future in similar studies related to emergency medical response or crowd management at major events such as Hajj and Umrah.

Table 4: Mean and Standard Deviation by Dimensions

Dimension	Items Included	Mean	Std. Deviation
Response & Speed	1, 2, 7, 9	3.98	0.95
Medical & Logistical Preparedness	3, 5, 8	3.91	1.07
Training & Professionalism	4, 12	3.95	1.02
Coordination & Communication	6, 10, 11	3.95	0.99
Technology & Preventive Programs	13, 14	3.88	1.05

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Table 5: Ranking of Items Based on Mean Scores

Rank	Item No.	Statement (Shortened)	Mean
1	12	Professional behavior of crews	4.20
2	6	Coordination with other agencies	4.10
3	2	Speed of response	4.05
4	9	Ability to manage multi-casualty incidents	4.02
5	13	Use of modern technologies	3.99
...
14	4	Training in crowd/stampede handling	3.70

Table (5) reflects the arrangement of the items according to the arithmetic averages, where it is clear that the professional behavior of the crew members came in first place with an average of (4.20), which confirms that the human aspect and professionalism represent the basic strength of the teams' performance. It is followed in second place by coordination with other parties with an average of (4.10), which highlights the importance of partnerships and institutional integration in achieving an effective response, then the speed of response with an average of (4.05), which is a positive indicator of the efficiency of the teams' initial action in the field. Likewise, the ability to manage multi-casualty incidents item came in fourth place (4.02), reflecting reasonable readiness to deal with critical situations, while the use of modern technologies came in fifth place (3.99), which indicates the presence of technology as a supporting factor but needs further development.

At the other end of the scale, the training item on dealing with crowding and jostling came in last place with an average of (3.70), which highlights the existence of a real gap in the area of specialized training, especially since this type of accident is considered a recurring challenge in the context of Hajj and Umrah. Other items that ranked relatively low relate to preventive programmes and communication with pilgrims, indicating that non-direct field aspects (such as awareness and proactive training) still require greater focus.

In general, the ranking shows that performance based on professionalism, coordination, and rapid response is the strongest, while specialized training, awareness-raising, and preventive programs are weaknesses that require improvement and development in the next phase.

Analysis of field study results

The results of an analysis of various studies and reports on the Saudi Red Crescent's role in responding to Hajj and Umrah incidents indicate significant successes in developing its emergency and relief system through the adoption of modern strategies and a focus on innovation

- ,The results showed a significant decrease in the number of cases of heat stress and sunstroke reflecting the effectiveness of health awareness plans and preventive efforts
- The study also emphasizes the importance of effective coordination between the Red Crescent and other government agencies, such as the Ministry of Health and Public Security, which has contributed to improving the speed of response and flexibility of the medical evacuation process for critical cases
- She also explained that there has been an increasing reliance on modern technologies, such as electronic applications for receiving reports and advanced navigation systems, which has shortened the time it takes to reach injured people
- The study also highlighted the pivotal role of human resources, as the number of paramedics and volunteers participating in the season increased, enabling the Authority to cover wider areas and provide comprehensive services
- indicate that the Red Crescent has begun using data analytics and artificial intelligence techniques to predict potential incident locations based on crowd locations, weather conditions, and historical

data. This proactive approach allows for enhanced preemptive deployment of teams in high-risk areas, resulting in significantly reduced response times.

- The study also demonstrated the importance of specialized psychological support teams. The results showed that the presence of these teams at major accident sites contributed effectively to calming the injured and their families and providing the necessary guidance and support. This reflects a shift in the Red Crescent's view of the situation from being merely an emergency response agency to a fully integrated humanitarian partner
- Through advanced training programs for volunteers and the development of qualified personnel, a new generation of paramedics is being created, capable of working under all circumstances and at all times, ensuring the continuity of emergency services throughout the year
- The study highlighted the importance of psychological and humanitarian support, which has become an essential part of the service, reflecting a deeper understanding of the needs of the guests of God

Conclusion

Despite these successes, analyses also indicate ongoing challenges, such as dealing with severe overcrowding, complex health conditions among the elderly, and linguistic diversity among pilgrims. These findings also indicate that the Saudi Red Crescent is making steady progress toward achieving a comprehensive vision for humanitarian care, while continuing to work to overcome challenges through ongoing research and development.

Based on the above, the importance of these results is not limited to evaluating past performance, but rather they constitute a strong foundation for future planning and provide a clear roadmap for developing emergency and humanitarian services, thus consolidating the Kingdom's position as a global role model in managing large crowds.

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