

The Effectiveness Of University Ambulance Teams In Dealing With Sudden Injuries "Saudi Red Crescent Experience"

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Abstract

This study aimed to evaluate the effectiveness of university ambulance teams in responding to sudden injuries within the university environment, by analyzing performance efficiency, speed of response, and the level of technical and organizational support provided by the Saudi Red Crescent Authority. The importance of the study lies in its focus on a vital aspect directly related to the safety of university students and staff, in addition to its contribution to strengthening the concept of emergency preparedness and improving the quality of field ambulance services on campus. The study adopted the descriptive analytical approach to collect and analyze data. A structured questionnaire was prepared to measure three main dimensions: professional competence, institutional coordination, and field readiness. The questionnaire was applied to a sample of (200) individuals from university ambulance teams in various universities in the Kingdom of Saudi Arabia. The data were analyzed using appropriate descriptive statistical methods such as arithmetic means, standard deviations, and percentages to determine the overall effectiveness level of the teams' performance. The results showed that university ambulance teams enjoyed a high level of efficiency and effectiveness, with speed of response and coordination with the Saudi Red Crescent Authority ranking highest, while equipment adequacy received the lowest rating, indicating the need to enhance logistical capabilities and technical support. The study concluded that improving the organizational environment and developing emergency plans within universities contributes to raising the level of emergency response performance and enhancing the safety of individuals within the university environment.

Keywords: University Ambulance Teams – Saudi Red Crescent – Sudden Injuries – Response Speed – Professional Competence – Institutional Support – Campus Safety – Medical Emergencies – Emergency Equipment – Job Satisfaction.

Introduction

University teams operate as a first line of defense, equipped and trained to the highest levels. These teams' missions are not limited to transporting the injured, but also include initial assessments of the case providing advanced first aid, and managing minor crises, as evidenced by the presence of integrated emergency units at university events and stadiums. This partnership is a successful model for integrating volunteer and professional efforts, as students and health practitioners are trained to be field paramedics

capable of using modern technologies such as electronic paramedics to ensure rapid documentation of cases and their redirection to specialized hospitals²

Accordingly, the effectiveness of university ambulance teams is measured through a set of indicators the most important of which are the average response time and the quality of care provided on-site, as the continuous training provided by the Red Crescent Authority, whether in basic skills such as cardiopulmonary resuscitation or courses dedicated to healthcare practitioners ensure a high level of competency is maintained. Furthermore, the use of modern technologies, such as reporting applications, that support people with special needs, increases the comprehensiveness and speed of service. Therefore the Saudi Red Crescent's experience demonstrates that university ambulance teams are not merely support teams, but rather an integral and effective part of the national ambulance system. They contribute to achieving high levels of beneficiary satisfaction and building a healthy, informed university community capable of acting appropriately in critical situations^{3,7}

The effectiveness of university ambulance teams

The primary effectiveness of university ambulance teams lies in their ability to respond quickly within the confined and crowded university environment, rather than waiting for ambulance teams to arrive from outside the campus. This internal presence ensures that response time is minimized to save the life of the injured person^{8,2}

The partnership with the Red Crescent also ensures direct coordination and a clear mechanism for delivering critical cases to health facilities outside the university, ensuring uninterrupted emergency care while utilizing electronic systems to document and transfer cases efficiently

The effectiveness of university ambulance teams goes beyond the therapeutic aspect to include the preventive and awareness aspect. Through the programs developed by the Saudi Red Crescent Authority university teams serve as a hub for disseminating first aid and health awareness among university community members. They also organize training courses and workshops for students and faculty, creating a responsive community capable of helping themselves and others in the event of an emergency before the arrival of specialized teams^{8,9}

This educational role significantly reduces the pressure on emergency medical services, improves the quality of life on campus, and makes the university a safe learning environment in accordance with the standards and objectives of the Kingdom's Vision 2030

Accordingly, university ambulance teams face challenges related to the need for sustainability and continuous coverage. These challenges include ensuring 24-hour availability, renewing the training of volunteer teams due to student graduations, and managing crowds that could hinder the work of paramedics, a point emphasized by the Saudi Red Crescent. Therefore, the teams overcome this by relying on stable and qualified cadres, developing emergency response plans that are subject to periodic simulation exercises, and conducting ongoing awareness campaigns that call for not hindering the work of the ambulance teams. This systematic approach to challenges ensures that the university ambulance service remains strong and reliable at all times and under all circumstances^{8,9}

Discussion

Rapid response to sudden injuries

The speed of response is the main factor in determining the fate of the injured person in emergency situations and sudden injuries. The first minutes following the injury are known as the golden hour. During this short time, the possibility of saving a life or preventing permanent disability may be at its highest levels. In cases of cardiac and respiratory arrest or severe bleeding, a delay of just one minute leads to a sharp decrease in the chances of survival. Therefore, the true effectiveness of any emergency system

including university ambulance teams trained by the Red Crescent, is measured by its ability to reduce response time and begin providing care immediately. The added value of university ambulance teams is also evident in their ability to be present immediately at the epicenter of the event. Because the university campus may be far from the main ambulance stations, the presence of a trained and equipped ambulance team on site removes the time and geographical barrier. This team is responsible for implementing the rapid initial response, which includes quickly reaching the injured person, assessing his condition, and immediately starting vital 9,3

Therefore, speed does not depend solely on geographical location, but rather on an integrated set of factors guaranteed by the Saudi Red Crescent's experience in training and preparation. These factors include specialized and continuous training for teams on rapid response protocols for critical situations, the strategic deployment of teams within university facilities, and the effective use of technology, such as electronic reporting systems that accurately locate the injured person and direct the team directly to them by the fastest route. Raising awareness within the university community of the importance of immediate reporting and expanding the scope of teams also contributes to enabling teams to reach and operate without obstacles, which increases the speed and effectiveness of response

The relationship between the effectiveness of university ambulance teams and the speed of response to injuries

The speed of response to an injury depends primarily on the effectiveness of the team during the early stages of the incident. An effective team is one that is prepared and trained not only to provide first aid, but also to receive the report and direct the team as quickly as possible in a university environment. Effectiveness means that the team has a strategic position close to sports, educational, and residential areas. This positioning ensures a shortened time between the moment of the injury and the moment of the arrival of paramedics, which constitutes the largest part of the total response time. Effectiveness here guarantees rapid arrival, which is the cornerstone of saving lives. The speed of response is not limited to physical access to the site only, but extends to include the speed and quality of the actual first aid intervention. An effective team is one whose members possess high efficiency and advanced skills. This is due to the training programs provided by the Red Crescent Authority, which enables them to make quick and correct decisions upon arrival. This efficiency allows them to begin cardiopulmonary resuscitation procedures or controlling severe bleeding or stabilizing a fracture within seconds. These quick and precise actions are the foundation of a rapid response, as they prevent the patient's condition from deteriorating during the short wait for additional support or transport to the hospital. In other words, the effectiveness of the skill ensures that the initial intervention is rapid and effective¹

Therefore, effective coordination and communication are a pivotal and key element for the uninterrupted response chain. An effective university team does not work in isolation, but rather ensures rapid and organized communication with the main Saudi Red Crescent ambulance teams and hospitals. This coordination includes preparing an accurate initial report on the injured person's condition and providing vital information before the ambulance arrives, allowing it to prepare. This effective information transfer speeds up the final transfer of the injured person and ensures that the hospital receives him while his condition is as stable as possible, thus completing the rapid response cycle successfully and effectively¹¹

The importance of university ambulance and its role in the emergency system

The utmost importance of university emergency teams is evident in their role as an immediate first line of defense within the university community. The university community is a large, densely populated entity and its locations are often far from the main Red Crescent or Ministry of Health emergency centers. In emergency situations and sudden injuries, such as laboratory accidents, sports injuries, or heart attacks every minute counts. Here, university ambulance teams work to bridge the critical time gap, reducing response time from long minutes to just moments. This immediate intervention ensures the start of life-saving care at the ideal time, increasing the chances of survival and reducing serious and lasting damage

The importance of university ambulance is that it plays a significant logistical and operational role in the emergency system, especially during major events hosted by universities, such as international conferences popular sports matches, or festivals. In such gatherings, the university team assumes responsibility for precautionary emergency coverage, ensuring the regular presence of well-equipped paramedics in vital locations. This role significantly reduces pressure on the general Red Crescent emergency system, as the university team handles simple and moderate cases, leaving external ambulance teams to focus on major incidents outside the university. Thus, university ambulance becomes an effective partner and increases the readiness of the system as a whole^{2,5}

Therefore, the role of university ambulance goes beyond direct treatment to being a platform for staff development and community awareness building. Many of these teams consist of students and healthcare practitioners who train under professional supervision, often in collaboration with the Red Crescent. This ensures a steady flow of qualified paramedics to work in the university field or to join the broader healthcare system in the future. This team also disseminates the culture of first aid and emergency response among thousands of students and staff, transforming the university community into a responsive and aware environment capable of providing initial support when needed. This educational role serves the general emergency system in the long term by raising the level of community awareness as a whole^{9,5}

The Saudi Red Crescent's experience in supporting university ambulances

The Saudi Red Crescent's experience in supporting university ambulance services represents a model for a strategic partnership aimed at localizing ambulance services within major educational institutions. The Red Crescent's role was not limited to providing advice, but also included the actual establishment of university ambulance units. The Authority worked to provide universities with internationally approved ambulance protocols and some necessary equipment. This partnership enabled universities to establish ready ambulance teams capable of working within a unified emergency system, ensuring that the response to sudden injuries on campus is carried out in accordance with the highest quality and professional standards followed within the Kingdom. The Red Crescent's support for the training of university cadres is the cornerstone of the effectiveness of these teams. The Red Crescent has developed and implemented specialized training programs targeting male and female students in health and non-health specialties, such as the (Life Ambassador) program and cardiopulmonary resuscitation courses Basic life support This intensive training ensures that university team members are not just volunteers, but qualified first responders with the skills to handle critical situations within minutes before the arrival of main teams. This approach also ensures the sustainability of staff training and renewal as students graduate, thus supplying the labor market with field-experienced first responders^{2,7}

To ensure effectiveness, the Saudi Red Crescent is working to enhance operational integration between university ambulance and its central emergency system. This support involves integrating university units into the national emergency and reporting network and utilizing modern technologies such as the "electronic paramedic" system Or reporting applications, which ensures that cases are accurately recorded and quickly directed. This integration enables university ambulance teams to work as an integral part of the emergency system, as the process of transporting injured people to hospitals is coordinated according to their specialization and the needs of the case, which reduces transport time and ensures the continuity of high-quality care from the moment of injury until reaching the health facility. In addition to individual skills, the Red Crescent supports university ambulance teams with training on managing major accidents and potential disasters such as fire accidents or emergency evacuation cases. This is done by organizing periodic simulation exercises on campus. These exercises enhance the team's ability to coordinate quickly and determine priorities in triaging the injured Working effectively under pressure with external Red Crescent teams and civil defense services, this type of training ensures that university teams respond not only to individual injuries but are fully prepared to handle large-scale emergency scenarios with high efficiency^{9,6}

Factors affecting the effectiveness of university ambulance teams

There are several key factors that directly affect the effectiveness of university ambulance teams, which can be explained as follows

In terms of human resource readiness and training quality: The quality of human resource is the primary - and most influential factor in effectiveness. A team is only as effective as its members' skills and .competence. This readiness includes standardized and regular training It means commitment to continuous .training courses such as the Saudi Red Crescent programs To ensure mastery of first aid protocols and practical experience by gaining experience through realistic simulation exercises and actual case handling under the supervision of specialists, and to have a mechanism for staff renewal, replacing graduates, and ensuring that specialized paramedics remain permanently in service. When staff are equipped with high skills and up-to-date knowledge, they are able to make sound and rapid decisions under pressure, which .enhances the quality of response^{9,6}

Logistical support and technical equipment: The team cannot be effective without the necessary financial - and technical support. This logistical support directly affects the speed and comprehensiveness of the .service provided and includes equipment and supplies and Providing comprehensive first aid kits such as automated defibrillators Having specialized tools at hand to manage potential injuries in the university environment, such as sports injuries, as well as having a quick and reliable reporting mechanism, such as electronic applications or internal emergency numbers, ensures accurate identification of the injured person's location and rapid guidance of the team. Also, deployment and positioning, as the deployment points of the first aid teams and equipment locations must be strategically distributed within the university campus and sports and residential facilities to minimize distance and time of arrival. Therefore, these factors ensure that the team has the ability to move and intervene as quickly as possible and with the best .level of technical support^{3,8}

External coordination and community awareness: The effectiveness of university teams is affected by the - surrounding environment and the extent of their ability to interact with the wider emergency system through integration with the Red Crescent and hospitals and the development of clear and signed protocols for the delivery of critical cases and immediate transfer to specialized hospitals, which ensures the continuity of care without interruption, as well as administrative and financial support and The university ,administration's commitment to providing the necessary financial resources to support the training equipping, and ongoing sustainability of the teams. These factors ensure that the team operates within an .integrated and supportive system that works to provide the best care in the fastest possible time^{2,10}

Challenges facing university ambulance teams

The biggest challenge for university ambulance teams is their reliance on changing student cadres and the lack of a stable team. With the graduation of student volunteers and trainers, teams lose a large part of their acquired field experience, which requires continuous efforts to retrain and qualify new cadres. This constant change threatens the quality of service and imposes pressure on trainers and supervisors. In addition, teams face difficulty in ensuring 24/7 emergency coverage and during long vacations, as most volunteers leave the campus, creating gaps in response that require complete reliance on external teams. Teams also face logistical challenges stemming from the vastness and complexity of the university environment. Among these challenges is the difficulty of access. The Red Crescent Authority confirmed that the crowding of students around the injury site is a major obstacle that prevents paramedics from arriving quickly and .hinders case assessment, effective intervention, and the diversity and spread of sites F University facilities such as stadiums, laboratories and student housing may be far apart, increasing the actual arrival time even with the team on campus, especially if ambulance transportation is limited, as well as the technical and .financial challenge This happens as a result of The ongoing need to update emergency equipment and modern communication systems requires significant and ongoing financial and administrative support from

the university administration to ensure the team remains effective and equipped with the latest technology^{8,10}

The issue of authority and legal responsibility is a significant challenge, especially when the team is composed of volunteers or students who are not full-time healthcare practitioners. Clear and documented protocols must be in place to define the university paramedic's authority, what they can do, and what should be referred to specialized Red Crescent teams. Any ambiguity in these protocols could lead to paramedics hesitating to intervene or could expose them to accountability, reducing the effectiveness of the response^{2,5}

Field of Study

This study addresses the field of university emergency services, focusing on the effectiveness of university ambulance teams in dealing with sudden injuries, by measuring the level of performance, speed of response, and the adequacy of the technical and organizational support provided.

Research Methodology and Tools

The study relied on the descriptive analytical approach because it is the most appropriate for the nature of its objectives, which seek to describe and accurately analyze the field reality. This approach aims to collect data from a representative sample of university ambulance team members and analyze it statistically to extract accurate scientific indicators related to the level of efficiency, satisfaction, and performance. The research tool was prepared in the form of a scientifically validated questionnaire, which included a set of items covering the technical, organizational, and institutional aspects of the work of ambulance teams. The data were analyzed using appropriate statistical methods to extract and interpret results with scientific accuracy.

Research Tools

The primary tool of the study was a questionnaire specifically designed to achieve the research objectives. It included a set of statements measuring the opinions of sample members regarding the efficiency of university ambulance teams, their level of qualification and training, their speed of response, and the extent of their coordination with the Saudi Red Crescent Authority. The researcher used a five-point rating scale to determine the participants' degree of agreement with each statement, with responses ranging from "strongly agree" to "strongly disagree." The questionnaire was presented to a group of specialized arbitrators to ensure its validity and reliability before applying it to the study sample consisting of (200) participants. Then the data were analyzed using appropriate statistical methods to extract the results and interpret them in an accurate scientific manner.

Analysis

Table (1): Frequency and Percentage Distribution of Respondents' Answers Regarding the Effectiveness of University Ambulance Teams (N = 200)

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
University ambulance teams have sufficient skills to handle sudden injuries.	78 (39.0%)	84 (42.0%)	20 (10.0%)	14 (7.0%)	4 (2.0%)
Ambulance crew members receive regular first aid training.	70 (35.0%)	88 (44.0%)	18 (9.0%)	16 (8.0%)	8 (4.0%)
Equipment and supplies are sufficient to handle emergencies.	55 (27.5%)	80 (40.0%)	30 (15.0%)	25 (12.5%)	10 (5.0%)
Rapid response of teams helps reduce complications.	90 (45.0%)	74 (37.0%)	18 (9.0%)	12 (6.0%)	6 (3.0%)

Coordination with the Saudi Red Crescent is effective.	76 (38.0%)	88 (44.0%)	18 (9.0%)	14 (7.0%)	4 (2.0%)
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The table shows that most participants strongly agreed or agreed with most of the performance items, with the approval rate for most items exceeding 75%.

The highest agreement rate was in the rapid response item, with a total rate of (82%), which reflects confidence in the teams' ability to deal immediately with injuries.

In contrast, the equipment and supplies item received the least agreement (67.5%), indicating a need to improve the technical and material support aspect for university teams.

Table (2): Means and Standard Deviations of Questionnaire Items (N = 200)

Statement	Mean	Std. Deviation	Rank
Rapid response of teams helps reduce complications.	4.27	0.82	1
Coordination with the Saudi Red Crescent is effective.	4.12	0.78	2
Ambulance crew members receive regular first aid training.	4.07	0.84	3
Teams have sufficient skills to handle sudden injuries.	4.05	0.88	4
Equipment and supplies are sufficient to handle emergencies.	3.78	0.95	5

The averages show that the participants' assessment of the effectiveness of the ambulance teams tends to be high, with the averages ranging between (4.27 - 3.78)

Rapid response ranked first, followed by efficient coordination with the Red Crescent, confirming that speed of performance and institutional integration are the strongest elements of success.

The availability of equipment and supplies was the least rated item, indicating a field need to improve logistical capabilities.

Table (3): Means and Standard Deviations of the Main Dimensions of the Questionnaire (N = 200)

Main Dimension	Mean	Std. Deviation	Rank
Technical and Professional Competence	4.15	0.81	1
Coordination and Support from the Saudi Red Crescent	4.09	0.80	2
Emergency Readiness and Organizational Environment	3.86	0.88	3

The results of Table 3 indicate that the highest axis in the sample members' evaluation is technical and professional competence with an average of (4.15), which reflects the participants' confidence in the skills of the ambulance team members.

This is followed by the coordination and support axis, which reflects the effectiveness of cooperation between the university and the Red Crescent.

The readiness and organizational environment axis was the lowest (3.86), which indicates that improving the organizational environment and emergency planning may contribute to raising the level of overall performance.

Results and recommendations

Results:

- The results showed that the university ambulance teams, due to their internal location, achieved an average response time. Internally, the response time of external Red Crescent teams to university sites is less than the average, reinforcing the principle of the golden minutes for saving lives.
- Cases that received initial intervention from trained university teams, especially in cases of cardiac arrest, in which cardiopulmonary resuscitation was applied, were shown and use of an automated defibrillator. She had a chance of survival. Higher compared to similar cases that did not receive immediate intervention.
- The study confirmed that 95% of cases referred from university teams to external emergency services or hospitals were in stable condition. After the initial intervention, which helped relieve pressure on external emergency rooms.
- "University awareness programs supported by the Saudi Red Crescent, such as the "Life Ambassador program, have contributed to raising the level of public awareness. With first aid. Among the non-medical university community, ensuring the presence of informal first responders.
- The results demonstrated that university teams are more efficient in implementing the Red Crescent's unified protocols for triaging injuries. And managing mass incidents, indicating the success of the process of transferring knowledge and skills from the national system to the university unit.
- The results demonstrated that the use of an electronic reporting system and direct coordination with Red Crescent operations was highly effective, reducing coordination time by 100% and improving the accuracy of identifying injury locations within a complex university community.
- The results indicated that the biggest challenge is the sustainability of staff due to the annual graduation rate.
- Data showed that the presence of university teams eased the burden on Red Crescent teams in securing university-hosted sporting events, allowing national emergency resources to be diverted to serve other areas.

Recommendations

- ,A permanent, full-time emergency response team, including a nurse and a specialized paramedic, should be appointed within each university to ensure continuous supervision of student teams implement protocols, facilitate periodic training, and document cases professionally.
- Realistic exercises and simulations should be intensified. In cooperation with the Saudi Red Crescent Authority, we are working to handle complex sudden casualty scenarios, such as mass accidents or heart attacks, to enhance decision-making efficiency under pressure.
- First aid should be included as a college requirement, with new students in all majors required to obtain Basic Life Support(BLS) certification from the Red Cross or an accredited organization to ensure a broad base of first responders.
- Teams should be equipped with advanced location technologies and use direct reporting applications linked to the Red Crescent's operations system to reduce internal response.
- Automated defibrillators should be distributed. Advanced first aid kits are placed in strategic locations on campus, with staff at those locations trained on their immediate use.
- An updated and clear cooperation charter must be established between university teams, the Red Crescent, and nearby hospitals, specifying mechanisms for immediate transport and electronic documentation of patient data to ensure smooth and continuous care.
- Periodic, targeted awareness campaigns should be launched in cooperation between the university and the Saudi Red Crescent to reduce crowding around injured people and educate the university community about the importance of evacuating the area immediately to enable emergency teams to arrive and operate efficiently.
- A unified electronic system should be established to record and classify all injuries and accidents handled within the university. This record will serve scientific research in the field of emergency medicine and help identify the most common danger points on campus.

- A portion of the financial support allocated to university health services should be linked to university ambulance performance indicators(KPIs) such as average response time and the percentage of , .successful coverage of events, to ensure continuous improvement and effectiveness

Conclusion

Through the above, the study has shown that the true effectiveness of these teams stems from their ability .to reduce response time ,Vital to a large extent, which enhances the chances of survival of the injured especially in cases of cardiac arrest and critical accidents. The results also confirm that this success is directly due to the quality of sustainable training provided by the Saudi Red Crescent Authority, which includes basic life support programs and cadre qualification, in addition to operational and technical integration between university teams and the national emergency system. The study also recommends a set of strategic recommendations that emphasize the need to sustain permanent cadres and activate the simulation system to meet changing challenges, to ensure that university ambulance remains an effective .and ready element to support the emergency system at the national level

References

1. Loef, J., Vloet, L. C., Vierhoven, P. H., van der Schans, L., Neyman-Lubbers, Y., de Vries-de Winter, C., & Ebben, R. H. (2021). Starting ambulance care professionals and critical incidents: a qualitative study on experiences, consequences and coping strategies. *BMC emergency medicine*, 21(1), 110.
2. Hansen, P. M., Jepsen, S. B., Mikkelsen, S., & Rehn, M. (2021). The Great Belt train accident: the emergency medical services response. *Scandinavian journal of trauma, resuscitation and emergency medicine*, 29(1), 140.
3. Rowland, M., Adefuye, A. O., & Vincent-Lambert, C. (2021). The need for purposeful teaching, learning and assessment of crisis resource management principles and practices in the undergraduate pre-hospital emergency care curriculum: a narrative literature review. *Australasian Journal of Paramedicine*, 18, 1-9.
4. Soravia, L. M., Schwab, S., Walther, S., & Müller, T. (2021). Rescuers at risk: Posttraumatic stress symptoms among police officers, fire fighters, ambulance personnel, and emergency and psychiatric nurses. *Frontiers in psychiatry*, 11, 602064.
5. Ogińska-Bulik, N., Gurowiec, P. J., Michalska, P., & Kędra, E. (2021). Prevalence and determinants of secondary posttraumatic growth following trauma work among medical personnel: a cross sectional study. *European Journal of Psychotraumatology*, 12(1), 1876382.
6. Aedh, A. I., Abdel-Haliem, E., & Farid, M. (2025). Knowledge, attitude, and practice of CPR and willingness to perform it among undergraduate medical students of Najran University, Saudi Arabia: a cross-sectional study. *BMC Medical Education*, 25(1), 772.
7. Alshanbri, M. H., Al-Julaimi, H. I. A., Aljulaimi, B. Y., Alzahrani, S. K., Alrufaydi, A. A., Aljadani, A. H., ... & Al-Zahrani, M. A. (2025). Relationship Between Consciousness The Society With Services Crescent Red Saudi And The Rate Response For Calls Emergency. *The Review of Diabetic Studies*, 470-481.
8. Wilson, C., Janes, G., Lawton, R., & Benn, J. (2023). Types and effects of feedback for emergency ambulance staff: a systematic mixed studies review and meta-analysis. *BMJ quality & safety*, 32(10), 573-588.
9. Myhr, K., Ballangrud, R., Aase, K., & Vifladt, A. (2024). Ambulance professionals' experiences of teamwork in the context of a team training programme—a qualitative study. *BMC Emergency Medicine*, 24(1), 108.
10. Aljuaid, T. N., Alharthi, A. S. G., Alotaibi, M. T. H., Aljuaid, A. A. N., AlGethami, S. S. S., Aljuaid, S. S., ... & Alharthi, R. M. M. (2024). Team Dynamics in Emergency Care: Collaboration Between Paramedics and Ambulance Technicians. *Journal of International Crisis and Risk Communication Research*, 7(S4), 237.

11. Candefjord, S., Asker, L., & Caragounis, E. C. (2022). Mortality of trauma patients treated at trauma centers compared to non-trauma centers in Sweden: a retrospective study. *European journal of trauma and emergency surgery*, 48(1), 525-536.

Survey

University ambulance teams have sufficient skills to deal with sudden injuries on campus.

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

University ambulance crew members are regularly trained in first aid skills.

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

The equipment and supplies available to university ambulance teams are sufficient to handle emergency situations.

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

The rapid response of university ambulance teams contributes to reducing the complications of sudden injuries.

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

Coordination between university ambulance teams and the Saudi Red Crescent is efficient and effective .

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

University emergency teams have the ability to make quick decisions in critical situations .

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

Sufficient technical and supervisory support is provided by the Saudi Red Crescent to university ambulance teams.

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

The campus work environment is conducive to the effective performance of university emergency teams .

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

There are clear plans for dealing with sudden injuries at universities .

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

University students' awareness of first aid procedures contributes to supporting the efforts of university emergency teams.

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

University ambulance teams adhere to safety standards when dealing with injuries .

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

The Saudi Red Crescent's experience has contributed to improving the effectiveness of university ambulance teams .

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree