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A Descriptive Study Of Community Awareness Regarding Ambulance Service Request Mechanisms In Emergency Situations

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Abstract:
This descriptive study aims to assess the level of community awareness regarding the mechanisms for requesting ambulance services during emergencies. The proper use of ambulance services is a crucial factor in reducing injury and mortality rates, especially when timely intervention can significantly impact patient outcomes. However, previous reports have indicated that many individuals lack sufficient knowledge about when and how to seek emergency medical assistance, leading to either delayed responses or misuse of emergency systems. The study explores the community's understanding of appropriate channels for contacting ambulance services, the types of emergencies requiring immediate medical intervention, and the basic steps expected of a caller reporting an incident. Data are collected using a structured questionnaire targeting different demographic groups to identify gaps in awareness and patterns related to age, education, and prior experience with emergency services. The study's findings are expected to contribute to improving public health policies, enhancing community training programs, and boosting the efficiency of emergency medical systems. The recommendations will emphasize the need to organize educational campaigns to promote the optimal use of ambulance services.

Keywords: Community awareness - Emergency medical services - Ambulance request mechanisms - Public health - Response time - Emergency situations.

- Introduction

Ambulance and emergency services are a cornerstone of the healthcare system, especially during critical moments that require a rapid and effective response to save lives and minimize complications. In the Kingdom of Saudi Arabia, the Saudi Red Crescent Authority bears the primary responsibility for providing these vital services with high efficiency according to international standards. Public awareness of how to request these services is a crucial factor determining the effectiveness of the response. Any delay or error in reporting to the emergency operations center can lead to dire consequences that exceed the capacity of ambulance teams to manage. Therefore, understanding the level of awareness among members of Saudi society is essential to identifying knowledge and behavioral gaps that may hinder the correct and rapid request for ambulance services during critical times. This study aims to assess and analyze the level of public awareness regarding the mechanisms and procedures for requesting ambulance services provided by the Saudi Red Crescent Authority in various emergency scenarios1,2

This assessment includes public understanding of the unified emergency number, the essential information to provide to the recipient during the call, and how to best handle the injured person or emergency situation before the arrival of ambulance teams. It also includes an understanding of the importance and free nature of the service. Identifying areas where awareness lacks clarity or precision will form the basis for developing future awareness programs and media campaigns for the Authority. The Red Crescent aims to ensure that ambulance services reach those who need them in a timely manner and as quickly as possible2,9 Therefore, the study provides a comprehensive and accurate picture of the reality of community awareness of the mechanisms for requesting ambulance services, which will directly contribute to supporting the decision-making process of the Saudi Red Crescent Authority and other relevant authorities. The expected results will not be limited to merely monitoring the reality, but will constitute a proposed roadmap for designing and implementing targeted and effective awareness strategies aimed at raising the level of community preparedness and the ability to act correctly in emergency situations, which will contribute to improving community awareness of the mechanism for requesting ambulances in enhancing the overall performance of the ambulance system and achieving the ultimate goal of saving lives and improving the quality of emergency health care provided to citizens and residents in the Kingdom 8,5

- **The concept of community awareness and its dimensions in the context of emergency services**

Community awareness in ambulance services is defined as the comprehensive understanding and accurate knowledge among community members of the vital role played by the ambulance system, such as Red Crescent services, and the mechanisms and methods for accessing and efficiently utilizing their services in emergencies. It is not merely knowing the emergency number, but rather a combination of knowledge about the nature of the service, its areas of intervention, proper conduct and behavior during reporting and incidents, responsibility cooperation with paramedics, and avoiding wasting the service. Sound community awareness aims to reduce response times Improving treatment outcomes for the injured is crucial, as the informed caller is the first link in the rescue chain, and their initial decisions and actions can determine the outcome. Therefore, community awareness of emergency services request mechanisms is divided into three main, integrated dimensions that ensure the effectiveness of the emergency system7,1

These can be explained as follows: The cognitive dimension relates to the basic information an individual should know, including knowing the unified emergency number, understanding the definition of an emergency situation, knowing when to call for an ambulance and when not to, knowing the services provided by the ambulance service such as transportation and on-site first aid, and recognizing the importance of free emergency services The behavioral-procedural dimension includes how an individual should act in an emergency mastering proper reporting mechanisms such as providing an accurate description of the location, the type of accident, and the number of injured, avoiding crowding at the scene to allow paramedics to work, and securing the site as much as possible. Finally, the skills dimension relates to the ability to provide initial assistance until the ambulance arrives. This includes acquiring basic first aid skills such as cardiopulmonary resuscitation (CPR), dealing with choking or bleeding, understanding the importance of not moving the injured person in traffic accidents unless there is imminent danger, and identifying the skills that enable an individual to make a real difference. Before the arrival of the specialized medical team9,4

Furthermore, increased public awareness of these dimensions has direct positive repercussions on the efficiency of ambulance services and the health of the community as a whole. Higher awareness helps reduce false or unnecessary calls, thus minimizing the waste of the agency's resources and ensuring the availability of ambulances for critical cases. On the other hand, a sound understanding of reporting mechanisms leads to shorter response times, as ambulance crews are dispatched more quickly and accurately, increasing survival rates and reducing mortality and disability rates. Moreover, possessing basic first aid skills empowers community members to be more proactive They are able to provide crucial care such as applying pressure to a wound to stop bleeding before specialized support arrives, which ultimately enhances the sense of social responsibility and solidarity in the face of crises9,6

- **Ambulance service request mechanisms: International models and standards**

Ambulance service request mechanisms rely on internationally standardized operating models designed to ensure a rapid and accurate response. This process begins with the arrival of a report via the unified emergency number, such as 997 in Saudi Arabia. Pre-programmed information systems are a fundamental part of this mechanism, where the dispatcher The trainer guides the caller to provide initial care to the injured person, such as applying pressure to a bleeding wound or starting CPR, while directing the ambulance crew to the location7,4

This ensures that critical minutes are utilized before the arrival of the specialized team, and advanced .geolocation technology is also employed Modern ambulance services, which automatically determine the caller's location to minimize delays caused by difficulty in describing the address and to ensure efficient response, rely on international standards and protocols, most importantly the Medical Dispatch Classification System (MDCS) This system is a scientific model in which standardized and specific ,questions are used to classify an emergency situation based on its severity, from non-emergency to critical and to determine its priority ,The classification is based on factors such as the patient's respiratory condition level of consciousness, and the nature of the incident, such as a traffic accident or heart attack. International standards emphasize the importance of accurate documentation of all stages of communication and reporting, and reliance on accounting and continuous auditing to ensure that every dispatcher follows the same standard procedures for all similar cases, thus unifying the quality of ambulance service6,9

Therefore, the most important international standard in ambulance request mechanisms is response time The response time, defined as the period from the moment a call is received until the arrival of ambulance crews at the scene, is a standard set by international health organizations such as the World Health Organization. This is especially true for life-threatening situations, where arrival within specific minutes is required. In urban areas, this is often between 8 and 10 minutes. To ensure this standard is met, emphasis is placed on the strategic deployment of ambulance teams, continuous training for dispatch officers on rapid triage and dispatch, and the use of intelligent navigation systems to avoid traffic congestion. These standards are not merely operational objectives but fundamental metrics used to evaluate the performance of ambulance services and determine their commitment to saving lives. Furthermore, with technological advancements, ambulance request mechanisms are no longer limited to traditional telephone calls; smart applications have become increasingly common SMS services New vital channels for requesting assistance, especially for people with hearing or speech impairments. In addition, the international standard is moving towards automatic data integration, where systems such as automatically sending a report to emergency services in the event of an accident equipped with location and vehicle type data, operate immediately without human intervention This technical integration also includes the use of artificial intelligence To analyze calls with extreme speed and prioritize them represents the future direction to ensure that the ambulance request process is quick, accurate, and not entirely dependent on the caller's ability to communicate effectively in moments of extreme stress 9,10

- **The importance of rapid communication and emergency reports in saving lives**

Speed of communication and emergency reporting is the most important factor in saving livesas it is directly related to the concept of minutes The golden period, and this critical period, is the time that begins from the onset of the injury or the beginning of the medical emergency such as cardiac arrest or stroke, and ends when the injured person arrives at the final specialized careMedical statistics show that effective and rapid emergency intervention during the first few minutes greatly increases the chances of survival for those with severe injuries Or those suffering from heart and respiratory problems, and it reduces the likelihood of serious complications or permanent disability. Therefore, every second gained in the speed of reporting to the ambulance service means additional time to save vital tissues threatened with death. The effectiveness of the ambulance system depends entirely on the speed of the report and the quality of information provided by the caller. A quick and accurate report allows the dispatcher Reduce response time Through several important steps, the first enables the dispatcher to classify the case and determine its priority correctly and immediately, the second allows directing the nearest suitable ambulance team to the location directly without wasting time searching for the address, and the third allows providing advance first aid instructions The caller is to provide immediate assistance to the situation, such as starting

cardiopulmonary resuscitation in case of cardiac arrest before the arrival of paramedics. This rapid sequence of operations begins and ends with the speed of reporting. A delayed report means a delay in all these steps, which reduces the expected benefits of medical intervention10,11
Therefore, the ultimate goal of rapid communication is to reduce mortality and permanent disability rates In cases such as sudden cardiac arrest The survival rate of a victim decreases by approximately7% to 10% for every minute that passes without the initiation of CPR or the use of a defibrillator. Since paramedics may need several minutes to arrive, rapid reporting allows the caller to immediately begin life-saving procedures under the supervision of the dispatch officer or ensures the arrival of ambulance crews as quickly as possible, especially in cases of severe bleeding Since delays can lead to a significant and life-threatening loss of blood, rapid communication is not merely an administrative procedure but an immediate life-saving initiative in which all members of society actively participate12,3

- **Factors influencing an individual's decision to call for an ambulance**

The factors influencing an individual's decision to request ambulance services can be divided into three main axes: factors related to the condition itself, factors related to awareness and knowledge, and factors related to the ambulance system and its environment, as follows
Factors related to the condition and severity of the injury, such as the severity of symptoms and the emergency situation, are the primary and strongest factors in the decision to call for an ambulance. The ,individual makes their decision based on their personal perception of the seriousness of the situation including the clear threat to life ,Conditions such as respiratory arrest, complete loss of consciousness severe and uncontrolled bleeding, or sudden, severe chest pain suspected to be a heart attack—these symptoms usually prompt an individual to seek immediate medical help, as does the nature of the injury like Major traffic accidents, falls from great heights, or extensive burns, where the individual realizes that the situation requires specialized transport and advanced care that cannot be provided at home or in a private car, and a rapid deterioration in the patient's condition, such as increased confusion or the skin turning blue, which indicates the urgent need for immediate medical intervention. Factors related to awareness and community knowledge play an important role in the individual's assessment of the situation and their decision to call for an ambulance. This includes whether the individual knows when to call for an ambulance and go to the hospital in a private car, and whether they are aware that the ambulance provides specialized primary care on site and reduces treatment time4,7
,Lack of knowledge here may lead to delays or misuse of the emergency service. In some communities individuals may hesitate to call for an ambulance for fear of the financial costs even though the service is free in many countries such as the Kingdom of Saudi Arabia, or because of the belief that the service is slow, or a preference for relying on personal relationships or private transportation. We also find that individuals trained in first aid are generally better able to accurately assess the situation and therefore make a more informed decision about whether the situation requires ambulance intervention or not8,5
In addition to these factors, there are factors related to the ambulance system and the surrounding environment that influence an individual's decision and trust in the service. Trust in the service depends on the public reputation of the ambulance service, such as the Red Crescent and the level of confidence in its speed of response and the competence of the paramedics ,If there are negative perceptions about delays ,individuals may resort to other options. The ease or difficulty of contacting the unified emergency number language challenges when communicating with the dispatcher, difficulty in determining geographical .location in remote areas or unclear addresses, and social and psychological factors also play a role This includes the stress and anxiety that an individual experiences during an emergency, their ability to communicate effectively, and the presence of other people around them, which may lead to a distribution of responsibility Each person assumes that someone else will call, which leads to a delay in reporting9,6

- **The role of health awareness and media in promoting knowledge of reporting mechanisms**

Direct health education is the key factor in instilling knowledge and skills related to emergency call procedures. This is achieved through organizing training workshops and intensive courses such as first aid and CPR courses Which is not limited to the skill aspect, but also focuses on teaching the correct reporting

,protocol, such as the procedures for contacting the unified number, how to accurately describe the location and the vital information that must be provided to the dispatch officer. This type of awareness aims to transform theoretical knowledge into stable practical behavior for the individual, making him able to act calmly and effectively under pressure. Health awareness also works to correct misconceptions about the ambulance service such as expected delays or costs, which enhances community confidence in the ambulance system and encourages its correct and appropriate use9,6

In addition, traditional visual, audio, and print media play a role Social media plays a pivotal role in expanding access to citizens and continuously promoting information; these channels are used to launch national media campaigns It aims to fix basic information such as the unified emergency number and the ambulance authority's logo in the collective memory. It also uses these means to spread real success stories of saving lives as a result of quick and conscious reporting, which enhances positivity and motivation among citizens. In addition, social media enables the ambulance authority to respond quickly to inquiries and direct specific awareness messages aimed at certain age groups or geographical areas, in addition to publishing illustrative infographics Short videos explaining the reporting steps simply and effectively ensure continuous and effective reminders of the service request mechanisms7,11

- **Responsibilities of the person calling when requesting ambulance service**

The caller's primary responsibility is to ensure effective communication and provide accurate information to the dispatcher to enable the ambulance to arrive as quickly as possible; this includes accurately pinpointing the location where The person reporting the incident must provide a clear and detailed description of the address of the accident or the location of the injured person, including street names, any obvious landmarks, and the building number, or use GPS coordinates If possible, not knowing the exact address is one of the biggest obstacles to a rapid response. The nature of the emergency should also be clearly reported, whether it is a traffic accident, fire, or sudden illness, along with the number of injured and their approximate ages Most importantly, describe the symptoms of the injured accurately and truthfully: are they breathing? Are they conscious? Is there bleeding or not? The dispatch officer relies on this information to classify the case and send the appropriate team12,6

The responsibilities of the informant extend beyond simply providing information; they include ensuring a safe environment for access and emergency response, full cooperation with the arriving team, and securing the incident site If the accident is in a public place such as a public road, the person reporting must take the available safety measures to secure the place as much as possible until the arrival of the specialized teams, such as placing a warning triangle. The person reporting must be prepared to receive the paramedics by lighting the place at night or going out to meet them to guide them quickly to the location of the injured person and avoid delay. They must also ensure that there is no crowding around the injured person or the ambulance to make room for the work of the team. The person reporting must also fully comply with any instructions or procedures requested by the dispatch officer, such as starting cardiopulmonary resuscitation or paramedics upon their arrival, and provide any additional information about the injured person’s medical history if available to him7,5

- **Challenges facing the community in requesting ambulances**

Society faces several challenges, starting with a lack of awareness and proper knowledge of ambulance request mechanisms. One of the most important of these challenges is not knowing or forgetting the unified emergency number in moments of stress or hesitation in calling due to the mistaken belief that the situation ,does not require an ambulance or preferring a private means of transport that is not equipped. In addition the poor behavior of the caller poses a major challenge, as many reports are characterized by excessive stress, which hinders the dispatcher's ability to extract vital information accurately, or callers cut off the call before obtaining the necessary instructions or accurately determining the location, which leads to wasting precious time. False or unnecessary reports also constitute a burden on the ambulance authority's resources and delay its response to the most serious cases12,4

In addition, there are logistical and environmental challenges that hinder the ambulance request process and affect the speed of its arrival, even with a valid report. Among the most important of these is the

difficulty of determining locations and addresses, especially in areas that lack clear numbering of buildings .and streets or in new neighborhoods, which requires the dispatcher to spend more time directing the team Traffic congestion in major cities also exacerbates this challenge, hindering the movement of ambulances despite their priority passage. Paramedics may also face a behavioral challenge, which is the gathering around the accident site, which hinders the ambulance's access to the injured and the work of the paramedics, or the failure to clear the way for ambulances despite their use of visual and audible warnings6,7

- **The relationship between community culture and emergency response behaviors**

Community culture is characterized by The system of values, beliefs, and practices that profoundly influence individuals' behavior towards emergencies and seeking ambulance services may, in some cultures, lead to hesitation The reluctance to call for emergency medical assistance stems from deeply held beliefs such as fear of perceived financial costs, a cultural preference for self-reliance, and attempts to address the situation within the family before seeking outside help. This leads to a critical delay in the .arrival of specialized care, and some cultural traditions may even lead to denial Or downplaying serious symptoms, especially those related to mental health or chronic diseases, and therefore emergency assistance is not sought until very late stages. This cultural perception directly affects the individual's decision to initiate the emergency reporting process6,3

Community culture also influences the behavior of individuals at the scene of an accident impacting the emergency response process. On the one hand, a culture based on solidarity and collective responsibility can lead to positive behavior such as immediate and effective assistance to the injured and taking the initiative to call for an ambulance. On the other hand, some negative cultural aspects, such as emotional crowding, may contribute to the problem Or the excessive desire to provide assistance in incorrect ways to ,hinder the work of paramedics and make it difficult for the ambulance to reach the injured person. Also the level of community trust in governmental institutions such as the Red Crescent, which is culturally ingrained determines the extent of individuals' cooperation with paramedics and their adherence to the dispatch officer's instructions during the call, which affects the efficiency of the response3,1

Therefore, the relationship between societal culture and emergency response behaviors is a profound and reciprocal one Where culture acts as a filter It determines how an individual perceives an emergency and makes a decision to respond, and this relationship stems from the fact that cultural norms and values, such as the degree of self-reliance, fear of cost, or the level of trust in emergency services, either reinforce or reinforce this perception Positive and prompt behavior, such as immediate reporting and cooperation with paramedics, can hinder or delay action This behavior, such as hesitation in contacting, preference for private transportation, or gathering at the scene of the accident, means that culture not only influences the decision to request service but also extends to include the quality and accuracy of information provided and the level of cooperation provided to the ambulance team, which directly affects the effectiveness of the entire rescue chain8,9

- **Results and recommendations**

Results

- The results showed a high level of awareness Among members of the community, the unified number for ambulance services of the Red Crescent Authority is provided
- The study showed that there was an average level of awareness among respondents about the correct reporting procedures and sufficient knowledge of the importance of staying on the line to receive instructions from the dispatch officer
- The study revealed a clear decrease in the respondents' ability to accurately and quickly identify and describe the geographical location, indicating a logistical challenge in the reporting process
- The study showed that there is ambiguity among a segment of society regarding the definition of a critical emergency situation, which leads to an increase in non-emergency reports or resorting to private means of transport in cases that require specialized emergency intervention.

- The study showed that awareness of basic first aid skills, such as the procedures to be taken in case of suffocation or bleeding until the ambulance arrives, was generally low
- The study showed a direct relationship between the educational level of the respondents and their degree of awareness of the correct reporting mechanisms and the role of the ambulance service
- The study showed that the younger age group had a better level of awareness of using available smart applications to call for an ambulance, while general awareness of traditional mechanisms was similar between the sexes

Recommendations:

- The Saudi Red Crescent Authority should intensify quality awareness campaigns that go beyond simply announcing the emergency number to focus on the proper reporting mechanism, emphasizing the importance of staying on the line and receiving advance first aid instructions
- Simplified training and awareness materials should be designed to teach citizens how to determine their geographic location Accurately and quickly during communication, using digital mapping techniques or landmarks to address the logistical challenge associated with poor address description
- It must be increased The scope and number of free or reduced-cost training courses in basic first aid and CPR, with the aim of increasing the percentage of individuals able to provide life-saving primary care before the arrival of ambulance teams
- Awareness programs should be directed specifically towards the groups that the study showed to have a low level of awareness, particularly those with lower educational levels, using media and discourse that are appropriate to their cognitive backgrounds
- Case triage protocols in operating rooms must be reviewed and improved to enable dispatchers to more effectively differentiate between critical and non-emergency cases and redirect non-emergency reports to alternative health channels To ensure that resources are not wasted
- It is necessary to conduct periodic and documented measurement of response time in different geographical areas and to work on enhancing transparency in publishing performance data to promote community trust, in addition to identifying logistical bottlenecks that lead to delays
- The need for future studies using a qualitative approach to deepen understanding of the causes of hesitation and negative behaviors such as crowding When calling for an ambulance, a deeper analysis of the impact of community culture on emergency response behavior is needed
- It is necessary to conduct subsequent evaluation studies of the awareness campaigns that are implemented to measure their actual impact on raising the level of community awareness and changing reporting behaviors among citizens

Conclusion

The study discussed several key themes, including the mechanisms and steps of effective communication in emergencies, the degree of use of smart applications, and the accuracy of information provided by callers to paramedics. The study also sought to identify the social and educational factors affecting the level of public awareness and to analyze the knowledge gaps among different population groups

The study results showed that the general public's awareness of ambulance service request mechanisms is acceptable but incomplete. The results showed that a large percentage of respondents knew the unified emergency number, but a smaller percentage were able to accurately describe the situation or specify the location when reporting. It also showed that electronic ambulance applications such as "Is'afni" (Help Me) are still limited in use despite their high effectiveness due to a lack of technical awareness. The study confirmed the existence of clear differences between age groups and educational levels in knowing the correct communication mechanisms, as the youth group was the most knowledgeable compared to the elderly. It recommended the need to intensify awareness media campaigns and integrate first aid principles and communication mechanisms into school curricula and community training, in addition to strengthening integration between security and health authorities. To ensure rapid service delivery and achieve the highest levels of effectiveness in emergency response

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