A Model to Explain the Challenges of Saudi Arabia Emergency Medical Technicians' Decision Making in Emergency Situations

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Abstract - Different sorts of urgent crises are treated with out-of-hospital acute medical treatment by emergency medical services (EMS). In addition to a large number of other employees that operate in the pre-hospital environment, the EMS team comprises paramedics. Pre-on-scene hospital's decision-making is a significant component in the management of life-threatening conditions and the reduction of morbidity and death. Pre-hospital decision-making is a difficult process, thus it is important to recognize it. This research was done to examine the decision-making process used by Saudi Arabia's emergency medical technicians.

Keywords - Emergency medical technician, Saudi Arabia, Emergency medical services, Decision making.

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INTRODUCTION

The population of the Kingdom of Saudi Arabia is expected to reach 32.5 million in 2016, making it the most populated country in the Middle East and the sixth most populous in Asia. Of the country's 13 administrative regions, only Makkah, Riyadh, as well as the Eastern Province do not include at least 65% of the population. Despite the country's wealth, size, centralized management, and large population concentration in urban regions, the KSA's EMS are still in their infancy. This article provides a summary of the development of emergency medicine in KSA, as well as its future prospects, challenges, and opportunities.[1]

Over 80% of healthcare in the KSA is publicly funded, and the kingdom is home to more than 3,000 primary care facilities. The Ministry of Health operates over 60% of all hospitals and medical clinics in the nation. Other government agencies offer the other 20% of publicly supported healthcare, mostly to predetermined recipients like their workers and dependents. They are the Ministry of Defense, the Ministry of National Guard, the Royal Commission for Jubail and Yanbu, the Ministry of Education, or the Ministry of the Interior. In the KSA, 20% of healthcare is provided by the private sector. In the event of an evacuation, tourists and foreign workers can get in quickly.[2-4]
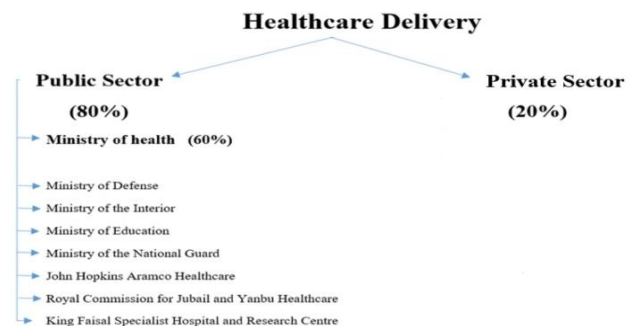

Fig.1 Saudi Arabia's healthcare system is in shambles.

The public healthcare system receives funding from the government via the health system's parent ministry . With a budget of over 6 billion SR, the MoH is in charge of public health, policy and planning, and regulation in addition to funding and providing healthcare. MoH is collaborating with other government agencies to reform healthcare delivery in KSA in accordance with Saudi Vision 2030, a plan for economic and social development.[5-6]

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PRE-HOSPITAL EMERGENCY MEDICAL SERVICE (EMS)

The SRCA offers pre-hospital emergency response using a third-party service paradigm, making it the 91st member of IFRC. The SRCA is the only KSA public safety body with its own dedicated hotline (997), and the government provided it with 568 million USD in 2016 to fund its activities. The SRCA has a total of 8072 employees throughout the KSA, including 5548 paramedics and EMTs, 761 pre-hospital certified medical assistants, and 59 physicians, who work out of an estimated 2000 ambulances & service vehicles. Overall in KSA in 2016, the SRCA responded to 439,038 calls for service.[7-9]

The healthcare industry in the KSA, rather than SRCA, is now tasked with sustaining the status quo of EMS service. For instance, the General Directorate of Emergency & Disaster & Ambulance Services oversees all IFTs inside MoH institutions. [10-11]

Although certain organizations outside the MoH do provide EMS in their service areas, these organizations only reach a very small percentage of the population. Very limited services are available from the private sector for patients in need of non-emergency transportation, appointments for the bedridden, hemodialysis, and discharges. Attempts are being made to develop procedures and conventions for pre-hospital care provision, however there are currently no such guidelines in place.[12]

MATERIAL AND METHODS

Study design

The data was collected in 2021 using a grounded theory methodology similar to that proposed by Corbin and Strauss. This strategy is helpful for expanding into uncharted territory or discovering fresh angles on familiar terrain.

Selection of participants

Thirty EMS professionals were randomly selected from a pool consisting of Emergency Medical Technicians, MDPs, dispatchers, a representative for court affairs, and EMS managers to ensure maximum diversity in the sample. Participants were required to have either theoretical or practical experience, to be able to communicate, and to be eager to take part. Additionally, data collection and validation included the use of triangulation based on observational field notes. After conducting 30 interviews & 10 field observations, we had collected enough data to approach statistical significance using the saturation principle.

Participants' Personalities	Number (%)
Position	
Emergency medical technicians	18 (60%)
Court Affairs Representative	2 (6.66%)
Dispatchers	3 (10%)
Doctors from Medical Direction	4 (13.33%)
Managers of EMS	3(10%)
Sex	
Male	22 (73.3%)
Female	8 (26.6%)
Age	
25-35	14 (46.6%)
36-45	11 (36.6%)
46-55	5 (16.6%)
Work experience	
1-10	9 (30%)
11-20	15 (50%)
21-30	6 (20%)

Data collection and analysis

Field observations and in-depth interviews were used to get the data. The participants were interviewed at their places of employment in Arabic. Three unstructured interviews were done initially. These first three interviews aided in the identification of interview guidelines and significant ideas that influence decision-making in the field. Then, utilizing interview guidelines, 30 semi-structured interviews were conducted. Beginning with a broad inquiry on the participants' perceptions of the on-scene decision-making process, interviews were conducted.

Data analysis was done concurrently with and just after data collection. The PI listened to the audio files numerous times and compared the recorded digital audio files with the transcripts of the interviews. Continually throughout data analysis, in accordance

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with the guidelines made in 2021 by Corbin and Strauss. In terms of open coding, line-by-line analysis of transcribed interviews or filed note observations was done.

RESULTS

In this research, we aimed to better understand how EMTS makes decisions while on the scene. Thirteen hundred and fifty-two codes were recovered in the primary analysis, and these were split into six main groups and twenty-one sub-categories. A crucial concept of "decision making in the setting of dread and worry" was developed. Most EMTs worry about the outcomes of judgments like these because they lack the authority, skill, and decision-making processes necessary to make educated choices. All of these factors culminate in a context where there is little trust and little regulations to back up EMTs. The decision-making process is disrupted by factors such as interactions, fillings, and the "Customer focus approach." FNO and participant numbers (by P) were provided.
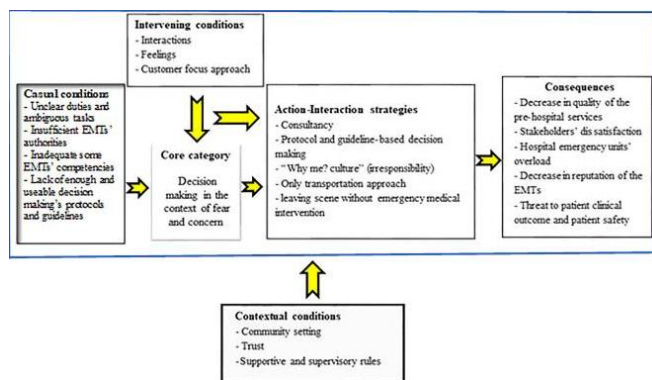

Fig.2 Emergency medical services in Saudi Arabia: a paradigm model for making decisions under pressure

Causal circumstance

Decisions are made in the setting of dread and worry in this research due to variables such as confusing roles and ambiguous jobs, insufficient EMTs' authority, inadequate certain EMTs' abilities, and a lack of acceptable on-scene decision-making procedures and standards. Paramedics report that uncertainty about their roles and responsibilities is a major source of anxiety while making choices. The EMTs often overstep their legal authority since they are unclear on their own responsibilities. They explained how having a lot of duties, some of which might last indefinitely, can cause people to forget about important interventions and make them feel overwhelmed.

> *"… I am confused about my precise obligations. What would happen if a patient had complications as a result of my*

> *intervention or its potential failure; would we face legal action and be entitled to compensation? What responsibility do we have to those patients who reject treatment? Is it permissible to provide medicine or perform endotracheal intubation on a patient without the consent of an MDP...?". (P3)*

Guidelines and standards are useful, since EMTs report that it may be difficult to decide how to handle patients and that their consultation may not always be fruitful. Concern and dread among EMTs regarding the unintended repercussions of their treatments will be eradicated if judgments are made based on scientific procedures and recommendations in addition to proper medical interventions. What this means is that with the use of these records, EMTs will be able to make more informed judgments. A significant difficulty in making decisions was the absence of procedures for some circumstances and the shortcomings of current protocols.

> *"... There are times when I discuss a patient with a coworker, but neither of us has a good idea of what to do for them. It would be helpful to have some sort of guidance, but we don't have a lot of pre-hospital emergency protocols and guidelines to choose from, and those that do exist are either too simple or too complex to be practical." (p16)*

Contextual circumstance

Community setting, trust, supporting norms, and supervisory rules are all highlighted as contextual factors in this paradigm model. The paramedics were quite frustrated by the unreasonable and even aggressive actions taken by bystanders. Stress brought on by unreasonable interferences interrupts emergency medical care, leading to hasty transportation without treatment. Public awareness and education are also crucial in every society. It was agreed upon by all parties that the level of cooperation and coordination is influenced by the public's view of the value of pre-hospital care. Severe verbal aggression involving members of the general public was reported during field observations.

> *" Sadly, there are occasions when others rudely disregard us in anger. When we try to aid a patient who is close to death, they irrationally get in the way. Low*

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comprehension and awareness are likely at the root of these actions and interferences."(P10)

Research results indicated that trust had a crucial role in influencing EMT's choice behavior. Everyone who took part in the discussion agreed that a lack of trust stands in the way of collaborative decision making. A lack of trust was cited as a problem between emergency medical technicians, hospital emergency physicians, and dispatchers and MDPs. Some MDPs refuse to accept the technician's account and instead insist on a transfer, passing up the opportunity to administer treatment and advice. Lack of trust hinders emergency medical technicians' ability to make sound decisions, which in turn causes stress and worry. According to EMTs, the public does not respect the value of EMTs' knowledge, skills, and medical approaches because there is no " Chain of trust " to help them make decisions.

> *" In my opinion, trust is crucial for effective teamwork in the pre-hospital emergency services. Not enough of our employees can be trusted, in my opinion. How to order treatment when a doctor doesn't fully believe a technician's findings. (P9) ... People have little faith in our EMTs' abilities... the trust link is weak, thus occasionally patients or their companions are dishonest". (P6)*

Intervening circumstance

On-scene decision making by EMTs is heavily influenced by a number of interfering elements, including interactions, emotions, and the "Customer focus approach." Some patients, or their families, may overstate the severity of their condition in order to get these free therapies, participants say. However, some patients exhibit aggressive behavior against EMTs, and this verbal and nonverbal aggression was shown to be the most critical element disturbing interactions and leading to choices based on fear.

> *"Physical and mental examinations reveal patients who are only acting sick on occasion. Sometimes we have to deal with aggressive and inappropriate conduct by spectators, which may cause anxiety, panic, and poor decision-making (P13)." (P4)*

The EMTs admitted that they allow their emotions to affect their work. The results of this study showed that EMTs' altruistic and empathetic emotions significantly influenced their decision-making. The emotional and mental state of EMTs are impacted by witnessing the pain of their patients. Emergency medical technicians also reported feeling helpless and inadequate. Despite being aware of the patients' needs, they were sometimes helpless to meet those needs.

> *"... The cries of agony from some of my patients, particularly the terminally ill and the really impoverished, have an emotional impact on me. Every bit of our attention and energy goes into caring for our patients. Nonetheless, I'll be let down when I get the impression that some superiors don't care.."(P16)*

Strategies for Action-Interaction

Action techniques such as procedure and guideline based decision making, consulting, and engagement strategies including "why me culture?," just transportation approach, and leaving scene with emergency medical help were obtained based on participants and fieldnotes. Action techniques help EMTs overcome obstacles to decision making. Most EMS facilities do not have a physician on staff, thus if speaking with another EMT does not help, they will ask the dispatcher to consult with a physician. Decision-making that is based on protocols and guidelines also has drawbacks, such as the need for paper procedures, the potential for people to forget about them, and the intricacy of certain protocols.

> *" For the life of me, I just can't seem to decide anything sometimes. My coworker and I had a discussion. My coworkers will sometimes come to me for advice. At occasion, we'll ask the dispatcher to get in touch with a doctor, but in most cases, that's just not feasible."(P2)*

When EMTs are too upset to take any kind of action, they resort to a pattern of irresponsibility that may be summarized as "Why me?" Culture". The majority of respondents said that they declined medical emergency interventions as their duty due of the stress brought on by the illogical meddling of bystanders. Sometimes EMTs leave a situation uncaringly and uninvolved because they are afraid of the decision's bad implications, their sentiments, the involvement of others, or the circumstances of the scene.

> *" Some of our coworkers, I believe, have avoided responsibility because of the ambiguity, the pressure of the situation, and*

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the dread of the bad implications of the choice."(P11)

The results of this study make it quite evident that upper-level personnel does not have faith in the abilities of paramedics. Because they are not medical professionals, they may not understand the daily routines of children in wards, ICUs, and NICUs, which contributes to their lack of trust. Paramedics (non-clinicians) were met with skepticism by Brodsky et al. when it came to identifying minor and/or complicated febrile seizures. In light of the tremendous strain of expenses and limited financial resources, Ulsenheimer concluded in a study that it is legally unacceptable and not right to shift original medical obligations to cheaper non-medical auxiliary workers. Paramedics' credibility as pre-hospital care providers was questioned in a study. Concerns were raised by a group of emergency doctors about paramedics' failure to correctly diagnose ST elevation myocardial infarction based on vague symptoms or ECG readings, which might lead to the dismissal of real cases.

Finally, it is recommended that health authorities provide enough training and education to paramedics to ensure that they are able to effectively provide EMS to patients, and that hospitals and EMS management work to remove obstacles that impede efficiency. The role of a paramedic should be expanded to include medical and clinical duties, and emergency medical services should be included in medical school curricula. Protocols for EMS should be included in postgraduate medical education.

CONCLUSION

To explain the process and investigate the connections between the various elements and influencing factors, a paradigm model was developed for this study. Decisions made by technicians under the influence of anxiety and worry will have consequences for both patients and the company's bottom line. The model classifies situations where there is a lack of clarity between roles and responsibilities, or where there are not enough protocols and guidelines in place or where some EMTs do not have the necessary skills. It is recommended that emergency medical technicians (EMTs) be provided with more training, that they be given more responsibility, and that more rules be put in place to back them up. According to this theory, several outside factors and surrounding circumstances can influence EMTs' actions. Finally, some strategies need to be incorporated into the national EMS system to aid in the making of decisions at the scene.

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