



Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة

ISSN: 2707-7675

Journal of University Studies for Inclusive Research

Vol.17, Issue 10 (2022), 8191- 8206

USRIJ Pvt. Ltd.

Clinical decision making for paramedics during high-risk emergency call in Saudi hospitals

اتخاذ القرارات السريرية للمسعفين أثناء مكالمات الطوارئ عالية الخطورة في المستشفيات السعودية

Tuyrish Mohammad Al-Dossary

Abdulrahman Mohammad Al-Shammari

Sharifa Ibrahim Alotibi

Nawal Gazi Alotibi

Anwar Khaled Basihi

Abdullah Mohammad Al-Dossary

Mazen Mushhan Al-Moteri

Abstract

Paramedics frequently work in dynamic circumstances where they must make numerous time-sensitive judgments while also working with limited knowledge and resources. How paramedics make judgments and decisions in their uncertain environment is crucial for patient safety. Hence, this study's main goal was to review existing research on how paramedics take clinical decisions and choices during high-risk emergency calls in Saudi hospitals. A systematic review of the literature has been used to answer this study's questions. It has been noted that paramedics generate opinions about their patients before even meeting them based on the limited information available to them when providing care for the sick and injured in a variety of circumstances. The study found that without objective judgment, there might be a dangerous mismatch between competence and confidence. Despite the assertion that the intuitive framework is best suited for the paramedic profession, it is appropriate to point out that more effort needs to be done to make sure paramedics have a framework that is fit for practice and will not allow for such easy criticism. This study also recommended to implement a national public education program that focuses on the responsibilities of the EMS and what paramedics can and cannot do while high-risk emergency calls.

Keywords: *Clinical Decisions, Paramedics, Emergency calls, Saudi Hospitals.*

المخلص

يعمل المسعفون في ظروف ديناميكية صعبة نوعاً ما، حيث يتعين عليهم إصدار أحكام حساسة ومصيرية أثناء العمل وبمعرفة وموارد محدودة أثناء ساعات العمل، حيث تعتبر الطريقة التي يتخذ بها المسعفين الأحكام والقرارات في بيئتهم غير المؤكدة أمر بالغ الأهمية لسلامة المرضى. بناءً على ذلك، كان الهدف الرئيسي لهذه الدراسة هو مراجعة الأبحاث الحالية حول كيفية اتخاذ المسعفين للقرارات والاختيارات السريرية الصحيحة أثناء مكالمات الطوارئ عالية الخطورة في المستشفيات السعودية. تم استخدام مراجعة منهجية للدراسات السابقة من أجل الإجابة على أسئلة هذه الدراسة. وقد لوحظ أن المسعفين يولدون آراء حول مرضاهم حتى قبل مقابلتهم بناءً على المعلومات المحدودة المتاحة لهم عند تقديم الرعاية للمرضى والمصابين في مجموعة متنوعة من الظروف. كما وجدت الدراسة أنه بدون الحكم الموضوعي، قد يكون هناك تفاوت خطير بين الكفاءة والثقة. وعلى الرغم من التأكيد على أن الإطار الحدسي هو الأنسب لمهنة المسعفين، فمن المناسب الإشارة إلى أنه يجب بذل المزيد من الجهد للتأكد من أن المسعفين لديهم إطار عمل مناسب للممارسة واتخاذ القرارات الصحيحة بشكل سريع ودقيق. وأوصت هذه الدراسة بتنفيذ برنامج وطني للتثقيف العام يركز على مسؤوليات نظام المسعفين وما يمكن لهم القيام به وما لا يمكنهم فعله أثناء مكالمات الطوارئ عالية الخطورة، وبما يقدم أفضل النتائج والقرارات الدقيقة التي تعنى بالحفاظ على صحة المرضى بشكل عام.

الكلمات المفتاحية: القرارات السريرية، المسعفين، مكالمات الطوارئ، مستشفيات السعودية.



1- Introduction:

Over the past few decades, clinical decision-making (CDM) has been defined and studied in medicine. Clinical decision-making skills in emergencies result in clinical errors, which are common in healthcare and frequently the root of patient safety failures. Therefore, CDM is an essential component of patient safety with regard to emergency medical services (Alrazeeni et al., 2016).

Individuals are generally dependent on early healthcare assessment and support from a pre-hospital emergency medical service (EMS) in the event of a catastrophic accident or episode of acute sickness in either their home or a larger general community area. For many years, it has been well established that these community-based support models play a crucial part in providing patients with significant medical problems or catastrophic injuries with life-saving support (Alrumayyan et al., 2019).

By promptly delivering emergency medical care to patients, EMS's main goal is to prevent avoidable fatality and long-term morbidity. Emergency medical services professionals play a very important function, from the point of impact until hospital discharge. Consequently, the need to acquire and maintain quick and effective decision-making abilities with minimal information is constant for EMS providers and paramedics (Alsadhan, 2015).



However, research in nations like Saudi Arabia show that EMS resources, accessibility, and availability are not equal in rural and urban locations, and these variations might have an impact on patients' short- and long-term health outcomes. In addition, few studies have been conducted on paramedics' judgment and decision-making in the light of emergency calls in Saudi hospitals (Alanazy et al., 2020). As a result, the objective of this study is to evaluate and appraise the paramedics' decision-making during high-risk emergency calls in Saudi hospitals.

2- Research Problem & Questions:

Previous studies show that EMS clinicians work hard to give patients the best care possible, frequently taking into account the patients' wishes. There are various demands placed on EMS paramedics, some of which can be in conflict, including those placed on them by patients, EMS organizations, and society. When making assessments and decisions to address a crisis, this creates a sense of solitude. Without adequate resources or helpful tools, particularly organizational support, EMS paramedics conduct these assessments and make critical judgments (Andersson et al., 2019).

As for Saudi Arabia, providing the best clinical judgment during high-risk emergency calls is a problem that Saudi EMS paramedics encounter on a daily basis. They also face issues related to workforce diversity and public awareness. Furthermore, day-to-day challenges faced by Saudi EMS personnel include a shortage of local training and resources in giving the optimal clinical decision during high-risk emergency calls, as well as



workforce diversity and public awareness difficulties (AlShammari et al., 2017).

Based on the forgoing, this study aims at answering the main question:

"How do paramedics make clinical decisions during high-risk emergency calls in Saudi Hospitals?"

In addition, the following sub-sequent questions can be posed:

- 1- What is the reality of Emergency Medical Services in Saudi Arabia?
- 2- What is the role of clinical reasoning in taking accurate decisions for paramedics?
- 3- What are the factors that contribute to clinical decision-making for paramedics?

3- Research Aims & Objectives:

This study aims to evaluate and appraise the paramedics' decision-making during high-risk emergency calls in Saudi hospitals, which will be achieved through attaining the following aims:

- Identifying the reality of Emergency Medical Services in Saudi Arabia's health care system.
- Clarify the important role played by clinical reasoning in taking accurate decisions for paramedics.
- Classify the main factors that contribute to clinical decision-making for paramedics.



4- Background Review:

*** Reality of Emergency Medical Services in Saudi hospitals**

The Saudi Red Crescent Authority (SRCA) is the country's public EMS agency, which offers emergency care and transportation to the country's residents. EMS can be reached by calling 997 or by requesting the service using the ASAFNY mobile app. Through the text message provider SMS, this application permits two-way communication between the user and the SRCA dispatch center. To help dispatchers prioritize calls and facilitate decision-making on medical transport, the user can offer specifics about their medical history, including the medications they are currently taking (Moafa, 2022).

Pre-hospital care and rehabilitation are regarded as inadequate in Saudi Arabia, in addition to the country's shortcomings in public health promotion, transportation, communication, and prevention. However, they rely on the Saudi Red Crescent Society (SRCS) to offer first aid to trauma victims on the scene and transfer them to hospital emergency departments. The Saudi Ministry of Health (MOH) and other governmental hospitals provide 24-hour emergency care services at its emergency units.

Furthermore, the majority of emergency patients are transported by police officers and volunteers rather than by proper emergency transportation. Saudi Arabia lacks the necessary trauma centers despite trauma being the primary cause of mortality and disability there. Due to the small number of EMS centers and staff, the Kingdom of Saudi Arabia has extremely few



trauma hospitals that include EMS as an integral component (AlShammari et al., 2017).

The top objective for all ambulance services is saving lives. In order to lessen disasters and human suffering, the Red Crescent is also accountable for ensuring that there are sufficient ambulance services. First responders in the medical setting, paramedics are licensed healthcare professionals who work for the Red Crescent. They deal with more than 280,000 cases a year as paramedics. These alarming figures cover potentially fatal diseases like heart attacks, strokes, unexpected pregnancies, and injuries from car accidents (SRCA, 2021).

For these injuries to be treated properly, it is essential to recognize the importance of ambulance services and to make the right choices while responding to call emergencies. As a result, it is agreed that the paramedics' efforts to speed up response times in those situations have improved patient survival (Alsaeed & Alkarani, 2022).

It is also stated that when the Red Crescent Center receives a notification call about an incident, a significant discrepancy in callers' perspectives emerges. When the situation is not as serious as some callers claim, they exaggerate the risk. Others fail to provide information about the precise location, while some fail to provide information about the circumstances of the injured. Hence, the paramedics' performance and decisions are negatively impacted by these problems (Al-wathinani et al., 2020).



* **Role of Clinical Reasoning**

The majority of unfavorable incidents in a healthcare system can be traced back to clinical judgment. The procedure of gathering, analyzing, and utilizing relevant data in order to make conclusions is known as clinical reasoning. When treating patients who have expressed or perceived physical, psychological, or existential suffering, emergency medical services (EMS) doctors employ clinical reasoning to make assessments and judgments about how best to meet their medical, care, and existential requirements. In the clinical reasoning process, evaluation and decision-making cannot be separated; rather, they are ongoing, interconnected processes that are dependent on one another (Hetherington & Jones, 2021).

EMS professionals apply clinical reasoning in a variety of settings. They might decide against conveyance, start advanced medical treatment on-site or while the patient is being transported, or point them in the direction of the right kind of care. These choices are based on the various organizational structure variants that already exist and the wide range of actor capabilities seen in global EMS systems. These actors include paramedics, doctors, registered nurses, specialist nurses, and emergency technicians (Moafa et al., 2021).

Before they even see the patient, EMS professionals begin to use clinical reasoning. Based on the information they obtain or do not receive from the dispatch center, this starting is made. They work to achieve a sense of perceived control over the situation by thoroughly comprehending the patient and her or his current condition through regular assessments and the planning of caring contingencies. They must continually be alert to



what is going on in front of them, anticipate potential problems that might need to be resolved right away, and adjust to any problems that do. To ensure that they carry out their duties in a safe and efficient manner, they must be aware of this. The awareness is crucial for EMS practitioners as well as for patients, their families and their organizations (Ebben et al., 2017).

As a way to be mentally ready for the unexpected, maintaining an open and reflecting mind is characterized as being of utmost importance for paramedics. The dispatch center's words is not intended to be a guide for EMS paramedics. Inaccurate information may be gained from dispatch centers, but it can also direct physicians in the proper direction and allow them to mentally prepare for what they are likely to meet. In other words, medical professionals might run across an entirely unanticipated situation. Interpretation is possible even in the absence of information (Moafa, 2022).

For instant, a patient who need immediate treatment makes decisions about immediate transportation easier, whereas a patient who does not require immediate treatment may prompt EMS personnel to slow down and apply more clinical reasoning and analysis. Because of this, an EMS paramedic can opt against taking a patient to the hospital. Hence, when clinicians lack experience with a particular diagnosis, they occasionally feel prepared to act but unconfident about the circumstances of their decision (Al-wathinani et al., 2020).



* **Clinical Decision-Making of Paramedics**

It is important for paramedics to understand that problem solving and decision-making are two distinct processes. According to the definition of decision-making, it involves evaluating the alternatives and considering ethical and legal factors. Decisions are based on assessments of the future. Analyzing a challenging procedure in order to is the emphasis of the systematic process of problem solving (Murdoch, 2019).

Paramedics base their decisions on a range of information sources, including their own experience, their knowledge, and the available evidence. Moreover, numerous theories and models support how clinicians make decisions based on the information at their disposal. The issue is that paramedics frequently make decisions using scant information, such as an incomplete or partial medical history, and with little assistance or support from others (Perona et al., 2019).

It was discovered that experience and confidence are inextricably related, with paramedics who had more exposure to pediatrics' in their professional or personal lives exhibiting more confidence when caring for this patient population. In addition, the clinical decision-making process is influenced by the emotions of clinicians and/or families. When this is combined with reliance on clinical guidelines, a paramedic consultation will result in transportation to an emergency room. Geographically, there were variations in the delivery of care, and attempts to refer patients to the community were generally met with failure (Moafa et al., 2021).

Paramedics are expected to make quick clinical choices in the clinical context to ensure that the proper care and treatment are given. Paramedics'



choices have a significant impact on the patients' quality of life, clinical outcome, safety, health, and welfare. Hence, this article seeks to discover the supporting facts that support a paramedic's ability to make a competent judgment as well as the difficulties they encounter through an analysis of theories and conceptual frameworks (Murdoch, 2019).

It is worth mentioning that there are three decision-making theories that categorize each choice, normative theory is mainly used when there does not seem to be a clear conclusion, and judgments are made using normative theories as standards of evaluation as well as logical and mathematical arguments. While, descriptive theory seeks to explain how and why people choose certain actions based on what people really do or have chosen in the past. Finally, perspective theory in decision-making is the observational component of descriptive decision-making (Ebben et al. 2017).

According to experts, clinical diagnosis is an analytical skill that demands serious critical thinking to apply properly. A clinician must be able to use knowledge to recognize symptoms and have comprehension to relate those symptoms to an organ or system, as well as applying and connecting the symptoms to disease processes and changes. Furthermore, synthesizing and integrating symptoms and pathological processes to identify a pattern of certain illnesses is necessary (Alsadhan, 2015).

Clinical outcome and patient safety are expected to be impacted by the treatment that patients get outside of hospitals such as in call emergencies. Patient evaluation and treatment can vary greatly, from straightforward ambulance runs to calls that demand quick decision-making and action on



the part of paramedical staff. Numerous variables can affect the outcome, including the severity of the patient's injury or illness, their location, their wants and needs, the resources available to paramedics, the magnitude of care provided by paramedics, and timing of interventions needed both on scene and while being transported to the hospital (Murdoch, 2019).

5- Conclusion & Recommendations:

Paramedics deliver care in the community, as well as outside of organized clinical settings, though they work in a variety of situations. Inaccurate or delayed paramedic diagnosis can lead to mistakes or patient injury, while accurate paramedic diagnosis has been found to enhance patient outcomes for a number of diseases. Without objective decision-making, a dangerous imbalance between competence and confidence might arise. It is reasonable to point out that more work needs to be done to ensure that paramedics have a framework that is fit for practice and won't easily allow for such harsh criticism, despite the claim that the intuitive framework is best suited for the paramedic profession. This is because of the criticism this process faces and because it is suggested that the intuitive framework is best for paramedics.



Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة

ISSN: 2707-7675

Based on the findings of this study, it is **recommended** to do the following:

- 1- The knowledge and practice gaps that are apparent in staff education and training must be closed. For better patient support especially through emergency calls, EMS personnel require specialized training and continual, accessible education.
- 2- It would be beneficial to address some of the perceived misunderstandings around inappropriate requests for EMS from the public and threats to employees by implementing a national public education program that focuses on the responsibilities of the EMS and what paramedics can and cannot do while high-risk emergency calls.



References:

- Alanazy, A., Fraser, J. & Wark, S. (2020). Emergency medical services in rural and urban Saudi Arabia: A qualitative study of Red Crescent emergency personnel' perceptions of workforce and patient factors impacting effective delivery. *Health & Social Care Community*, 1-8.
- Alrazeeni, D., Sheikh, S., Mobrad, A., Ghamdi, M., Abdulqader, N., Al Gabgab, M., Al Qabtani, M. & Al Khaldi, B. (2016). Epidemiology of non-transported emergency medical services calls in Saudi Arabia. *Saudi Med Journal*, 37(5), 575- 578.
- Alrumayyan, T., Alabdali, A., Algerian, N., Alwasel, J. & Alsayari, N. (2019). Paramedics' perceptions, knowledge and skills regarding emergency psychiatric patients in Riyadh, Saudi Arabia. *Australian Journal of paramedicine*, 2021(18), 1-6.
- Alsadhan, B. (2015). Emergency Early Responders and Ems Transition in Saudi Arabia: Proposed Model for System Improvement. *Unpublished Master's thesis*. University of Pittsburgh, Pennsylvania.
- Alsaeed, S. & Alkarani, A. (2022). Factors affects the performance of Red Crescent paramedics, Bisha, Saudi Arabia. *Journal of family Medicine and Primary Care*, 11(2), 715- 719.
- AlShammari, T., Jennings, P. & Williams, B. (2017). Evolution of emergency medical services in Saudi Arabia. *Journal of Emergency Medicine Trauma & Acute Care*, 2017(4), 1-11.



- Al-Wathinani, A., Hertelendy, A.J, Alhurishi, S., Mobrad, A., Alhazmi, R., Altuwaijri, M., Alanazi, M., Alotaibi, R. & Goniewicz, K. (2020). Increased Emergency Calls during the COVID-19 Pandemic in Saudi Arabia: A National Retrospective Study. *Healthcare*, 9(14), 1-14.
- Andersson, U., Soderholm, H., Sundstrom, B., Hagiwara, M. & Andersson, H. (2019). Clinical reasoning in the emergency medical services: an integrative review. *Journal of Trauma, Resuscitation and Emergency Medicine*, 27(76), 1-12.
- Ebben, R., Vloet, L., Speijers, R., Tonjes, N., Loef, J., Pelgrim, T., Hoogeveen, M. & Berben, S. (2017). A patient-safety and professional perspective on non-conveyance in ambulance care: a systematic review. *Scandinavian Journal of Trauma, Resuscitation and Emergency*, 25(71).
- Hetherington, J. & Jones, I. (2021). What factors influence clinical decision making for paramedics when attending to paediatric emergencies in the community within one ambulance service trust? *British Paramedic Journal*, 6(1), 15–22.
- Moafa, H.N., Van Kuijk, S.M.J., Moukhyer, M.E., Alqahtani, D.M., Haak, H.R. (2021). Non-Conveyance Due to Patient-Initiated Refusal in Emergency Medical Services: A Retrospective Population-Based Registry Analysis Study in Riyadh Province, Saudi Arabia. *International Journal of Environmental Research and Public Health*, 18 (9252).



Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة

ISSN: 2707-7675

Moafa, H. (2022). Public Health Perspective on Quality of Emergency Medical Services in Riyadh Province of Saudi Arabia. *Doctoral Dissertation*, Maastricht University, Netherlands.

Murdoch, S. (2019). Clinical decision-making and its place in paramedic practice. *Journal of Paramedic Practice*, 11(5). Retrieved from: <https://www.magonlineibrary.com/doi/abs/10.12968/jpar.2019.11.5.CPD1>

Perona, M., Rahman, A. & O'Meara, P. (2019). Paramedic judgment, decision-making and cognitive processing: A review of the literature. *Australian Journal of paramedicine*, 2019(16).

Saudi Red Crescent Authority. Saudi Arabia: Annual report [updated 2021]. Available from: <https://www.srca.org.sa/en/statistics/ambulatory-services/>