

## Paramedic Mini-CAT (Critically Appraised Topic) Assignment

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**Title:** Treatment-Seeking Delay in Acute Myocardial Infarction Patients of sexual or ethnically diverse groups

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### **Clinical Scenario:**

A crew of seasoned Paramedics respond code 4 to an urban residence for a 57-year-old African American female complaining of chest pain. Upon gathering a full assessment and history on the patient they determine that it is likely that the patient is experiencing cardiac ischemia and decide to perform a 12-lead electrocardiogram to confirm their suspicions. The diagnostic ECG strip is printed and shows more than sufficient ST-elevation in the anterior and lateral leads indicating an anterolateral ST-elevated Myocardial Infarction. The paramedics proceed with medication before initiating transport to the nearest emergency department – this hospital is not generally equipped to care for STEMI patients. This patient would have been considered for a candidate for a STEMI bypass directly to the catheterization lab at a local hospital that is equipped for this procedure. Instead however, this patient has been deteriorating rapidly over the course of the call as the paramedics learn that her chest pain was acute and began many hours prior. She was unable to recognize her symptoms as a heart attack, and therefore will not receive direct transport to the coronary interventions that she desperately needs due to her worsening and emergent condition. Does the research continue to support the hypothesis that this patient's gender and non-majority ethnicity have a causative relationship with the delay in seeking treatment by the paramedic service and is there an identifiable cause in the literature?

### **PICO (Population – Intervention – Comparison – Outcome) Question:**

In the event of a patient experiencing an acute myocardial infarction, how does patient demographic affect their recognition and time to the decision activate emergency medical services?

**Search Strategy for PubMed:** (paramedic OR ems OR emt OR prehospital) AND (Acute MI OR STEMI OR Myocardial Infarction OR ST-elevated Myocardial Infarction) AND (Race OR Gender OR Ethnicity OR sex)

Limits: Last 5 years, English, Full Text

**Search Strategy for CINAHL:** (paramedic OR ems OR emt OR prehospital) AND (Acute MI OR STEMI OR Myocardial Infarction OR ST-elevated Myocardial Infarction) AND (Race OR Gender OR Ethnicity OR sex) AND (delay)

Limits: Research published since 2010, English

**Search Outcome:** 81 total results (55 PubMed, 26 CINAHL)

**Relevant papers:** 3 were deemed to be relevant for the purposes of this appraisal

These papers were included for review due to their relevance to the search criteria, and their collective ability to provide a more complete assessment of variables. Additionally, the ability to access a sufficient volume of the required information eliminated some sources from being included.

Reference Number, Author, Date	Study Design	Population	Outcome	Results	Strengths/Weaknesses
(1), Pate, Leeman-Castillo, & Krantz 2019	-mixed method study consisting of patient interviews in hospital, and medical record abstraction	-43 female patients (Hispanic and non-Hispanic) in 7 Colorado hospitals -study included regions in Colorado that had a higher population of Hispanic individuals	- symptom description and recognition -treatment-seeking behavior	-most women reported symptoms in the weeks before the Acute MI -fewer Hispanic women overall presented to ER within 24 Hr. of symptoms onset -ethnic origin seems to affect care-seeking behavior and perception of symptoms and therefore a high degree of suspicion should be enacted by health care providers -incidences of cardiac ischemia remain underappreciated and underrecognized by women and care providers - 83% of women who sought for care promptly were non-Hispanic	-study was not able to account for those who did not survive the MI and does not represent experience of individuals who has a fatal event -Recall Bias may be present due to one of the major points of data collection being participant interview -medical records may not always be complete in the information they provide + able to provide both quantitative and qualitative data + research was consistent with accepted literature on non-tested variables
(2), Wechkunnukul, Grantham, Damarell, Clark, 2016	-systematic review considers quantitative studies including RCT's, non-RCT's, prospective and retrospective cohort	-research looked to include participants from a variety of ethnic background for this study - inclusion criteria were	-consider studies that measure delay time as the main outcome, measured from time of symptoms onset to time of arrival at hospital	- delay times varied across ethnic groups Delay times were longer in culturally ethnic groups when compared to the majority population in 7/10 studies,	+seemed to have strong review criteria in place to ensure quality research was selected for review -wide variety of study designs included considering only 10 studies were reviewed in total +searched most or all the major medical or

	<p>studies, case-control studies, analytical cross-sectional studies, and quasi-experiments</p> <p>-data extraction performed by standardized data extraction tool</p>	<p>presentation to ER with chest pain</p> <p>- 10 studies with a total of 1511382 participants</p>		<p>measured by average time</p> <p>-the other 3 studies found larger proportions of late ER presentation in ethnic groups compared to majority groups as well, but were instead measured into distinct ranges of time</p> <p>- this review shows evidence that there is an association between ethnicity and the time it takes for the patient to seek medical care for events of chest pain in ethnic minorities compared to the majority</p>	<p>health databases for relevant criteria</p>
<p>(3), Herning, Hansen, Bygberg, Lindhardt, 2011</p>	<p>- in-depth interviews with STEMI patients held during time as inpatient</p> <p>-open questioning techniques were used</p>	<p>-14 women with STEMI (was 17, 3 refusals due to fatigue)</p> <p>-age 50-84</p>	<p>-goal was to determine what factors cause delays in treatment-seeking in women</p>	<p>-the decision to seek care in the event of chest pain (MI) influenced a variety of variables including knowledge, emotions, beliefs, and past experiences.</p> <p>-3 main factors listed as determinants for reduced patient delay, the first being the ability to identify their symptoms as being cardiac in</p>	<p>-small sample size which cannot possibly show an overall trend in a larger population</p> <p>-participants were very similar regarding many variables including age, marital status, and their treatment-seeking delay</p> <p>-recall bias may be at work here due to a loss of memory during a traumatic event and over time</p> <p>-participants may have been aware that their delay in seeking treatment was likely not productive and</p>

				origin, the second was having an appropriate plan for action ready in the case of an emergency, and third was whether they lived with or frequently contacted others	could therefore withhold information +interviewer was a cardiac nurse and understands the event that the patients experienced. This could also be a limitation
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**Comments**

Although the data shows that there is evidence that racial minorities and women do delay engaging in treatment-seeking behaviors when experiencing an MI, the research that looks to rationalize or show reasoning for this is often incomplete or prone to biases due to the methodology. Namely, using interview techniques on small sample sizes to determine why participants did not seek treatment in a timely fashion is useful, but it highly subjective and does not necessarily apply across the same population members or into other demographics.

It is important to note that all the studies that were included in this paper, as well as many others that were considered, mentioned the importance of education initiatives within these populations as well as within the healthcare profession. There appears to be distinct connection within the included literature and the cited sources within that mortality and treatment delay show a positive correlation. Therefore, the ability of these populations to better understand their conditions and the urgency of the situation in accessing care will improve the overall health outcome associated with myocardial infarctions.

**Considerations**

This area will continue to require more research to determine how all the variables interact to create these health disparities within these populations. Additionally, more research should be completed to demonstrate the best method of intervention for paramedics and other health professionals. The conclusion drawn within may have some practical implications outlined below but will not require any changes in the medical directive for care of cardiac ischemia and infarcts, or how these calls might be approached.

**Clinical Bottom Line**

Paramedics should continue to be aware of the discrepancies in symptoms shown by women and the continuing lack of understanding of ethnic minority groups and women when experiencing an MI. Additionally, having the knowledge that these populations may not have attempted to seek EMS care urgently could mean that there is a greater risk of increase myocardial damage that may result in cardiac arrest and could potentially increase acuity of these patients. Communication skills should also be an asset when managing these patients to ensure that they fully understand the nature of their symptoms.

**References**

1. Pate A, Leeman-Castillo BA, Krantz MJ. Treatment-Seeking Delay Among Hispanic and Non-Hispanic Women with Acute Myocardial Infarction. Health Equity [Internet]. 2019 June [cited 2021 Feb 26];3(1):287-296. Available from <https://www.ncbi.nlm.nih.gov.ezpxy.fanshawec.ca/pmc/articles/PMC6634169/>

2. Wechkunanukul K, Grantham H, Damarell R, Clark RA. The association between ethnicity and delay in seeking medical care for chest pain: a systematic review. *JBI* [Internet]. 2016 July [cited 2021 Feb 26];14(7):208-235. doi: 10.11124/JBISRIR-2016-003012
3. Herning M, Hansen PR, Bygbjerg B, Lindhardt T. Women's Experience and Behavior at Onset of Symptoms of ST Segment Elevation Acute Myocardial Infarction. *European J of Cardiovascular Nursing* [Internet]. 2011 Dec [cited 2021 Feb 26];10(4):241-247. <https://doi-org.ezpxy.fanshawec.ca/10.1016/j.ejcnurse.2010.10.002>