

## Background

Acute pain is one of the most common presenting complaints to the (ED), representing up to 45% of ED visits in the United States[1][2]. Pain management can be considered a public health challenge as there are substantial disparities in pain prevalence and rates of undertreatment across population groups. Vulnerable populations—including the elderly, children, racial and ethnic minorities, and others—are more at risk for inadequately treated pain. Multiple disparities exist when it comes to the management of acute pain in the ED, including age, ethnicity, and gender. It has been documented that there are health disparities between men and women—men often receiving more adequate pain management for post-operative care, AIDS, cancer pain, etc. [5]. Additionally, there are conflicting results about whether patient and provider gender has an influence on analgesic administration. Multiple studies in the past have shown the disparities of pain management based on demographics, ethnicity, and race, however, there is not enough information on gender influencing pain management decisions in the acute setting.

## Objectives

The purpose of this systematic review was to identify whether a gender disparity exists in acute pain management decisions in the emergency department (ED).

## Methods

### Search strategy:

This systematic review was performed in accordance with the PRISMA guidelines (figure 1). PubMed and Google Scholar were used to acquire research studies to assess associations between patient gender and healthcare providers' pain management decisions in treating acute pain in the ED.

### Inclusion Criteria:

The inclusion criteria were English-language studies, studies investigating humans, studies in EDs, participants with complaints of acute pain, studies comparing male vs female outcomes, studies providing analgesic pharmacologic intervention, and studies in which participants were between 18-65 years of age.

### Exclusion Criteria:

Studies were excluded if patients were under 18 or over 65 years old, patients had chronic pain, patients were treated for pain in settings other than the ED, the breakdown of men and women were not reported, or primary outcomes were not reported. Studies that reported pain management of acute coronary events and post-surgical pain were also excluded.

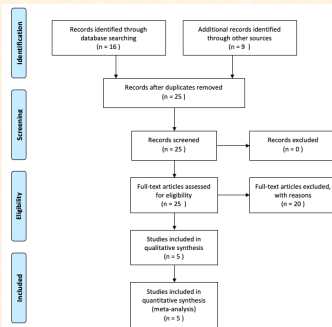


Figure 1. Search methods via PRISMA guidelines

## Results

- A total of 5 studies were included in this systematic review, comprising 3165 patients (56.3% Female) with a mean age of 40.7 years.
- 3 out of 5 studies had similar ED arrival pain scores between both genders (figure 2). Females reported higher pain scores in 1 study ( $p=.03$ ) and males reported higher pain scores in 1 study ( $p=.001$ ).
- 3 out of 5 studies found no difference in analgesia administration between both genders (figure 3). The other 2 studies found that males received more analgesia than females ( $p=.04$ , 95% CI = 1.1% to 13.6%).

### ED Arrival Pain Scores

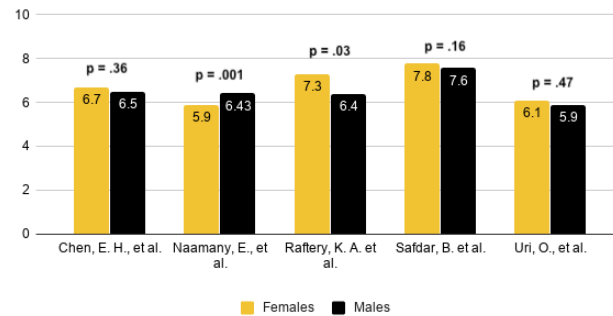


Figure 2. The mean baseline pain level according to the visual analog pain scale and 10 point scale.

### Male vs. Female Analgesic Administration

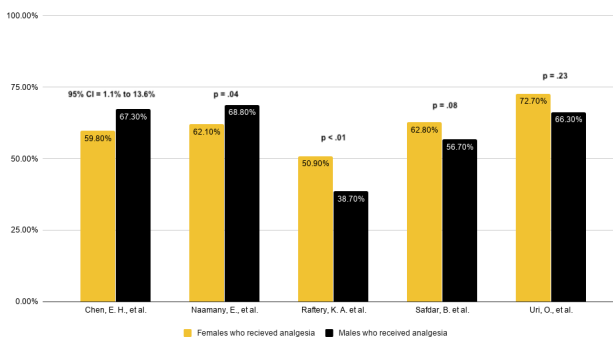


Figure 3. The proportion of male and female patients who received analgesia.

## Discussion

**Pain Scale:** One study found that female patients described more pain than males, in contrast to another study which found that males reported higher pain scores ( $p=0.001$ ). Three studies found that overall, males and females had similar mean pain scores. Additionally, one out of five studies found that providers assessed female pain to be greater than males ( $p<0.001$ ). There was no clear indicator of which gender expressed more pain (figure 2).

**Analgesia Given Overall:** Patients presenting with acute pain are often treated with analgesia in order to make them feel more comfortable [3]. When assessing analgesia given overall, one study found that female patients received more potent analgesics ( $P=0.03$ ). Two studies found that females were less likely to receive analgesia, opioid or nonopioid. One study noted that females in severe pain were more likely to receive analgesics ( $p=0.02$ ). Overall, two studies found that there was no significant statistical difference in analgesia administration between the two genders (figure 3), while two others found that males received more analgesics than females and one study found that females received more analgesics than males.

**Administration of Opioid Analgesics:** Pain can be managed with a variety of methods, one of these methods being opiates [11]. Regarding opiates as analgesia, two studies found that females were less likely to receive opiates compared to males, two found that females were more likely than men to receive opioids for analgesia. One study found that there was no difference between the two genders. The provider gender was found to influence giving their same gender opioids, but no other studies reported this.

**Provider Decision Making:** Pain management is determined by the health care provider. Some studies have noted how their decision-making affected pain management. One study found that female providers were more likely to administer analgesics than male providers ( $p=0.009$ ), while another study found that provider gender provided no bias on analgesic administration. The final three studies did not report a provider gender bias.

**Overall Conclusions:** Overall, one study found that patient perception of pain was the predictor of acute pain management and thus determined the types and the amount of analgesics administered. Another study suggested that the provider's gender determined pain management rather than the patient's gender. Two studies agreed that a gender bias may be present, and that a standardized pain management protocol should be used in order to overcome that bias. One study was unable to determine if the differences in acute pain management was due to gender discrimination or another unidentified factor.

**Limitations:** Limitations include difficulty finding previous studies that measured the same variables. For example, all studies looked at how gender affected acute pain management, but only a few studies studied the gender of the patient as well as the provider. Another limitation includes not finding enough studies that fit our inclusion and exclusion criteria. Finally, we were limited by studies utilizing different pain scores, leaving room for different interpretations and scores of pain.

## Conclusions

It is unclear if there is a gender bias regarding acute pain management presenting to the ED. Some studies identify that patients' perception of pain was the predictor of acute pain management, while other studies revealed that the provider's gender determined pain management rather than the patient's gender. In order to ensure there is not a gender bias and reduce further risk of discrepancy regarding pain management, a standardized pain management protocol should be used. Further randomized controlled studies are required to assess the role of standardized analgesic protocols in optimizing pain management in the acute care setting.

## References

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