

Introduction

In recent years, there has been an increase in the research surrounding the sex differences in pain. The literature on this topic has found that there are significant differences in how men and women report and experience pain as well as a difference in reactions to both pharmacological and non-pharmacological treatments for pain. Women generally report experiencing acute clinical, chronic clinical, and experimental pain more intensely than their male counterparts, but are treated less aggressively in post-operative, rheumatologic, or emergency care services.

This literature review seeks to acknowledge this bias, analyze the factors at play in the difference in pain experiences, and provide recommendations for medical care workers to address the unconscious bias.

Methodology

The literature utilized in this review comes primarily from scholarly, peer-reviewed journals found through JSTOR. Articles were returned using the search terms “gender bias + pain”, “sex differences + pain”, “provider bias + pain”, and “pain management + gender”. This literature review was prompted by an article written by Dianne E. Hoffman and Anita J. Tarzian entitled “The Girl Who Cried Pain: A Bias Against Women in the Treatment of Pain” published in volume 29 of the *Journal of Law, Medicine, and Ethics*.

Literature focused on gender differences in self-destructive behaviors (including, but not limited to self-mutilative behaviors common in depression) were excluded.

A Primer on Pain

Pain – “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (International Association for the Study of Pain).

- Caused by nociceptors sending signals to the brain in response to noxious stimuli

Mechanical – Respond to pressure and incisions that break the surface of the skin

Thermal – Respond to noxious heat or cold at varying temperatures

Chemical – Respond to noxious chemical substances, such as Capsaicin

Silent/Sleeping – Do not respond to external stimuli, only send signals when there is inflammation in the surrounding tissue

- A certain amount of pain triggers a signal from the nerve, sending the sensation of pain to the central nervous system

Biological Differences

The following are hypothesized differences between how persons designated female at birth (DFAB) and persons designated male at birth (DMAB) experience pain:

- **Reproductive hormones:** Research has found that varying levels of reproductive hormones alter pain perception. Pain sensitivity changes throughout the menstrual cycle. The claim that reported pain severity changes based on proximity to external reproductive organs was supported
- **Nervous differences:** DFAB individuals have higher concentrations of μ -opioid receptors, which are one of three types of opioid receptors found in the brain that produce analgesic responses. High concentrations of these receptors mean more of an agonist (in this case, morphine) for the receptor is required to achieve the same response.

Literature on this topic has tended to focus on laboratory-induced noxious stimuli, and therefore makes it impossible to weigh the social aspects of a situation that may contribute to a heightened or lessened perceived pain.

Differences in Reported Pain in Men and Women

- Women are more likely to report migraines, chronic tension headaches, facial pain, musculoskeletal pain, and pain caused by rheumatologic disorders.
- Women are more likely to develop a chronic pain syndrome following physical trauma than men who experience similar traumas.
- Women display slightly higher sensitivity to laboratory-induced pain than men, with great variability amongst individuals.
- Half of all studies published prior to 1997 found no difference in responses of men and women to experimental pain. Those that did all found that women have lower pain thresholds, higher pain ratings, and lower pain tolerance.

Psychosociocultural Disparities

The following are hypothesized disparities in how individuals who identify using the labels of “men” and “women” perceive pain. Literature surrounding non-binary genders is currently very sparse.

- Two constructs have been found to contribute to pain responsivity: self-efficacy and catastrophizing. Lower levels of self-efficacy has been linked to higher reported levels of pain. Men tend to report higher degrees of self-efficacy and engage in catastrophizing less often than their female cohorts.
- Male babies are more expressive than females. However, by the age of five or six, their emotional expressiveness has lessened, and girls become more likely to express hurt or discomfort
- Men cope with pain through stoic means (i.e.: acceptance of the situation) while women seek social support while expressing their feelings.
- When asked to describe their pain, women have been found to describe their pain using more contextual information than men.
- Both men and women believe that men are less likely to report pain than the typical woman.

Differences in Acute Pain Treatment

- A retrospective study on patients who went to the hospital for chest pain found that women were less likely to be admitted than men reporting the same symptoms. This “Yentl Syndrome” states that “women are more likely to be treated as aggressively in their initial encounters with the healthcare system until they prove that they are as sick as male patients” (Healy 1991).
- One retrospective study of patients who received coronary artery bypass surgery found that men were medicated more frequently and sedated less often than women of the same age with the same number of grafts.
- An 1982 study found that women were prescribed more tranquilizers and non-opiates following surgery and had experienced pain for longer before being referred to the clinic.
- More codeine was prescribed to pediatric males following cardiac surgery, while more acetaminophen was prescribed to girls

Differences in Chronic Pain Treatment

- Women’s pain reports are often taken less seriously than men’s, even though women have higher incidences of chronic conditions characterized by chronic pain (i.e: fibromyalgia, rheumatoid arthritis, etc)
- A study of HIV patients found that 85% of the patients indicated that they received “inadequate analgesic therapy”, and women were significantly more likely to report this.

Conclusion

There is substantial evidence that women have higher incidences of pain, lower pain thresholds, and lowered susceptibility to analgesics than men. However, healthcare providers still treat women less aggressively than men until the women can prove that they are as ill as the men are.

Providers still make unconscious judgements while performing diagnostic examinations.

In post-operative settings, women are 1.5x more likely to be undermedicated for pain, with a focus on tranquilizers and non-opiate pain medications. However, studies have found that women have higher concentrations of μ -opioid receptors which require higher levels of morphine to elicit the same response in both men and women.

Until the bias in healthcare is addressed, it is highly likely that the gender gap in medicating both acute and chronic pain conditions will remain an issue.

References and Acknowledgements

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- Journal of Law, Medicine, and Ethics – *The Girl Who Cried Pain: A Bias Against Women in the Treatment of Pain* (Hoffmann and Tarzian)
- British Journal of Anesthesia – *Sex Differences in Pain: A Brief Review of Clinical and Experimental Findings* (Bartley and Fillingim)
- Medical Care – *Physician Treatment of Men and Women Patients: Sex Bias or Appropriate Care?* (Verbrudge and Steiner)