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Gender Medicine

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Review article

Gender differences in pain: Do emotions play a role?

PhD Jamie L. Rhudy ... BS Amy E. Williams

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Abstract

Background:

Research suggests that the influence of gender on the processing and experience of pain is a result of several mechanisms. One mediating variable is emotion, which may modulate pain through an interaction of valence (pleasant-unpleasant) and arousal (calm-excited).

Objective:

This review examines whether gender differences in the experience and processing of emotion contribute to differences in the modulation and perception of pain.

Methods:

An English-language search of MEDLINE and PsycINFO was conducted from 1887 to May 2005. Additional literature was obtained from reference lists of articles retained in

May 2005. Additional literature was obtained from reference lists of articles retained in the initial search.

Results:

Emotion appears to influence pain through a valence-by-arousal interaction. Specifically, negatively valenced emotions with low to moderate arousal (eg, anxiety) enhance pain, whereas negatively valenced emotions with high arousal (eg, fear) reduce pain. In contrast, positively valenced emotions always reduce pain, as long as minimal arousal is achieved. Some evidence suggests that women are more sensitive than men to threat-related stimuli and thus experience more negative affect than men. This would generally lead to enhanced pain perception in women. It is also possible that women are more likely than men to experience negative affect with high arousal (intense fear) and thus pain inhibition. However, the relatively lower base rate of intense negative emotions is not likely to contribute much to gender differences in pain. Evidence also suggests that men may be more sensitive to positive events, particularly sexual/erotic stimuli, which may lead to more positive emotion-induced pain reduction in men, relative to women.

Conclusions:

This review suggests that gender differences in the experience of pain may arise from differences in the experience and processing of emotion that, in turn, differentially alter pain processing. Specifically, the system associated with negative affect may be more attuned to threatening stimuli in women, and the system associated with positive affect may be more attuned to pleasurable stimuli in men. However, there is a paucity of research directly addressing this issue; much of the research on this topic has failed to test a comprehensive model of emotion, failed to use adequate manipulation checks, or failed to use within-subject experimental designs that control for intra- and interindividual differences. Therefore, it is concluded that additional research is warranted.



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Key words

pain modulation; motivation; defensive system; appetitive system; emotion; gender

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