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Original article

## Women's greater fear of pain is mediated by neuroticism



*Les femmes, plus que les hommes, ont peur de la douleur : la contribution du névrosisme*

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### ABSTRACT

Fear of pain is an emotional state linked to a host of negative events, including exaggerated pain perception, distress, and chronic pain. Although many studies have shown that women experience fear of pain more than men do, little is known about the factors that might explain these sex differences. According to an individual-difference approach, it seems valuable to examine the contribution of personality factors, which are considered as major antecedents of cognitions and emotions, including fear. The present study focuses on the potential mediating role of neuroticism – and its six specific facets – in the sex-fear of pain relationship for fear of severe pain, fear of minor pain, and fear of medical pain. Given that neuroticism is greater in women and that this personality trait contributes to the fear of pain, we hypothesized that neuroticism would mediate the sex-fear of pain relationship. Due to the previously established link between experience of pain and the fear of pain, we controlled for the previous experience of pain in the mediation model. Participants ( $n = 133$  women; 96 men) completed measures of previous experiences of pain, neuroticism, and fear of pain. Using Preacher and Hayes' SPSS script, we used a bootstrapping method with

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<sup>1</sup> Research areas: pain perception, personality.

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*n* = 5000 bootstrap resamples to test the model. Bootstrapped mediation analyses revealed that neuroticism significantly (within a 95% confidence interval) mediated the sex-fear of severe pain relationship. Working within a 90% confidence interval, neuroticism also significantly mediated the sex-fear of pain relationship for fear of minor pain and fear of medical pain. Although the global trait of neuroticism contributed to sex differences in fear of minor pain, it was specifically the neuroticism facet of anxiety that mediated the relationship between sex and fear of severe pain and sex and fear of medical pain. The results suggest that women experience more fear of pain partly because they are more neurotic than men and provide the first evidence that neuroticism is an integral part of the process that differentiates the sexes in fear of pain. Given that the proportion of variance accounted for in each of the mediation models (8% at most), there is a clear need for further research to elucidate more fully the mechanisms that underlie sex differences in the fear of pain.

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## RÉSUMÉ

### Mots clés :

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La peur de la douleur est un état émotionnel maladaptatif de réaction à la douleur. Bien que différentes études montrent que les femmes ont davantage peur de la douleur que les hommes, les facteurs qui expliquent cette différence restent à préciser. À travers une approche centrée sur les différences interindividuelles, cette étude a pour objectif de tester le rôle médiateur du névrosisme et de ses facettes dans les relations liant respectivement sexe et peur des douleurs sévères, mineures, médicales. Deux cent vingt-neuf personnes ont complété un recueil de questionnaires mesurant la peur de la douleur, le névrosisme et les expériences passées avec la douleur (i.e., variable contrôle). Les analyses démontrent que le névrosisme médie la relation entre le sexe et la peur des douleurs sévères. Une tendance similaire est observée pour la peur des douleurs mineures et médicales. Ces résultats confirment l'influence de la personnalité dans les réponses interindividuelles à la douleur.

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## 1. Introduction

The fear of pain – defined as fearful beliefs that pain represents damage or significant harm to the body – is thought to be more disabling than pain itself (Crombez, Vlaeyen, Heuts, & Lysens, 1999). Indeed, when pain is experienced with low fear, patients are likely to deal with the pain and to maintain engagement in daily activities, through which functional recovery is promoted. In contrast, when the experience of pain is feared, dysfunctional interpretations give rise to associated safety seeking behaviors such as avoidance/escape and hypervigilance, which can lead to chronic pain, disability, disuse, and depression (Leeuw et al., 2007; Vlaeyen & Linton, 2000). Although models of pain behaviors (e.g., Vlaeyen & Linton, 2000) outline the crucial role of fear of pain for understanding chronic pain and provide an account of how such fear develops (Leeuw et al., 2007), these models do not account for any sex differences. Sex differences, however, are prevalent in the literature on fear of pain (Albaret,

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