

## Association between pain extent and health status in whiplash associated disorders

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**Background.** Whiplash associated disorders (WAD) are a complex phenomenon associated with relevant social and economic burdens. Many people with chronic WAD show widespread pain which can be observed from the patient's pain drawing. No studies have evaluated the relation of pain extent to perceived pain and disability, financial status, general health and psychological status in individuals with chronic WAD.

**Purpose.** To evaluate the relation of pain extent to a number of variables related to the patients' perceived pain and disability, their financial status, general health and psychological status.

**Methods.** A total of 205 individuals with chronic WAD grade 2 or 3 were selected. The main outcome measure was pain extent, extracted from the pain drawing. Pain extent was evaluated in relation to sex, age, educational level, insurance status and financial status. Multiple linear regression analysis was then used to verify whether pain extent was significantly associated with the other health indicators including perceived pain intensity and disability, health-related quality of life, pain catastrophizing, anxiety, depression and self-efficacy.

**Results:** Pain extent was influenced by the sex of the participant ( $p < 0.01$ ) with larger pain extent in women compared to men ( $7.88 \pm 7.66$  vs  $5.40 \pm 6.44$ ). People with unsettled insurance claims ( $p < 0.05$ ) and those with a worse financial situation ( $p < 0.01$ ) showed larger pain extent. Multiple linear regression models revealed that, when accounting for age, sex, education, insurance status, financial status and neck pain intensity, pain extent remained associated with perceived disability ( $p < 0.01$ ), depression ( $p < 0.05$ ), and self-efficacy ( $p < 0.001$ ).

**Conclusion:** Women with chronic WAD, those with unsettled insurance claims and those with poorer financial status reported more widespread pain. When controlling for these factors, larger pain areas remained associated with perceived pain and disability, depression and self-efficacy.

**Implications:** Pain drawings support the clinical evaluation of people with chronic WAD.