

## Sex and race differences in the experience of low back pain

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**INTRODUCTION:** There is growing evidence that shows differences in the experience of symptoms in the same illness between males and females and in individuals of different racial backgrounds. However, little is known regarding such differences in specific sub-types of low back pain. Previously, we have shown significant differences in pain intensity, pain location, and variability of pain between subacute back pain (SBP, pain 4-16 weeks) and chronic back pain (CBP, pain >1 year) populations (Chanda et al., in press). Here we investigated the effects of sex and race on these three variables within the two pain populations.

**METHODS:** We recruited 86 SBP patients (45 males) and 43 CBP patients (26 males). Subjects were grouped into one of three race categories according to their responses on a questionnaire: European descent, African descent, or other. Subjects were also given a McGill Pain Questionnaire, which we used to calculate pain intensity on a scale of 0-10 (VAS, 0 = no pain, 10 = worst pain imaginable) and incidence of radiating pain (unilateral vs. bilateral). Using a finger-span logging device the subjects rated their spontaneous back pain, and from this we calculated variability of their pain (fractal dimension). We used a 2-way ANOVA to test the effects of race and sex on VAS and fractal dimension, and a Fisher's exact test to look at the effects on radiating pain.

**RESULTS:** We found a significant main effect of sex on VAS in the CBP population ( $F_{1,36}=11.4$ ,  $p=0.002$ ), with females experiencing more intense pain than males. In the SBP population, sex showed a significant main effect on radiating pain ( $p=0.011$ ), with males more prone to unilateral radiating pain, and females more prone to bilateral radiating pain. Race had a significant main effect on pain location in both the SBP and the CBP populations ( $p=0.015$  and  $p=0.0001$ , respectively). In the SBP population Europeans had a higher incidence of unilateral radiating pain, while Africans had a higher incidence of bilateral radiating pain. However, in the CBP population the Europeans shifted to a greater prevalence of bilateral radiating pain, matching the Africans. There were no significant sex or race effects on variability of pain.

**CONCLUSION:** These results show a significant sex difference in pain intensity in a CBP population and pain location in a SBP population. There is also an effect of race on the occurrence of radiating pain in both pain populations. The ability to characterize these differences could have an impact on how low back pain is managed, but more research is needed to identify underlying mechanisms.

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