Comparing Racial/Ethnic Disparities in Chronic Pain

Jax Norman[1], Matthew Fillingim[2], Azin Zare[1], Christophe Tanguay-Sabourin[1], Gianluca Guglietti[2], Lindsay Neuert[1], Etienne Vachon-Presseau[1]

1 McGill University, Faculty of Dental Medicine and Oral Health Sciences, Montreal, Quebec, Canada; 2 McGill University, Integrated Program in Neuroscience, Montreal, Quebec, Canada

INTRODUCTION

Chronic pain ranks as the leading contributor to global years lost to disability according to WHO Global Health Estimates. Unfortunately, our understanding of chronic pain's distribution across equity deserving populations remains limited and geographically fragmented. This study seeks to provide a more unified perspective by investigating chronic pain prevalence across racial/ethnic groups in three diverse cohorts: the UK Biobank (UKB; Europe), the National Health and Nutrition Examination Study (NHANES; North America), and the Brazilian Longitudinal Study of Ageing (ELSI; South America).

METHODS

We assessed chronic pain prevalence stratified by ethnicity and sex within each cohort. The statistical significance of between-group differences was evaluated using chi-square tests with Bonferroni corrections for multiple comparisons. We harmonized pain assessments across cohorts to account for methodological differences. Pain without a specified duration was considered general pain, whereas chronic pain was defined as pain lasting longer than 3 months. Individuals from racial and ethnic groups without a sufficient sample size were excluded from all analyses, as were participants who did not respond to questionnaire items assessing pain.

RESULTS

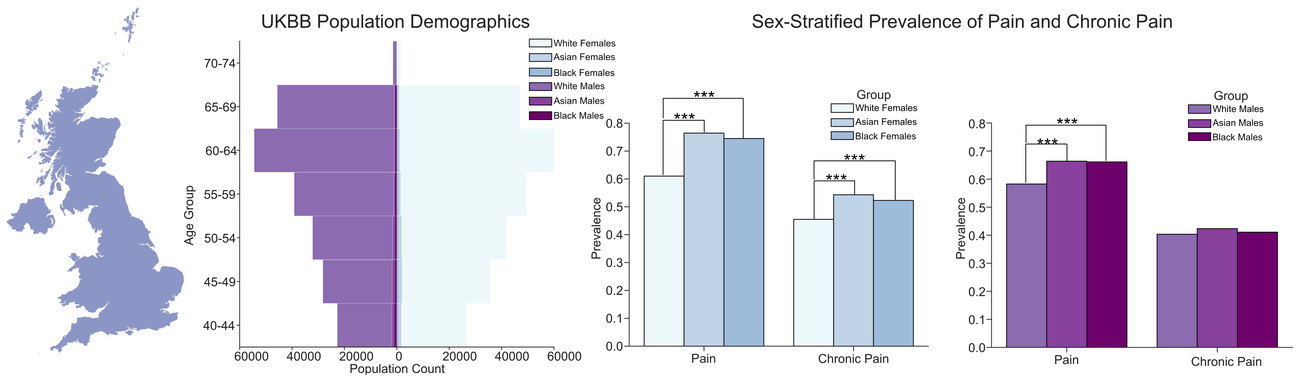

Figure 1. Prevalence of pain in UK Biobank participants, stratified by ethnicity and sex. The prevalence of pain in the last month was 61% among White women, 76% among Asian women, and 75% among Black women. 54% of Asian women and 52% of Black women reported having chronic pain, compared to 46% of White women. Asian and Black men reported the highest rates of overall pain, at 66%, compared to 58% of White men. The prevalence of chronic pain was 40% among White men, 42% among Asian men, and 41% among Black men.
* , p < 0.05;**, p <0.01; ***, p < 0.001; Bonferroni corrected Chi-squared contingency tests.

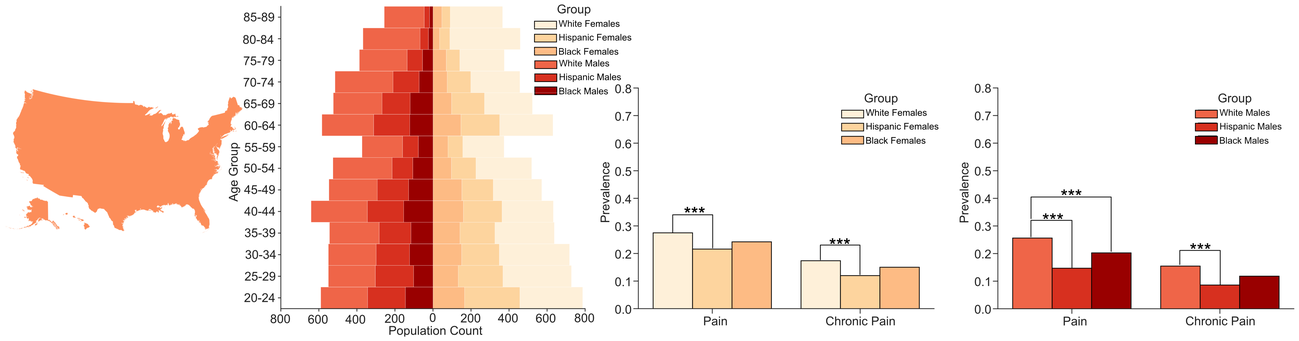

Figure 2. Prevalence of pain in NHANES participants, stratified by ethnicity and sex. The prevalence of pain in the last month was 28% among White women, 22% among Hispanic women, and 25% among Black women. 17% of White women and 15% of Black women reported having chronic pain, compared to 12% of Hispanic women. White men reported higher rates of overall pain, at 26%, compared to 15% of Hispanic men and 20% of Black men. The prevalence of chronic pain was 16% among White men, 9% among Hispanic men, and 12% among Black men.
* , p < 0.05;**, p <0.01; ***, p < 0.001; Bonferroni corrected Chi-squared contingency tests.

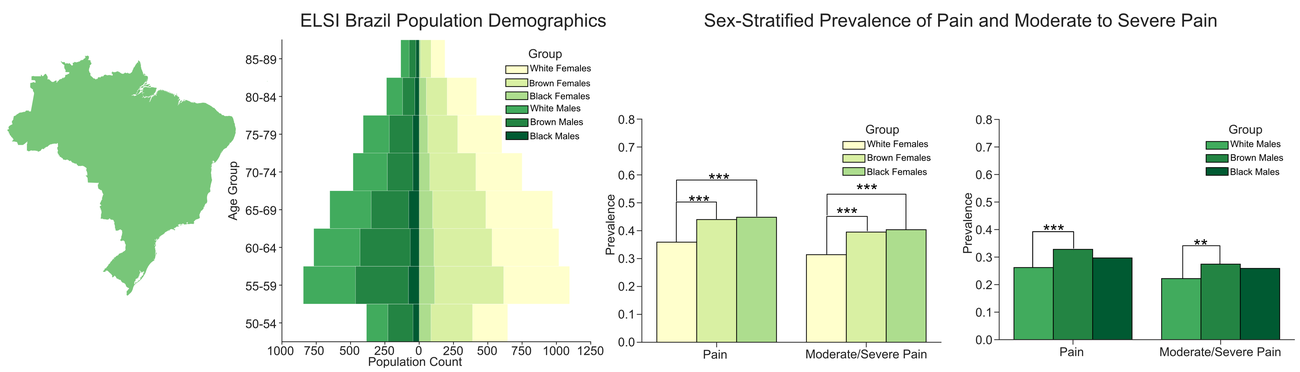

Figure 3. Prevalence of pain in ELSI-Brazil participants, stratified by ethnicity and sex. The prevalence of pain was 35% among White women, 44% among Brown women, and 45% among Black women. 39% of Brown women and 40% of Black women reported having pain of moderate or severe intensity, compared to 31% of White women. Brown men reported higher rates of pain, at 33%, compared to 27% of White men and 30% of Black men. The prevalence of moderate or severe pain was 22% among White men, 28% among Brown men, and 26% among Black men.
* , p < 0.05;**, p <0.01; ***, p < 0.001; Bonferroni corrected Chi-squared contingency tests.

CONCLUSIONS

- In the UK Biobank cohort:
  - **General pain was more prevalent in Black and Asian participants** than in White participants.
  - **Chronic pain was more prevalent in Black and Asian women** than in White women but there were no differences in prevalence for men.
- In the NHANES cohort:
  - Both **general pain and chronic pain were more prevalent in White participants than Hispanic participants**.
  - In addition, **general pain was more prevalent in White men than Black men** but there was no significant difference in the prevalence of chronic pain between the groups.
- In the ELSI cohort:
  - **General pain and chronic pain were more prevalent in Black and Brown women** than White women.
  - Among men, **general pain and chronic pain were more prevalent in Brown men than in White men** but there was no significant difference in prevalence between White men and Black men.

FUTURE DIRECTIONS

- Expanding our analyses to include data from a broader swath of the globe
- Considering aspects of identity beyond race/ethnicity and sex , such as socioeconomic status, caste or religious affiliation
- Investigating whether factors such as perceived discrimination or material/ social deprivation mediate racial and ethnic differences in pain in the countries where they are present