

BACKGROUND

- Chronic pain affects 1 in 5 Canadians¹. Due to Canada's aging population, chronic pain is becoming more prevalent since it is more common in older adults.
- An inverse relationship exists between socioeconomic status (SES) and poor health outcomes², where those of lower SES have a higher incidence and prevalence of health issues and diseases³.
- Given the large influence of SES on health outcomes, it is vital to examine this association (especially in the context of chronic pain outcomes) to better inform care for patients with lower SES.

OBJECTIVE

The purpose of this study was to understand the impact of SES on chronic pain outcomes of adults at an interdisciplinary chronic pain clinic. We aimed to:

- Determine if biopsychosocial factors of pain and healthcare utilization differ based on SES level.
- Identify which biopsychosocial factors of pain are independently associated with different indexes of SES (i.e., high income, high education).

METHODS

DESIGN

- This cross-sectional cohort study used data extracted from the initial questionnaire completed as standard of care by adult patients (N=1499) in the KHSC Chronic Pain Clinic from November 2017 to May 2021.

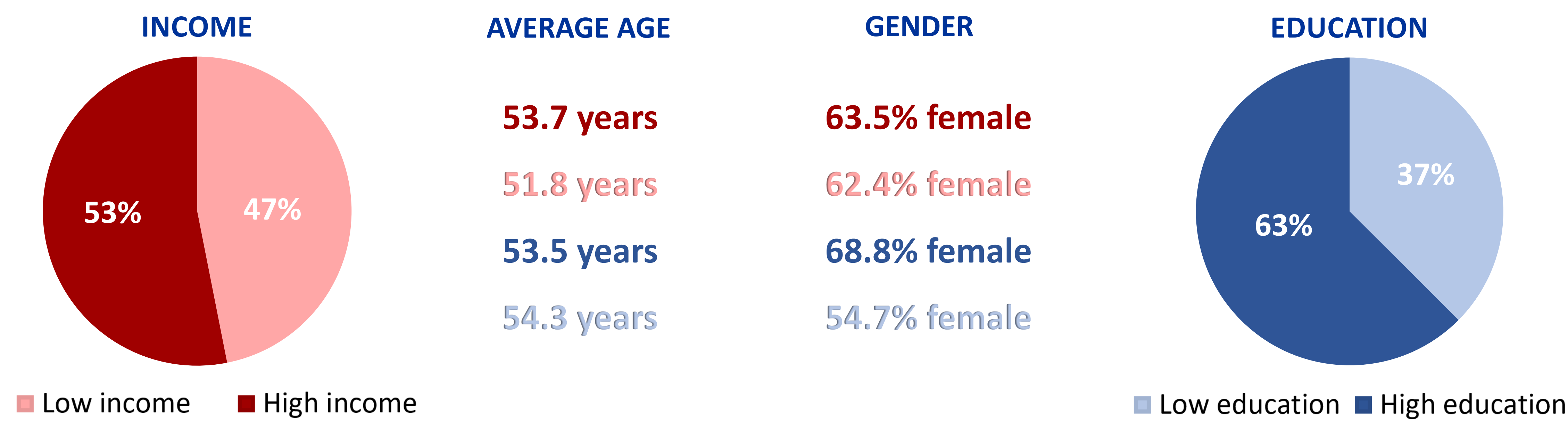
MEASURES

- Socioeconomic status (SES)** was determined based on self-reported:
 - Total annual household income** - Participants were separated into "high" and "low" income, where those with high income made >\$40,000/year.
 - Education** - Participants were separated into "high" and "low" education, where those with high education completed post-secondary education.
- Covariates**
 - Pain self-efficacy** (PSEQ-2). Higher scores indicate better self-efficacy.
 - Health-related quality of life (HR-QOL) mental and physical function** (SF12v2). Higher scores indicate better HR-QOL.
 - Pain acceptance** (CPAC-8). Higher scores indicate better pain acceptance.
 - Depressive symptoms** (PHQ-9). Higher scores indicate worse depressive symptoms.
 - Pain severity and interference** (BPI-sf). Higher scores indicate worse pain severity and interference with daily tasks.
 - Fear of movement** (TSK-11). Higher scores indicate worse fear of movement.
 - Pain catastrophizing** (PCS-6). Higher scores indicate worse pain catastrophizing.
 - Healthcare utilization** was self-reported. Participants were asked to report whether they visited different healthcare professionals in the last year.

STATISTICAL ANALYSIS

- Descriptive statistics and bivariate analyses were performed where frequency statistics and central tendency statistics are reported for categorical and continuous variables, respectively.
- Logistic regressions were run with confounding variables (age, sex, and SES measures) forced into the model. Biopsychosocial covariates were added to the model using a forward step-wise approach.

PARTICIPANT CHARACTERISTICS



RESULTS – AIM 1

BIOPSYCHOSOCIAL FACTORS OF PAIN

Table 1. Comparing biopsychosocial factors between individuals of low and high income and education.

	Low Income (N=505)	High Income (N=572)	Low Education (N=490)	High Education (N=818)
Pain self-efficacy	5.7 ±3.2	7.3 ±3.2	6.1 ±3.3	6.8 ±3.3
HR-QOL, mental function	35.5 ±11.4	41.3 ±11.7	37.8 ±12.0	39.8 ±11.8
HR-QOL, physical function	28.2 ±8.3	31.4 ±9.6	29.4 ±8.9	30.3 ± 9.3
Pain acceptance	23.6 ±8.3	19.5 ±8.7	20.9 ±8.8	22.3 ±8.7
Depressive symptoms	15.5 ±6.3	11.3 ±6.3	13.9 ±6.7	12.4 ±6.6
Pain severity	6.3 ±1.7	5.5 ±1.8	6.1 ±1.7	5.8 ±1.8
Pain interference	6.9 ±2.0	5.9 ±2.2	6.6 ±2.1	6.2 ±2.2
Fear of movement	29.5 ±7.3	26.5 ±6.8	28.9 ±7.6	27.0 ±7.0
Pain catastrophizing, median (IQR)	18.0 (14.0-21.0)	15.0 (11.0-19.0)	17.0 (13.0-21.0)	16.0 (12.0-19.0)

Note: Mean (SD) are presented, unless otherwise stated.
Significant differences between low versus high SES are shown in red (p<0.01).

HEALTHCARE UTILIZATION

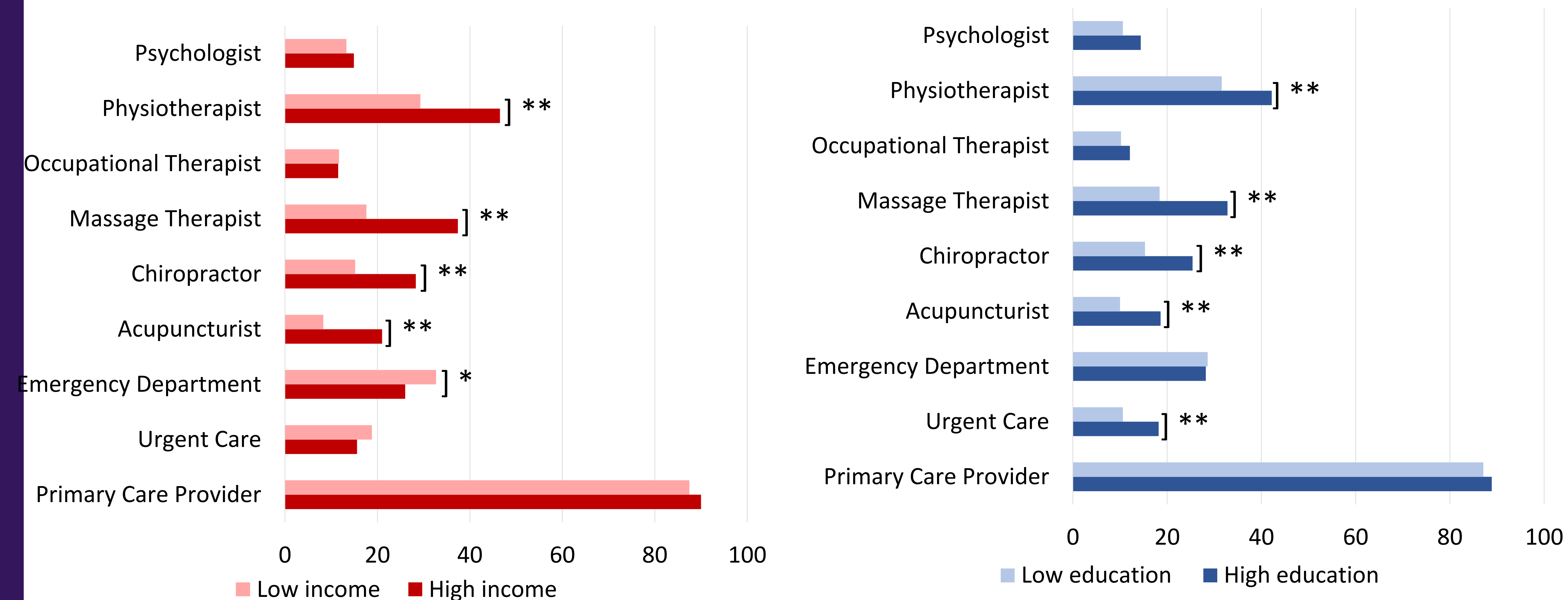


Figure 1. Percentage of responders reporting visits to each healthcare provider in the last year. *p<0.01, **p<0.001

RESULTS – AIM 2

FACTORS ASSOCIATED WITH LOW INCOME

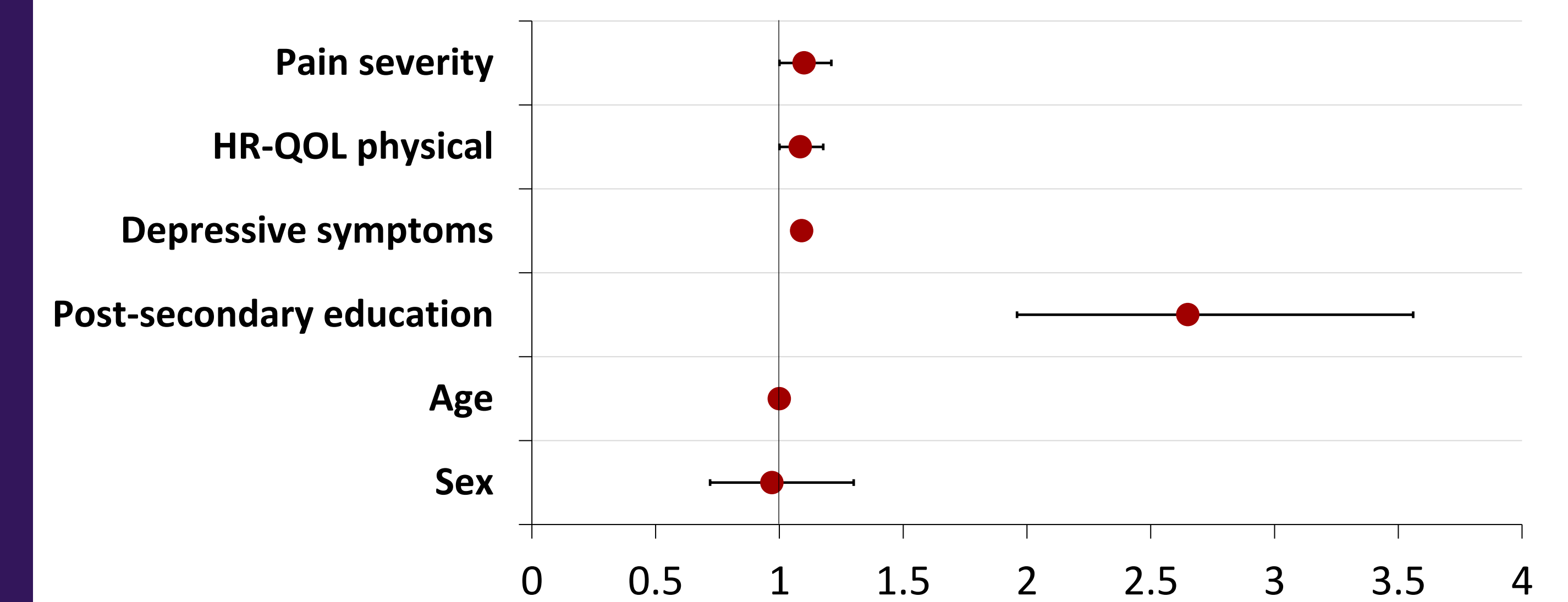


Figure 2. Logistic regression model results for income. Adjusted odds ratio (red dots) and 95% CI (error bars) are shown for each factor included in the final model. All factors were significant (p<0.05), except age and sex. Note: HR-QOL is reported as a 4-point decrease.

FACTORS ASSOCIATED WITH LOW EDUCATION

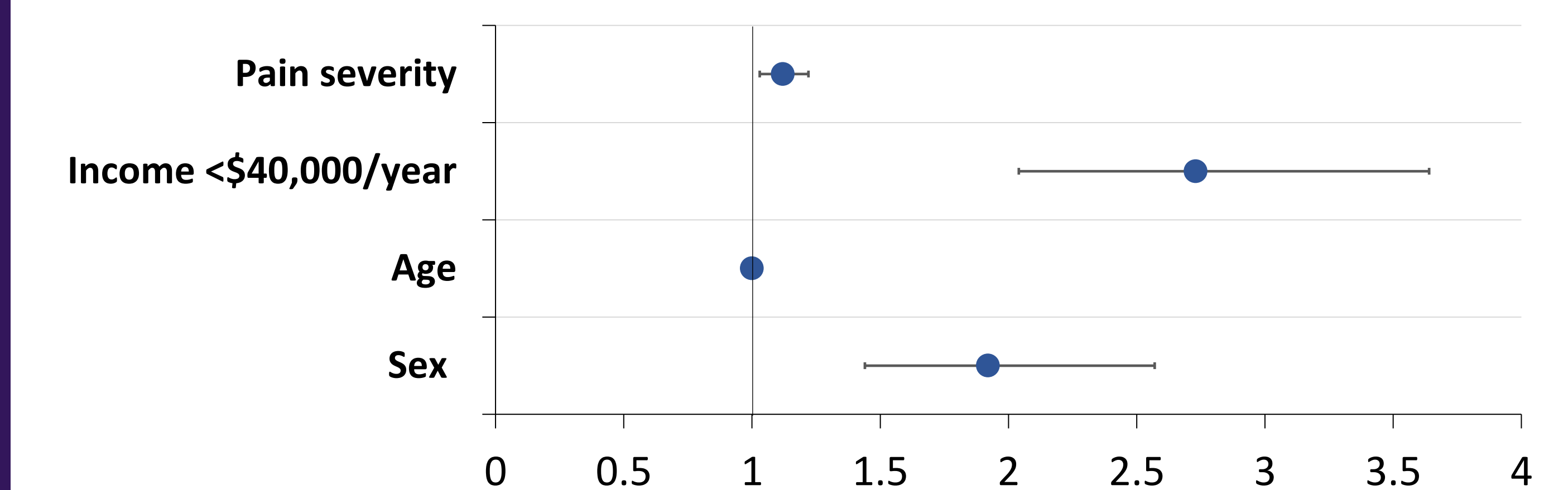


Figure 3. Logistic regression model results for education. Adjusted odds ratio (blue dots) and 95% CI (error bars) are shown for each factor included in the final model. All factors were significant (p<0.05), except age.

DISCUSSION

- Individuals with high income or high education had better biopsychosocial outcomes compared to individuals with low income or low education.
- In general, patients with high SES visited more allied health professionals (i.e., physiotherapist, massage therapist, chiropractor, acupuncturist).
- Individuals with low income were 2.7 times more likely to have a low education (and vice-versa) and males were nearly 2 times more likely to have low education.
- After controlling for confounding factors (age, sex, SES measures), individuals were more likely to have low income with higher pain severity (10% per point increase), higher depressive symptoms (9% per point increase), and lower in physical HR-QOL (8% per 4 point decrease). In contrast, individuals were more likely to have low education with higher pain severity (12% per point increase).**

Acknowledgements

Thank you to all the patients for their participation and KHSC-CPC staff for their support. This study was approved by the local research ethics board and is partly funded by the Chronic Pain Network, the 2021-22 Franklin Bracken Fellowship, and the Alison B. Froese Fund from the Department of Anesthesiology & Perioperative Medicine at Queen's University.

References

- Schopflocher et al. *Pain Res Manag* 16, 445-450 (2011);
- Donahoe & McGuire. *Isr J Health Policy Res* 9, 1-3 (2020);
- Mulatu & Schooler. *J Health Soc Beh* 43, 22-41 (2002).