Are there sex differences in the relationship between pain locus of control and pain sensitivity?
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Introduction
Pain locus of control (PLOC) refers to one’s perception of control over pain, either attributing pain to intrinsic (internal PLOC) or external factors (external PLOC). Research suggests higher internal PLOC is associated with decreased pain experience, but few experimental studies have systematically examined factors that moderate the PLOC and pain sensitivity relationship. One factor may be sex, because women experiencing persistent pain are more likely to perceive pain as resulting from a “lack of control.” The current study investigated whether PLOC was related to pain sensitivity and whether this association differed by sex in 138 healthy, pain-free individuals. PLOC was assessed from the PLOC scale that has 3 subscales (internality, powerful others, chance) and pain sensitivity was assessed from ischemia and heat pain thresholds/tolerances.

Objective
To investigate if the relationship between PLOC and pain sensitivity differs by sex.

Participants
Healthy Participants: N = 138
Characteristics: 63 Women, average age = 28.9 yrs (SD = 12.5), White non-Hispanic (89.1%), single (71.7%), and employed (65.2%).

Exclusion Criteria:
< 18 yrs of age
BMI ≥ 35
Current acute illness
Cardiovascular, neurological, and/or circulatory problems
Recent use of analgesic, antidepressant, anxiolytic, or antihypertensive medication
Recent psychological trauma
Chronic pain condition
Raynaud’s disease

Experimental Procedure
Informed Consent + Demographics
Heat Pain Threshold/Tolerance Testing:
- Thermal heat probe placed on left forearm
- 5 threshold trials and 5 tolerance trials
- For each trial, heat increased from 32° C in 0.5° C increments until participant reached threshold, tolerance, with the last 4 trials averaged

Ischemia Pain Threshold/Tolerance:
- 2 min. of hand exercises to increase energy demand in the forearm
- Pain threshold was defined as the time (in sec.) when participant rated ischemia pain as maximum tolerable

Pain Locus of Control (PLOC)
The PLOC is a reliable and valid 36-item self-report scale that assesses internal versus external locus of control for pain
The PLOC includes 3 subscales, 12 items each: internality, powerful others, and chance
Items are rated on a Likert-type scale that ranges from 1 (strongly disagree) to 5 (strongly agree)
Items include statements such as:
- Internality subscale: If my pain gets worse, it’s my own behavior which determines how soon it gets better. (Internal PLOC)
- Powerful Others subscale: Having regular contact with my physician is the best way to avoid having my pain become worse (external PLOC)
- Chance subscale: No matter what I do, if my pain is going to get worse, it will get worse. (external PLOC)

Results
Thermal heat probe

Powerful others (external PLOC) was significantly related to ischemia threshold and tolerance (p’s < .05), such that higher external PLOC was associated with lower ischemia threshold/tolerances

Sex was only significantly related to heat pain tolerance (p < .05), such that men demonstrated higher tolerance to heat than women

There were no significant PLOC X Sex interactions

Conclusions
These findings suggest PLOC and sex are independently associated with pain sensitivity
Future research is necessary to examine these relationships in chronic pain populations

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