Does Cultural Connectedness Buffer the Relationship between Adverse Childhood Experiences and Pain Catastrophizing?: Findings from the Oklahoma Study of Native American Pain Risk III

Alondra Quirino, B.S.[1], Claudia N. Vore, M.A.[3], Taylor V. Brown, M.A.[3], Kayla N. Trevino, M.S.[1], Brandon W. Jones, M.S.[3], Aleiyah M. Fields, B.S.[1], Corbin M. Woosley, B.S.[1], Travis S. Lowe, Ph.D.[3], Joanna O. Shadlow, Ph.D.[2], & Jamie L. Rhudy, Ph.D.[1,3]

[1]University of Oklahoma Health Sciences, [2]Oklahoma State University, [3]University of Tulsa

Introduction

- Native Americans (NAs) experience higher rates of chronic pain than any other US group (Jones et al., 2025).
- Higher risk of chronic pain in NAs may be due to pain catastrophizing that is promoted by exposure to Adverse Life Events (ALEs) (Huber et al., 2022).
- Pain catastrophizing can be defined as the tendency to magnify, ruminate, and have feelings of helplessness regarding pain (Sullivan et al., 1995).
- NAs report the greatest average number and variety of Adverse Childhood Experiences (ACEs) than the general US population (Richards et al., 2020).
- ACE's include experiencing traumatic events including child abuse, caregiver substance use, emotional or physical neglect, or caregiver domestic violence (Richards et al., 2020)
- Cultural connectedness (CC) has been seen to shield against negative health outcomes due to increased resilience that is increased by social support, wellbeing, and engagement with traditional practices (Jones et al., 2025).

Objective

- The aim of this study is to examine whether experiencing ACEs is associated with greater pain catastrophizing, and whether CC buffers the relationship between ACEs and pain catastrophizing.

Participant Characteristics

- Participants were 105 healthy, chronic pain-free NAs from the Oklahoma Study of Native American Pain Risk III. 37.1% of participants were male and 62.9% were female and the average age for this sample was 30 years (SD=11.27).
- Exclusion criteria for OK-SNAP: (1) <18 years old, (2) self-reported history of cardiovascular, neuroendocrine, musculoskeletal, and/or neurological disorders, (3) current chronic or acute pain, (4) current substance dependence, (5) medication use that could interfere with pain testing (e.g., analgesics, anti-depressants, anti-anxiety, stimulants), (6) current psychotic symptoms, (7) serious cognitive impairment (<20 on the Montreal Cognitive Assessment), (8) abnormal nerve conduction result (e.g., amplitude ≤4 or conduction velocity ≤40), indicating possible neuropathy; and (9) an inability to speak or read English.

Materials & Methods

- Participants completed the Adverse Childhood Experiences questionnaire, as well as measures associated with CC facets (American Indian Enculturation Scale, Cultural Connectedness Scale, NA Spirituality Scale, Vancouver Index of Acculturation).
- The Pain Catastrophizing Scale was used to assess situational pain catastrophizing using modified instructions to report on cognitions that occurred during laboratory pain tasks.
- Examples of these tasks include Contact Heat Evoked Potential Stimulation (CHEPS), Nociceptive Flexion Reflex (NFR) testing, Temporal Summation of Mechanical Pressure Pain (TS-Mechanical), Conditioned Pain Modulation (CPM) and cold and ischemic pain threshold and tolerance.

Results

- A principal components analysis was used to combine all CC facets into a single variable that explained 64% of the variance in the four NA cultural connectedness scales.
- A moderated regression was conducted predicting pain catastrophizing from ACEs, CC, and the interaction, after controlling for sex, age, and income. The regression model was non-significant (R^2=.11, p=.08) and sex was the only significant predictor (B=5.14, p<.05).

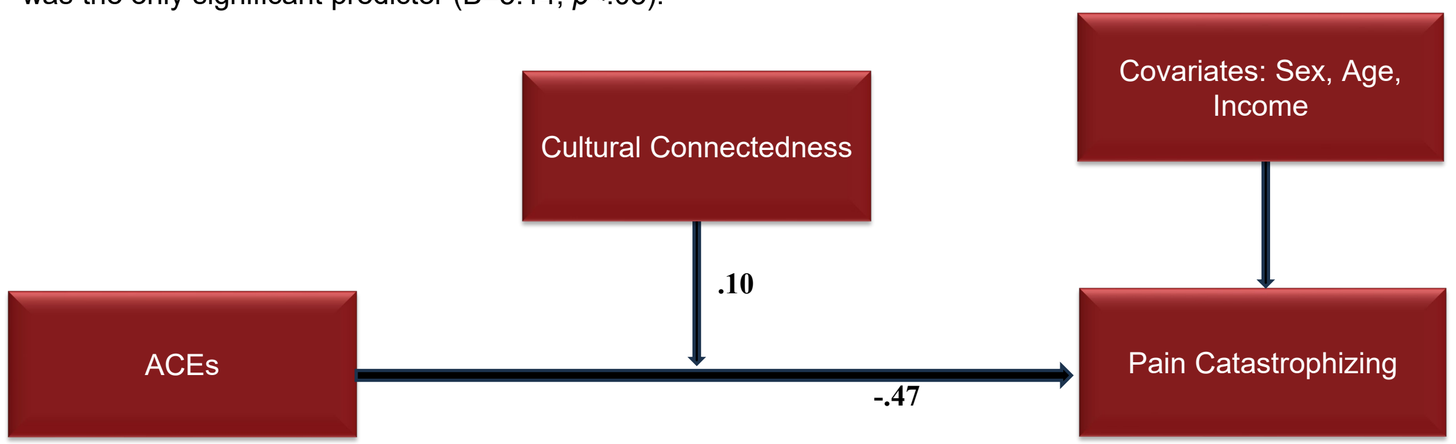

Figure 1. The relationship between ACEs and pain catastrophizing with cultural connectedness as a moderator

Discussion

- These findings suggest that ACEs is not associated with pain catastrophizing among pain-free NAs. Furthermore, CC does not moderate the relationship between ACEs and pain catastrophizing.
- Sex was the only significant outcome indicating that females score higher when assessing situational pain catastrophizing.
- Future research should examine whether CC moderates the impact of other types of adversity (e.g., discrimination, historical trauma) on pain risk mechanisms.

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PLAN

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