

Do individual differences in alexithymia moderate the relationship between emotion and pain?

Jennifer L. DelVentura BS, Emily J. Bartley MS, Amy E. Williams, PhD, Kara L. Kerr, & Jamie L. Rhudy, PhD
 Department of Psychology, The University of Tulsa, 800 South Tucker Drive, Tulsa, OK 74104

Introduction

Alexithymia is a personality construct associated with decreased ability to recognize emotions, increased emphasis on somatic sensations and external events, and various pain syndromes. Pain is a complex sensory and emotional experience indicative of actual or potential tissue damage. Alexithymia is more closely related to the affective component of pain, rather than its sensory component. The link between alexithymia and pain is thought to be related to an inability to regulate the negative emotions intrinsic to pain. Given that emotion modulates pain, such that negative emotions enhance pain and positive emotions inhibit pain, it was hypothesized that healthy individuals who are high in alexithymia would exhibit decreased emotional modulation of pain and nociception.

Objectives

The current study sought to examine whether individuals high and low in alexithymic traits differ in responses to: emotionally-charged pictures, painful electrocutaneous stimulations, and emotional modulation of pain

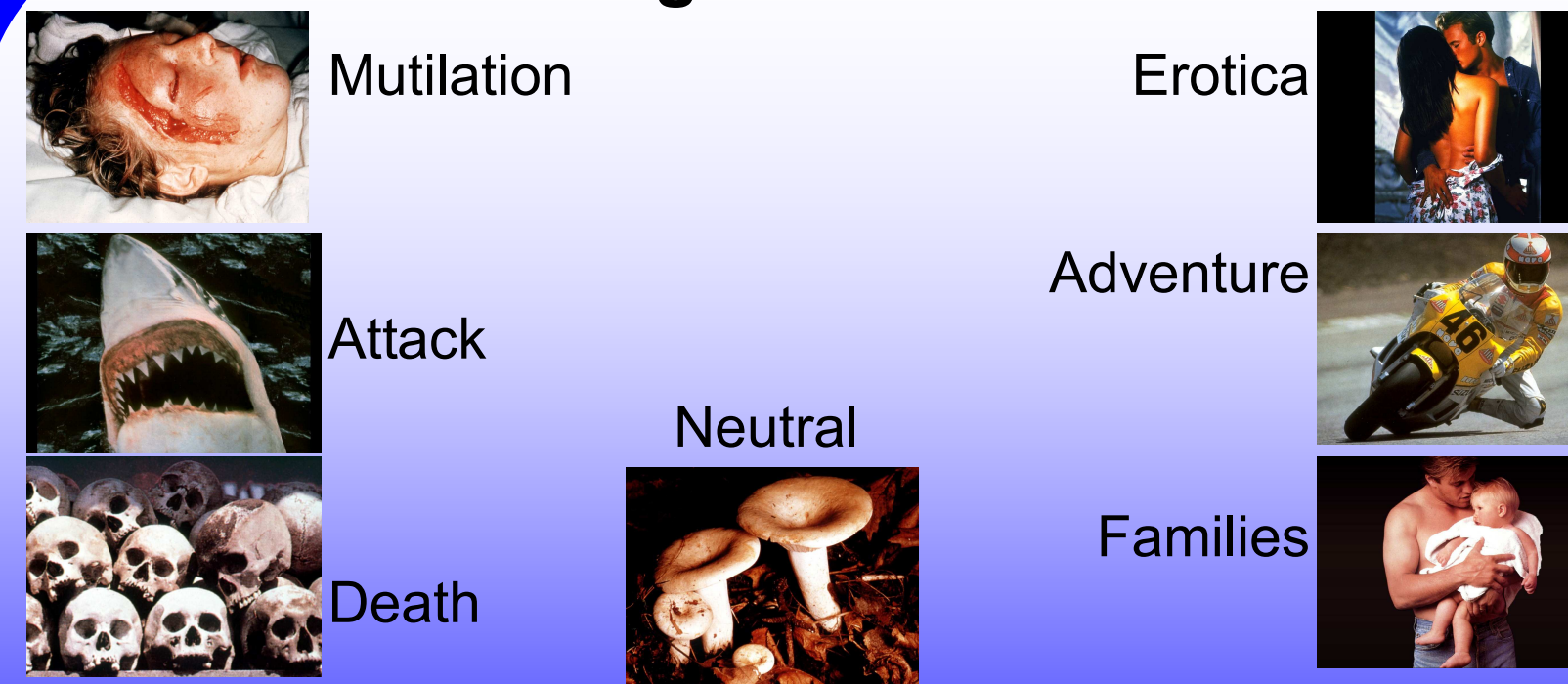
Participants

- 152 healthy participants from the community
- Characteristics: Mostly single (59.6%), mostly white (72.1%), average age = 36.2, average years of education = 15.4
- Participants split into 3 groups based on scores on the borderline scale of the Toronto Alexithymia Scale (TAS).
 - Participants scoring in the upper and lower tertiles were selected.
 - Upper tertile (54% women, 46% men)
 - Lower tertile (64% women, 36% men)

Procedure

- Stimulating electrode applied over sural nerve of ankle and recording electrodes applied to leg to measure the nociceptive flexion reflex (NFR).
- Level of painful stimulation set at 1.2x the physiological threshold (NFR threshold)
- Participants watched series of emotionally-charged pictures while receiving painful stimulations to the ankle
- After each picture, participants rated subjective valence/pleasure and arousal
- After each painful stimulation, participants rated pain intensity and NFR magnitude recorded

Picture-Viewing: Emotion Induction

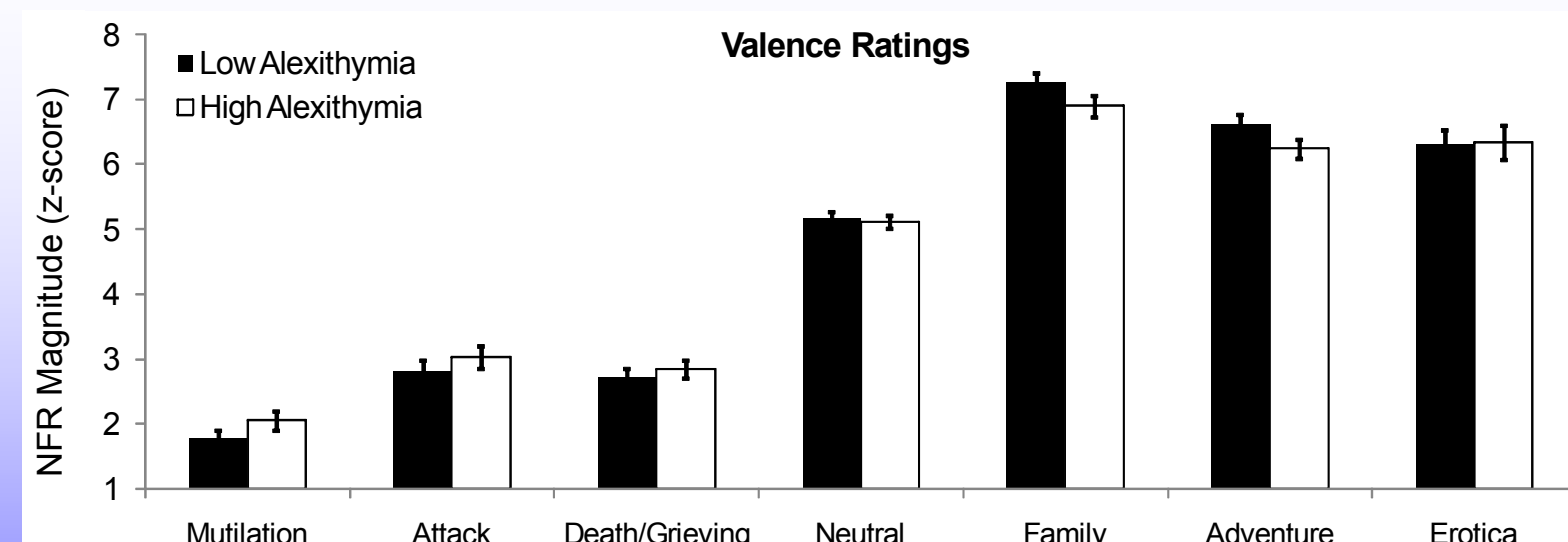


- Obtained from International Affective Picture System (IAPS; Center for the Study of Emotion and Attention, 2006)
- Pictures presented in pseudorandom order

Dependent Variables

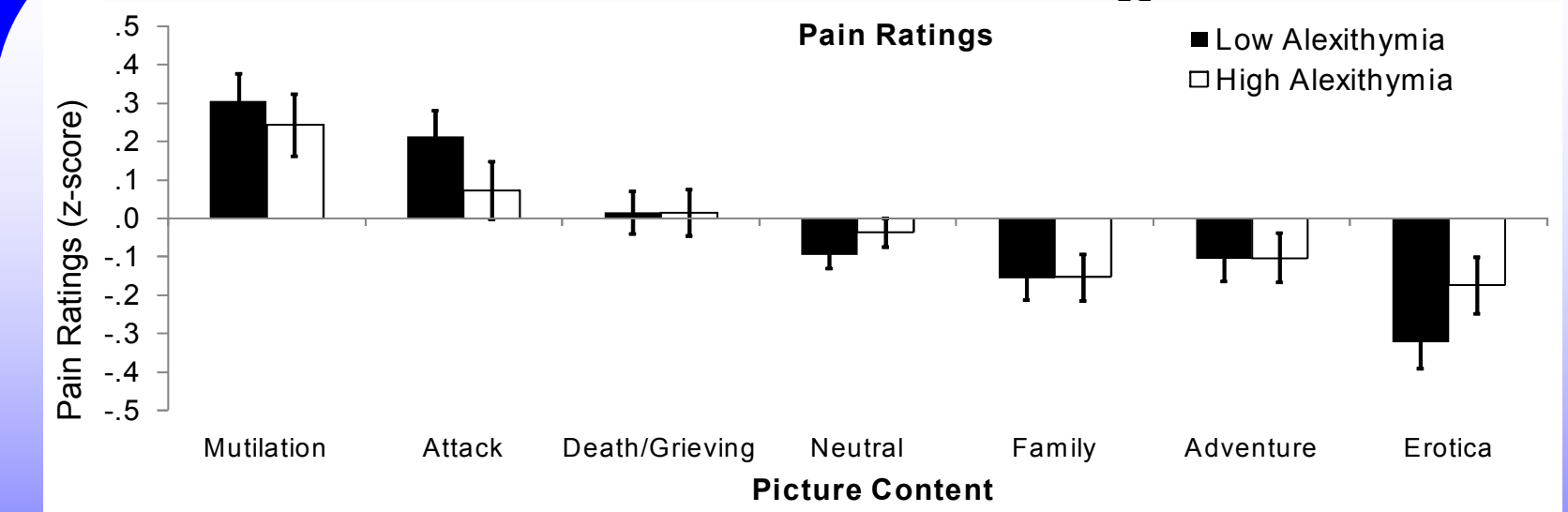
- Subjective Emotional Evaluation: using Self-Assessment Manikin (Bradley & Lang, 1994)
 - Valence (Pleasure) Ratings: 1 (unhappy) to 9 (happy)
 - Arousal Ratings: 1 (calm) to 9 (excited)
- Pain Reactions: rate stimuli from 0-100
- NFR Magnitude: spinal reflex measured from hamstring muscle used as a measure of spinal nociception

Results: Valence Ratings



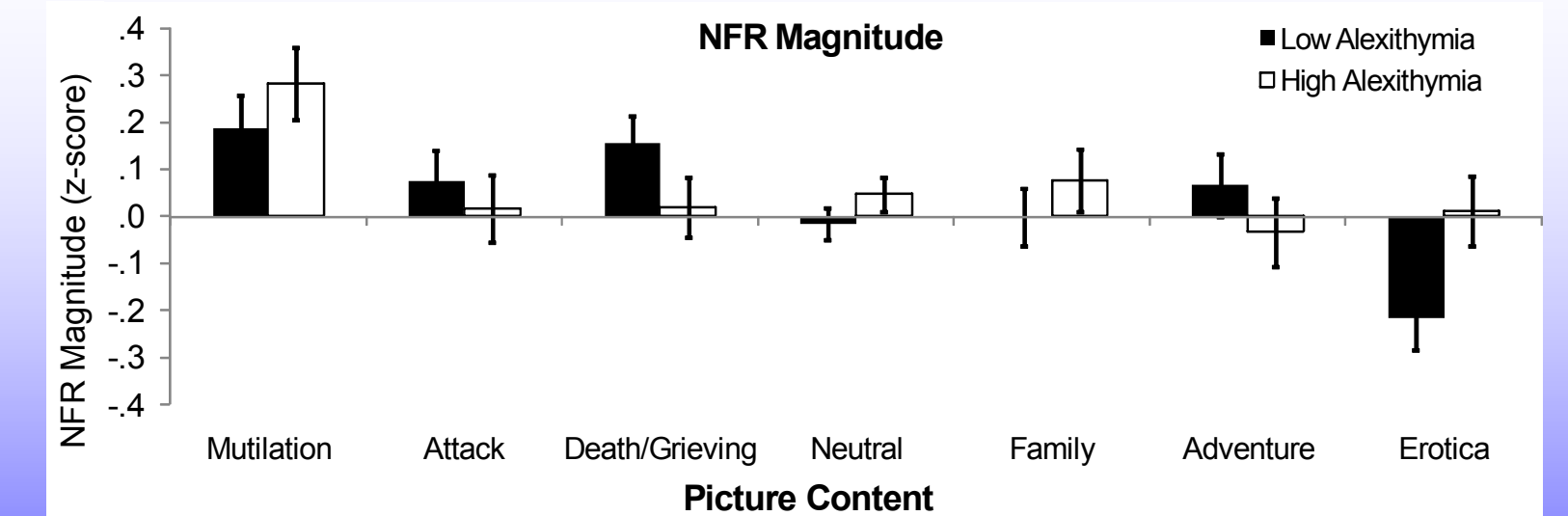
- No significant interaction ($p=.28$)
- Main effect of picture content ($p<.001$): Participants rated mutilation, attack, and death pictures as significantly less pleasant than neutral, family, adventure, and erotica pictures. Erotica, adventure and family were rated significantly higher than neutral.

Results: Pain Ratings



- No significant interaction ($p=.59$)
- Main effect for picture content ($p<.001$): Participants rated stimulations during mutilation picture as more painful than during neutral and pleasant contents. Stimulations during erotica pictures were rated as less painful than during neutral pictures.

Results: NFR Magnitude



- No significant interaction ($p=.15$)
- Main effect for picture content ($p=.001$): Participants exhibited significantly larger NFRs during mutilation, attack, and death pictures as compared to neutral, and pleasant contents. Participants exhibited smaller NFRs during erotica than all other contents except adventure.

Conclusions

No differences were detected between individuals high and low in alexithymia in subjective or physiological reactions to the pictures and stimulations. These findings suggests that emotional modulation of pain does not differ between groups. Thus, the association between difficulty identifying emotions and increased reporting of pain syndromes in individuals high in alexithymia may not be due to the inability to emotionally modulate pain but some other underlying mechanism. Future research should assess the relationship between alexithymia and emotional pain modulation in persons with chronic pain.