INTRODUCTION

Expectations about pain intensity (1) and the level of somatic focus (2) are two well-studied factors that can influence the experience of pain: however, it is unclear if they modulate pain independently, or whether they interact to affect pain perception.

Expectations may create changes in perceived pain by inducing psychological states, such as fear or anxiety, or by directing attentional resources such that they change the way the contextual cues of an experience are interpreted. The effectiveness of attention versus avoidance strategies in coping with pain in both clinical and experimental settings remains inconclusive. Further, most studies that have explored the effect of somatic focus on perceived pain have not included expectancy manipulations, which may engage attentional processes differently, or interact with them.

We manipulated expectations about pain intensity, and used a divided attention procedure to direct attention toward or away from the body during pain stimulation.

GOALS:
Identify the role of somatic focus in maintaining expectancies about pain.
Test whether expectations about pain result in attentional shifts, and how those shifts affect the perceived pain sensibility of a stimulus.
Determine if attention to or away from the pain site on the body during constant, moderate pain stimulation would enhance or diminish the effect of expectancy on perceived pain.

HYPOTHESES:
1. Expectancies modulate pain reports within a constant level of noxious thermal stimulation.
2. Pain ratings will be higher as a function of increased somatic focus in the high pain expectancy condition.
3. Somatic focus will be higher on trials preceded by a high pain expectancy cue.

EXPERIMENTAL DESIGN

PROCEDURE:
1. Pain calibration: Thermal stimulation to left forearm with 16mm thermode.
2. Learning Task: Tones predict low or high pain.
3. Visual Titration: Sets mask interval for 75% acc. on letter discrimination task.
4. One conditioning run.
5. Five experimental runs.

TWO PRE-PAIN CUES

1. Expectancy:
   a) Low pain
   b) High pain

2. Attention:
   a) Attend Body
   b) Attend Visual

TRIAL DESIGN

1. Somatic, heat discrimination ("Attend Body").
   a) Increased/decreased trials: L, H pain levels.
   b) No change trials: L, M, H pain levels.

2. Visual, letter discrimination ("Attend Visual").
   a) Low pain expectancy (p<.0001), allowing us to examine the influence of contextual cues on pain perception.

To determine if the effect of expectancy on pain perception varies with somatic focus, only constant, moderate pain stimulation trials were analyzed.

SUMMARY

- Expectations about pain influenced pain experience within a single level of intense thermal stimulation.
- The capture of somatic attention was enhanced when pain intensity was expected to be greater.
- Increased somatic focus decreased the expectancy effect on reported pain when the anticipatory level of threat was high ratings more accurately reflected actual stimulation intensity.

DISCUSSION

Somatic focus increases when the level of threat is high. This may promote adaptive responses to aversive experiences.

- Enhanced sensory monitoring may provide more thorough, accurate information about the stimulus that promotes preparatory mechanisms and self-regulatory behaviors.
- Somatic focus may be prepotent to distraction as an acute-emotion if the attentional strategy focuses on the objective, sensory/behavioral characteristics of the noxious stimulation rather than on the threatening, emotional components associated with the expectation.
- The finding that increased somatic focus did not increase pain ratings is in line with other studies that failed to find analogous effects of distraction.

Instructional cues and task performance provided both a direction and measurement of attention.

- One methodological limitation with the type of tasks commonly used in attention versus distraction experiments is the lack of specific, instructed attentional focus associated with the noxious stimulation. Further, most studies have failed to test for actual engagement in the two attention domains, making interpretations of the findings slanted.
- In this study, we instructed subjects to attend to sensory-discriminatory components of noxious stimulation and controlled for actual engagement in the attention domains, as measured by task performance.

REFERENCES