DOES STATE ANXIETY MAKE THE EXPERIENCE OF EXPECTED PAIN WORSE IN MALES?

An expectation of pain can increase the experience of pain

The nocebo effect contributes significantly to weaker treatment outcomes, side-effect severity, non-compliance to treatment, as well as to dropping out of pharmaceutical interventions. By better understanding the psychosocial factors influencing the phenomenon, we can help people benefit from medical interventions more while suffering from side-effects less.

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STUDY OBJECTIVE

State anxiety has been suggested as a potential mechanism behind the nocebo effect, acting through increasing negative symptom expectancies.

This study investigated whether higher state anxiety levels increased the nocebo effect in the context of a pain conditioning task with verbal suggestions, carried out in a male sample.

KEY CONCEPTS

Nocebo effect stands for an increase in symptoms due to negative expectations held by an individual.

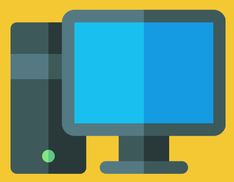
State anxiety is a transient reaction to a specific moment, distinguishable from trait anxiety which reflects a personality trait.

SAMPLE & METHODS

40 healthy male participants
Male participants selected as larger study (N=80) also included an oxytocin condition. The current study only included participants in the placebo (no oxytocin) condition in its analysis.

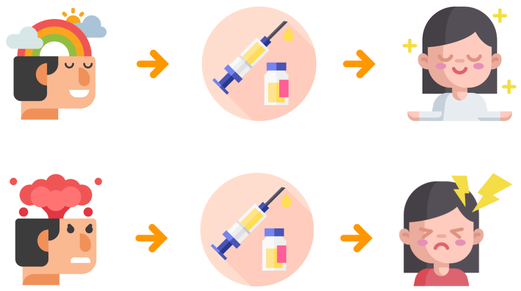
State anxiety
- Spielberger State-Trait Anxiety Inventory, short version (STAI-Ss), self-report questionnaire

Nocebo effect
- Classical conditioning paradigm using verbal suggestions and heat pain (TSA-II, Medoc)
- Learning phase (36 trials) + testing phase (30 trials)



HYPOTHESIS

Higher levels of state anxiety were expected to result in an increase in the intensity of the nocebo effect in a male sample.



STUDY PROCEDURE

Study procedure
Participants begin their session by providing informed consent, followed by filling in some questionnaires. Next, participants received either oxytocin or placebo nasal spray, which was followed by the pain conditioning paradigm:

1. **Verbal suggestions**: Participants were told that the aim of the experiment was to investigate how oxytocin would influence a TENS (transcutaneous electrical nerve stimulation) device. They were told that during the experiment, colours on a computer screen would be presented indicating how the electrodes would be affecting pain sensitivity.

   Increased pain *No change in pain* *Reduced pain*

2. **TSA-II calibration**: Pain levels determined using a scale from 0 (no pain) to 10 (worst pain imagineable).

   8 *High pain* 4 *Moderate pain* 1 *Low pain*

3. **TENS (sham) activation**: Device programmed to a "setting the participants can no longer feel" to strengthen conditioning.
4. **Learning phase:** Red screen = High pain / Yellow screen = Moderate pain / Green screen = Low pain (12x each)
5. **Testing phase**: Red screen = Moderate pain / Yellow screen = Moderate pain / Green screen = Moderate pain (10x each)

STATISTICAL ANALYSIS

A paired-samples t-test comparing the first red (nocebo) trials and the first yellow (control) trials was used to test for a significant nocebo effect.

A simple linear regression analysis was carried out to check for whether level of state anxiety significantly affected nocebo effect in men.

Nocebo effect
- No significant nocebo effect was found
- Small effect size

State anxiety
- No significant effect of state anxiety on nocebo effect severity was found
- Small effect size

KEY FINDING

Men who experience higher levels of state anxiety at the time of medical interventions do not experience significantly more pain as a result of their expectation of increased pain.

SCAN QR CODE FOR EXTRA MATERIAL

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