

WHEN DO PLACEBO ANALGESICS HELP?



MODERATING EFFECTS OF TREATMENT CHOICE AND PRIOR EXPERIENCE

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Placebo Effects

- *Placebo effects*: Reductions in psychological or physiological symptoms due to the belief that one has been administered a medical substance or procedure
- Experimental evidence of placebo effects
 - Acute and chronic pain
- Believing one has been given a treatment can...
 - Reduce anxiety and inhibit pain and threat processes

(Petrovic et al., 2005; Turner et al., 1994)

Passivity in Placebo Research

- Treatments are assigned to individuals in placebo research and in Randomized Clinical Trials (RCTs)



Choice in Health Care

● Treatment Choice

- Selecting type of care to pursue (traditional/alternative)
- Shared decision making
- Web-based medical tools and patient-friendly decision aids
- Direct-to-consumer advertising
- Availability of over-the-counter remedies and self-treatment options



Choice and Placebo Analgesia

- Choice in treatment options can strengthen placebo analgesia (Geers & Rose, 2011)
- Selecting a treatment could improve outcomes by:
 - Reducing anxiety/raising feelings of control (Langer, 1975)
- In three experiments treatment choice has amplified the placebo effect (Rose et al., *in press*; Rose et al., *under review*)
 - Reduced anxiety mediated the effect of choice

Is Treatment Choice Always Beneficial?

- Feelings of doubt of uncertainty (Hack et al., 2006)
 - Choice may not reduce anxiety
- Treatment choice may not be advantageous when individuals have minimal experience or knowledge
- *Prediction:* Treatment choice will enhance placebo analgesia more if individuals have prior experience with a painful procedure



Participants and Design

- 93 healthy college students (64 female)
- Randomly assigned to condition in a 2 x 2 between-subjects factorial design
 - *Treatment expectation manipulation*
Treatment Expectation vs. No Expectation
 - *Choice manipulation*
Choice vs. No Choice
- Measured: Prior experience with cold water pain
 - 42 with experience; 51 with no experience

Treatment Expectation Manipulation

- All participants were presented two lotion bottles
- *Expectation participants*: Told the bottles contain different local topical anesthetic products

Product A: Warms the hand and protects like a glove

Product B: Stops pain signals by blocking pain receptors



- *No expectation participants*: The bottles contain different hand cleansing agents

Choice Manipulation

- Choice participants *selected* a lotion to use
- No choice participants *given* a lotion to use
- All participants had the same inert medicinal smelling brown lotion applied to their non-dominant hand
- Mixture of iodine, oil of thyme food coloring and plain hand lotion



Pain Stimulus

● Cold pressor task

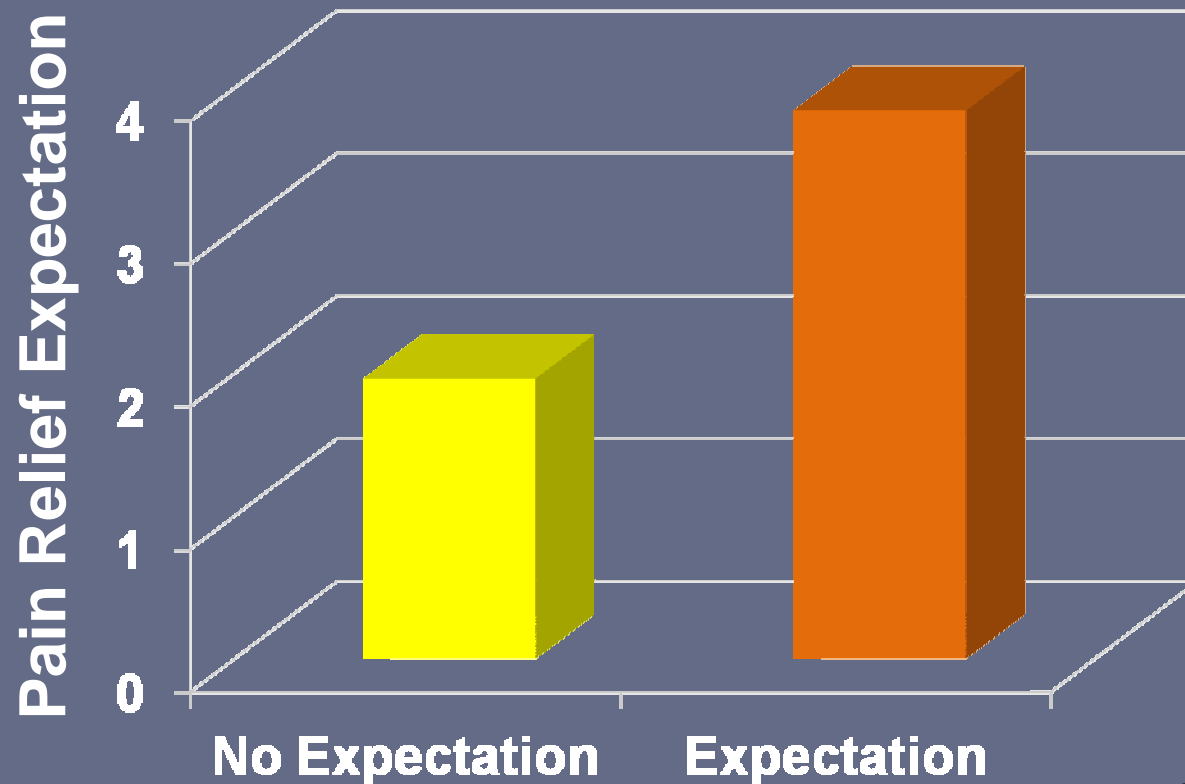
Participants immersed their non-dominant hand in a container filled with water and crushed ice at 8 °C for 75 sec



Dependent Measures

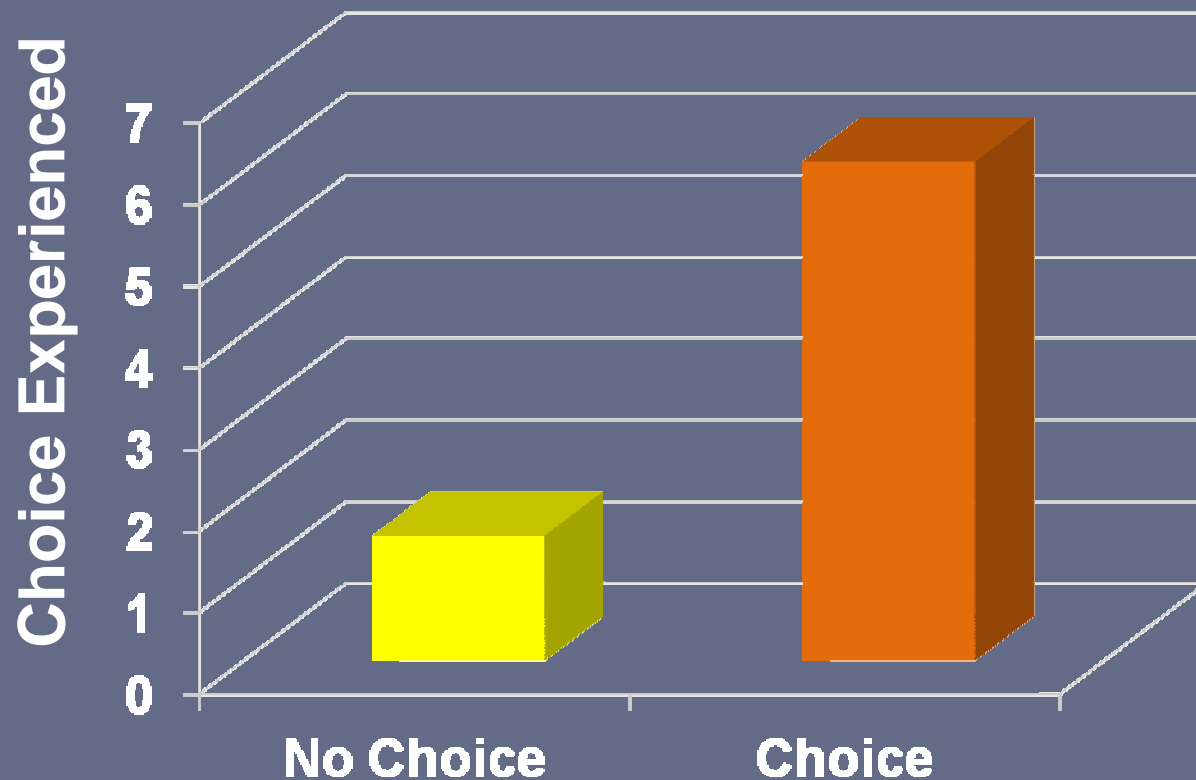
- McGill Pain Questionnaire (MPQ-SF; Melzack, 1987)
 - e.g., stabbing, gnawing, sharp: 1 (*none*) to 4 (*severe*)
- Manipulation check items
 - How much did you expect the hand lotion to reduce the pain from the cold water?
1 (*not at all*) to 7 (*very much*)
 - To what extent did you have a choice over the lotion you used during the cold water task?
1 (*no choice at all*) to 7 (*complete choice*)
- 2(Expectation) x 2(Choice) x 2(Prior Experience) ANOVAs

Expectation Scores as a Function of Choice and Expectation Condition



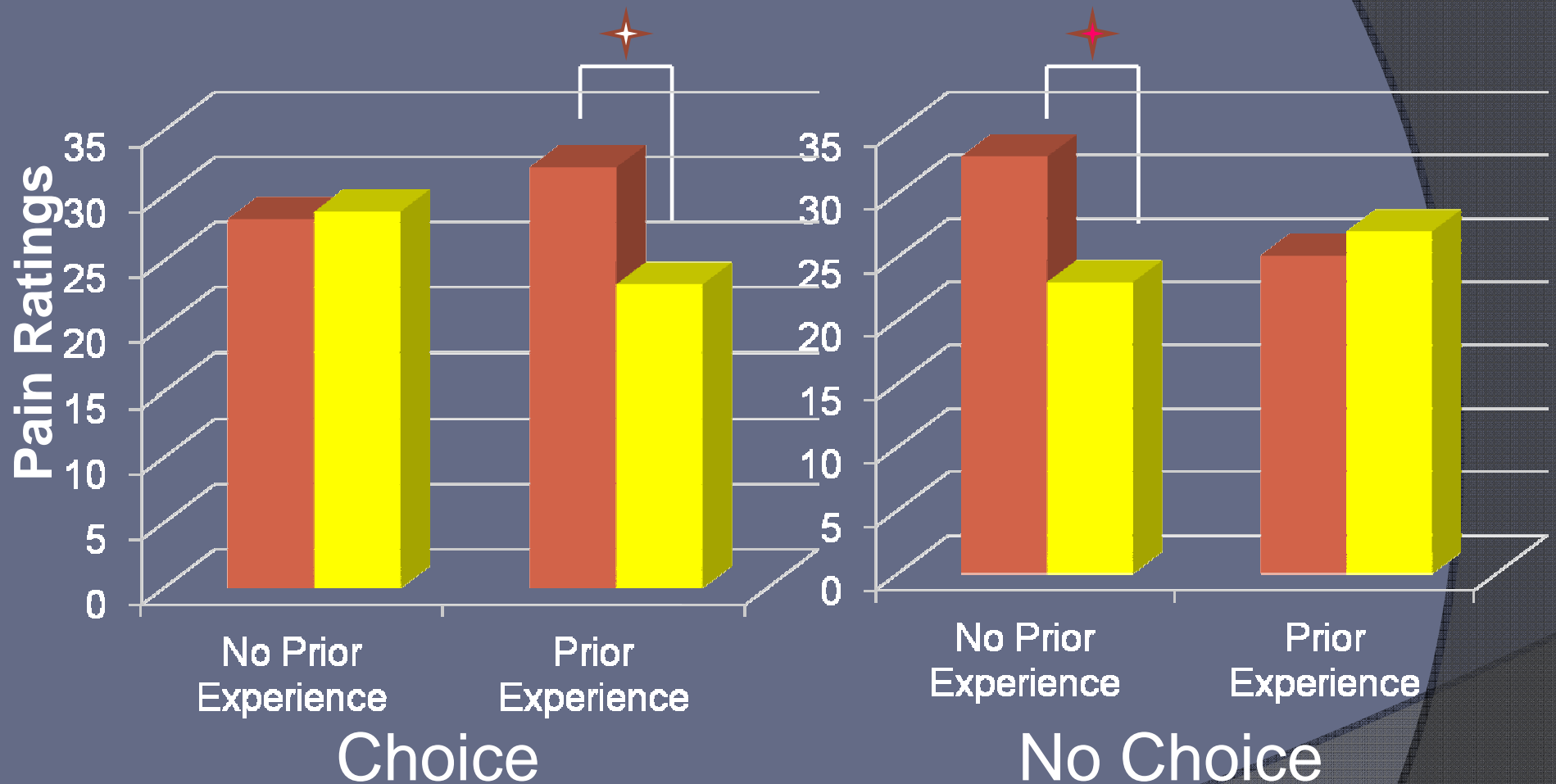
- ◎ Expectation participants reported expecting less pain than no expectation participants, $F(1, 83) = 28.87, p < .001, \eta_p^2 = .26$

Choice Scores as a Function of Choice and Expectation Condition



- ◎ Choice participants reported having greater choice than no-choice participants, $F(1, 83) = 181.18, p < .001, \eta_p^2 = .69$

MPQ-SF Pain Scores



■ No Expectation
■ Expectation

Expectation: $F(1, 85) = 5.10, p < .05, \eta_p^2 = .06$

Three-way interaction: $F(1, 85) = 9.86, p < .005, \eta_p^2 = .10$

✦ Simple effect test: $t = 2.48, p = .01$ ✦ $t = 2.87, p < .01$

Discussion

- Treatment choice enhances placebo analgesia:
 - For individuals with prior experience with a pain stimulus
- Treatment assignment enhances placebo analgesia:
 - For individuals *without* prior experience with a pain stimulus
- Anxiety about choice-making as a plausible mechanism
- Amplifying placebo effects
- Implications for placebo research and RCTs

My Collaborators

- ◉ Jason Rose
- ◉ Stephanie Fowler
- ◉ Heather Rasinski
- ◉ Ahna Bistline
- ◉ Devon Kalisik
- ◉ Scott Brown
- ◉ Jill Brown
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