

Feelings of Clinician-Patient Similarity and Trust Influence Pain: Evidence From Simulated Clinical Interactions

Elizabeth A. Reynolds Losin,^{*} Steven R. Anderson,^{*} and Tor D. Wager[†]

^{*}Department of Psychology, University of Miami, Cox Neuroscience Annex, Coral Gables, Florida.

[†]Institute of Cognitive Science, University of Colorado Boulder, Boulder, Colorado.

Abstract: Pain is influenced by many factors other than external sources of tissue damage. Among these, the clinician-patient relationship is particularly important for pain diagnosis and treatment. However, the effects of the clinician-patient relationship on pain remain underexamined. We tested the hypothesis that patients who believe they share core beliefs and values with their clinician will report less pain than patients who do not. We also measured feelings of perceived clinician-patient similarity and trust to see if these interpersonal factors influenced pain. We did so by experimentally manipulating perceptions of similarity between participants playing the role of clinicians and participants playing the role of patients in simulated clinical interactions. Participants were placed in 2 groups on the basis of their responses to a questionnaire about their personal beliefs and values, and painful thermal stimulation was used as an analog of a painful medical procedure. We found that patients reported feeling more similarity and trust toward their clinician when they were paired with clinicians from their own group. In turn, patients' positive feelings of similarity and trust toward their clinicians—but not clinicians' feelings toward patients or whether the clinician and patient were from the same group—predicted lower pain ratings. Finally, the most anxious patients exhibited the strongest relationship between their feelings about their clinicians and their pain report. These findings increase our understanding of context-driven pain modulation and suggest that interventions aimed at increasing patients' feelings of similarity to and trust in health care providers may help reduce the pain experienced during medical care.

Perspective: We present novel evidence that the clinician-patient relationship can affect the pain experienced during medical care. We found that "patients" in simulated clinical interactions who reported feeling more similarity and trust toward their "clinicians" reported less pain, suggesting that increasing feelings of clinician-patient similarity and trust may reduce pain disparities.

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Key words: Clinician-patient, concordance, similarity, trust, pain, health disparities.

Although pain has historically been conceived of as a stimulus-driven, bottom-up process,²¹ research over the past several decades has shown that pain is highly subjective and modifiable by many factors other than external sources of tissue damage.^{13,33,36,66} However, the potential pain-modulating effects of one

of the most proximate contexts to pain diagnosis and treatment, the clinician-patient relationship, remain underexamined. The effects of the clinician-patient relationship have typically been studied in the context of peripheral health outcomes such as patient satisfaction,^{62,72} yet a growing body of work has now shown associations between the clinician-patient relationship and biologically-based outcome variables such as blood pressure and blood glucose.⁶⁴ Several studies have even reported a reduction in disease-related pain with physician training aimed at improving the clinician-patient relationship.^{15,32} Within the pain literature, elements of the clinician-patient relationship including interpersonal factors such as communication,⁵¹ social support,^{12,57} and expectations of pain reduction^{5,26} have been reported to modulate pain. However, no study to date has tested the

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Address reprint requests to Elizabeth A. Reynolds Losin, PhD, Department of Psychology, University of Miami, 5665 Ponce de Leon Blvd, Coral Gables, Florida 33146-0751. E-mail: e.losin@miami.edu

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hypothesis that mere perceptions of the clinician-patient relationship may modulate the pain experienced during medical care, which is the central hypothesis we tested in the present study.

We focused on perceptions of the clinician-patient relationship related to shared sociocultural group membership, referred to here as group concordance, which has frequently been reported to affect patient satisfaction. Patients have been found to report higher levels of satisfaction with clinicians who share their race,^{17,40} gender,⁵⁵ and language,^{20,41} than with clinicians who do not. Group concordance is thought to positively affect social interactions by increasing feelings of self-similarity and trust between ingroup members.⁶⁸ Furthermore, there is evidence that increased feelings of similarity and trust between ingroup members may contribute to the positive effects of clinician-patient group concordance on health outcomes. For example, Street and colleagues⁶⁵ reported that minority patients felt more personally similar to own-race physicians, and that greater feelings of personal similarity to physicians predicted higher levels of patient satisfaction, physician trust, and intent to adhere to treatment recommendations.

The potential of clinician-patient group concordance and feelings of trust and similarity to modulate pain perception has not been directly tested. Low levels of clinician similarity and trust reported by minority patients with other-race/ethnicity clinicians have been hypothesized to contribute to the higher levels of pain reported by minority compared with majority patients,²⁴ suggesting a potential link between clinician-patient group concordance and patients' perceptions of pain.

The influence of group concordance on interpersonal and intergroup behavior is difficult to study experimentally because participants cannot be randomly assigned to real-world sociocultural groups. Therefore, social psychologists have experimentally studied the behavioral consequences of group concordance by using arbitrary criteria to create novel groups in the laboratory, an approach called the minimal group paradigm.⁶⁷ A large body of literature has shown that participants will favor their ingroup in the minimal group paradigm, and exhibit other behaviors typical of real-world intergroup situations¹⁶; however, the minimal group paradigm has not been used to study the effects of group concordance on the clinician-patient relationship or health outcomes such as pain.

In the present study, we tested the hypothesis that clinician-patient group concordance and perceptions of clinician-patient similarity and trust would influence the pain perceived by the patient during medical care. We did so by experimentally manipulating feelings of similarity between participants playing the roles of clinicians and patients in simulated clinical interactions using a modified version of the minimal group paradigm.⁶⁷ The traditional minimal group paradigm creates artificial sociocultural groups based purely on an arbitrary criterion (eg, shirt color). In contrast, our modified version of the minimal group paradigm involved the creation

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of groups on the basis of responses to a questionnaire assessing core personal beliefs and values related to religion, politics, and gender. We chose to form groups using personal beliefs and values because patients' perceptions of personal belief and value similarity to their physicians have been reported to predict health outcomes such as patient satisfaction.⁶⁵ We predicted lower pain ratings when "patients" were paired with group-concordant "clinicians." We also predicted that higher "patient" ratings of similarity and trust toward "clinicians" would be associated with lower pain ratings.

Last, we tested whether "patient" participants' psychological characteristics moderated the effect of the "clinician-patient" relationship on pain perception. We focused on the "patient's" level of anxiety and fear of pain, because the influence of the clinician-patient relationship on health outcomes has frequently been characterized as a placebo effect^{9,22,32} and there is evidence that anxiety as well as fear of pain influence the placebo response. Specifically, there is some evidence that placebos are most effective for highly anxious patients,^{59,60} placebo responses are particularly high in clinical trials for anxiety disorders,⁵⁴ and that placebos may act by decreasing anticipatory anxiety.^{10,46} In contrast, fear of pain has been associated with a decrease in placebo response.^{45,46} Therefore, we predicted that the clinician-patient relationship might have the greatest effect on pain for the most anxious "patients," and the least effect for "patients" most fearful of pain.

Methods

Participants

Participants were a total of 80 (40 male) individuals (80% non-Hispanic white) age 19 to 54 years old (mean = 26.19, SD = 9.43). Participants reported moderate socioeconomic status (SES; mean = 33.55, SD = 12.32), on a scale from 8 (lowest SES) to 66 (highest SES).⁶ Participants reported no current or recent (past 6 months) neurological or psychiatric diagnosis and reported no current use of psychoactive or pain medications. Participants also reported no pain-related medical conditions (eg, fibromyalgia), no reason to believe they would be especially sensitive or insensitive to contact heat, and did not report currently experiencing an unusual amount of pain. Participants were recruited from the Sona paid subject pool at the University of Colorado Boulder, which included members of the university and surrounding community. Only participants in the Sona database who preliminarily met inclusion criteria were contacted. No participants were excluded from the study after screening other than individuals who, upon screening, provided different responses that made them now ineligible (eg, being older than the study inclusion age after initially reporting being younger than it). The study was approved by the University of Colorado Boulder institutional review board. Written informed consent was obtained from all participants.

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