Cognitive Schemas in Placebo and Nocebo Responding: Role of Autobiographical Memories and Expectations

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ABSTRACT

Purpose: Placebo effects are presumed to be based on one’s expectations and previous experience with regard to a specific treatment. The purpose of this study was to investigate the role of the specificity and valence of memories and expectations with regard to itch in experimentally induced placebo and nocebo itch responses. It was expected that cognitive schemas with more general and more negative memories and expectations with regard to itch contribute to less placebo itch responding.

Methods: Validated memory tasks (ie, the Autobiographical Memory Test and the Self-referential Endorsement and Recall Task) and expectation tasks (ie, Future Event Task and the Self-referential Endorsement and Recall Task) were modified for physical symptoms, including itch. Specificity and valence of memories and expectations were assessed prior to a placebo experiment in which expectations regarding electrical itch stimuli were induced in healthy participants.

Findings: Participants who were more specific in their memories regarding itch and who had lesser negative itch-related expectations for the future were more likely to be placebo itch responders. There were no significant differences in effects between the nocebo responders and nonresponders.

Implications: The adapted tasks for assessing cognitive (memory and expectations) schemas on itch seem promising in explaining interindividual differences in placebo itch responding. Future research should investigate whether similar mechanisms apply to patients with chronic itch. This knowledge can be used for identifying patients who will benefit most from the placebo component of a treatment. (Clin Ther. 2017;39:502–512) © 2017 The Authors. Published by Elsevier HS Journals, Inc.

Key words: autobiographical memory, cognitive bias, future expectations, itch, placebo effect.

INTRODUCTION

Placebo and nocebo effects are known to contribute to overall treatment outcomes in various conditions and symptoms (eg, pain, itch).1 Whereas it is known that specific learning mechanisms (eg, conditioning) in general can result in placebo and nocebo effects, placebo and nocebo responses vary tremendously among individuals.2,3 In both experimental and clinical studies, individuals’ placebo or nocebo responses have been shown to range from no effect to profound changes in symptoms or disease outcomes.4,5 Several studies have
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related to depression and trauma-related psychopathol-
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demories and expectations,
procedures (see Bartels et al16). Both specificity and valence of memories and expectations were assessed with validated tasks modified for itch by our research group. We expected that, in particular, participants with more specific and more positive memories and expectations would show greater placebo responses, while participants with less specific and more negative memories and expectations would be more likely to show nocebo responses. Furthermore, it was explored whether specificity and valence of itch-related memories were related to specificity and valence of itch-related expectations, respectively.

PATIENTS AND METHODS
Data were obtained in a single study, from which outcomes on the induction of placebo and nocebo effects on itch by different expectation inductions have been reported previously.16 The present study focused on the influence of individual cognitive schemas on placebo and nocebo itch responses. The methods (and data) concerning the cognitive schemas have not been described in the previous study. The methods concerning the induction of placebo and nocebo effects, and general preparatory steps, have previously been described16 and are briefly summarized here.

Ethics Statement
The study protocol was approved by a regional medical ethics committee (CMO Arnhem-Nijmegen, Nijmegen, the Netherlands) and follows the principles stated in the Declaration of Helsinki. All participants provided written informed consent and were reimbursed for their participation.

Participants
Healthy volunteers aged ≥18 years were recruited via an online research participant system (Sona Systems, Tallinn, Estonia) and at the Radboud University Nijmegen (Nijmegen, the Netherlands). Inclusion criteria were age ≥18 years and fluency in the Dutch language. Exclusion criteria were severe mor-
bidity (eg, skin disease, multiple sclerosis, diabetes mellitus), psychiatric disorders (eg, depression), color blindness, regular use of medication in the preceding 3 months, use of pacemaker, pregnancy, and current or a history of chronic itch or pain.

Study Design
The study comprised 2 sessions in the laboratory, separated by ≥1 week. During session 1, participants’ cognitive schemas (ie, specificity and valence of memories and expectations regarding itch-related, pain-related, and standard events) were assessed. Specificity of memories was assessed with the Autobiographical Memory Test (AMT); specificity of
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