Placebo Response: The Role of Expectation and Communication

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INTRODUCTION

The placebo response has been defined as *a genuine psychological or physiological effect which is attributable to receiving a substance or undergoing a procedure, but is not due to the inherent powers of that substance or procedure* (Stewart-Williams & Podd, 2004). Michael, Gerry & Kirsch (2012) use response expectancy theory to explain how expectations can influence the placebo effect. Although substantial research has shown the prominent role for expectations in placebo responses, few studies have examined factors that strengthen expectations. Verheul, Sanders, &Bensing (2010) found that patient expectations were strengthened if a physician expressed confidence in a treatment using a warm, empathetic communication style. Also, an analysis by Wang & Stetler (2015) revealed that high information studies produced significantly larger expectations compared to low information studies. In the current study, we used a physical training program as a placebo. In order to investigate how expectations might be strengthened, we manipulated the communication style of trainer and amount of information given to participants. We expected a main effect of communication style and of information on both expectations and performance. We also expected a style x information interaction, such that participants experiencing both a warm communication style and high information would develop the strongest expectations and thus the largest placebo response.

MANIPULATIONS

Communication style

Warm: High tone of voice, vivid facial expression, frequent eye contact, expressive hand gestures, open posture, confident statements, encouragement, supportive messages (e.g. "Let's see how much better you do now.")

Neutral: Monotone, neutral facial expressions, infrequent hand gestures and eye contact, a directive communication style, no encouragement or supportive messages, doubt about the effect of the training on the participants (e.g. "Let's see if this had any effect.")

Amount of information

**Low:** Briefly introduce the training program in two sentences

High: detailed introduction and explanations of how each task is chosen (e.g. "Recent studies suggest short but complex training intervals such as these help the mind and body to rapidly synchronize, thus showing improvements in balance and coordination quickly.")

RESULTS

We were able to successfully manipulate communication style. The warm trainer was rated as friendlier (9.49) than the neutral trainer (5.17 out of 10), $t(87) = 11.08$, $p<0.01$, and produced stronger expectations ($M = 3.42$, $SD=1.06$) compared to the neutral trainer ($M = 2.84$, $SD = 0.87$), $t(87)=2.84$, $p<0.01$. Thus, "treatment" delivery by someone with a warm communication style, but not enhanced information about that treatment, strengthens expectations of treatment effects.

We did not find any significant main effects or interaction on balance/coordination. Participants in the warm trainer condition did not perform any differently on coordination and balance than their neutral condition counterparts. Enhanced information about the training's effects did not improve performance compared to basic information. There was no significant interaction between communication style and information level (all $p's$ > 0.05).
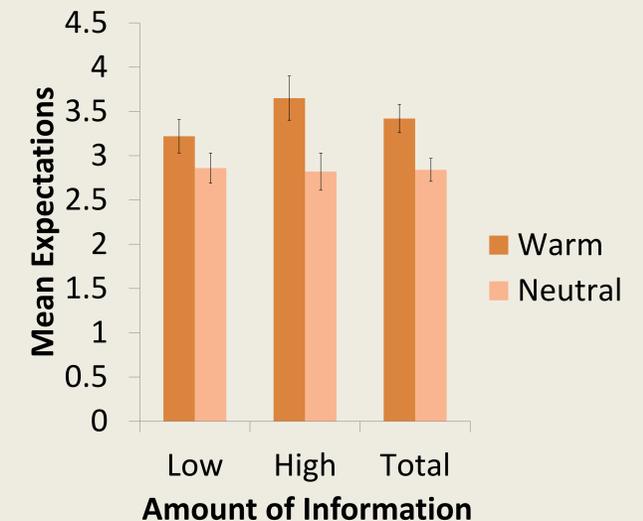
CONCLUSIONS AND LIMITATIONS

Participants formed stronger expectations when trained by an experimenter using a warm communication style compared to a neutral, businesslike style. This may have implications for how physicians' behavior might influence the treatment expectations formed by their patients. However, the current study was an analogue study and did not directly involve medical treatment or directly manipulate physician behavior. Future studies may wish to investigate these relationships in a clinical setting, although loss of experimental control is likely.

PROCEDURE

Cover story:
Participants are told that the purpose of the study is to test the effectiveness of a training program designed to improve balance and coordination

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Baseline Tests (3 trials each)
Coordination: Number of ball catches with non-dominant hand in 30 seconds
Balance: stand with the balls of both feet only on a narrow stick for as long as possible.

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Participants are randomly assigned to either a warm or neutral trainer, who gives either low or high information (see above for explanation)

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Participants undergo the placebo "training" which involves doing 5 different tasks over 10 minutes

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Post Training Expectations Questionnaires:
Do you think the training will improve your balance and coordination?

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Post-Training Tests:
Identical to the baseline tests (above)

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Post-Testing Questionnaires:
Effort, expectations, and ratings of trainer communication style

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Debriefing & payment