20.28: Mind Set - Exercise and the Placebo Effect

Learning Objectives

- The "placebo" effect

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Overview

The "placebo effect" is an effect that cannot be attributed to a drug or remedy, but rather to a change in a person's mind-set or perception. The placebo effect is widely accepted in clinical trials and its effects may shock you. For instance, one study found that subjects developed real rashes after being exposed to fake poison ivy (Blakeslee, 1998)! This study examined the placebo effect with relation to physical activity and health. Could becoming aware of how much you exercise result in weight loss even if you didn't make any changes to your diet or exercise routine?

The subjects were 84 female maids of ages 19 to 65 years at seven hotels. They were told the purpose of the study was to improve the health and happiness of hotel maids. According to the authors, "[e]ach of seven hotels was randomly assigned to one of two conditions: informed or control" (page 166). "Four hotels were assigned to the informed condition, and three were assigned to the control condition" (pages $166-167$). Each subject filled out a questionnaire asking about her perceived amount of exercise during and outside of work. Physiological measurements were taken for weight, body mass index, body-fat percentage, waist-to-hip ratio, and blood pressure. The maids in the informed condition were then given an oral presentation and handouts explaining how their work as hotel maids is good exercise, so good in fact that it meets or exceeds the Surgeon General's recommendations for physical activity. The maids in the control condition were not given this information. After four weeks, the researchers re-administered the questionnaire and took follow-up physiological measurements.

Questions to Answer

Does the placebo effect play a role in the health benefits of exercise? If we alter a person's perception of the exercise she performs, does it result in weight loss?

Design Issues

Instead of assigning individual maids randomly to either the informed or control condition, all of the maids in the same hotel were assigned to the same condition. This was done in an effort to prevent information contamination. This type of study design is known as a "cluster randomized trial," and calls for advanced statistical practices that we will not worry about in this case study.

Simple random sampling with a sufficient number of subjects randomly assigned to intervention and control groups ideally leads to intervention and control groups that are similar with respect to many demographic characteristics. Simple random sampling of individuals and random assignment of individuals to conditions were not used in this study. The authors of this study pointed out that "[s]ubjects in the informed group were significantly younger than subjects in the control group." Consequently, they attempted to control for age differences in their statistical analysis.

The questionnaire asked about self-reported levels of exercise and dietary intake. Future research should use more rigorous methods to assess physical activity and diet.

Descriptions of Variables

Table 20.28.1: Description of Variables

VARIABLE	DESCRIPTION
cond	Condition: Either Informed or Control

age	Age in years
ex1	Perceived amount of exercise at Time 1 (On a scale from 0 to 10 with 0 = “none” and 10 = “a great deal”)
ex2	Perceived amount of exercise at Time 2 (On a scale from 0 to 10 with 0 = “none” and 10 = “a great deal”)
wt1	Weight in pounds at Time 1
wt2	Weight in pounds at Time 2
aex	Change score for exercise equal to the perceived amount of exercise at Time 2 minus the perceived amount of exercise at Time 1
awt	Weight change equal to the weight at Time 2 minus the weight at Time 1

Data Files

Mindset.xls

Links

Crum et al. article

New York Times article

References

- Crum, A. J., Langer, E. J. (2007). Mind-set matters: Exercise and the placebo effect. Psychological Science, 18, 165-171.