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Understanding placebo effects: Implications for nursing practice

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ABSTRACT

Placebo effects permeate many aspects of the clinical environment. However, little attention has been devoted to placebo effects in the nursing literature. Recent research shows that the promotion of placebo responses can enhance certain patient outcomes. Nurses are situated in an ideal position to take on this task. This article suggests ways for nurses to ethically promote placebo responses in daily practice.

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Introduction

The term *placebo effect*, derived from the Latin phrase "I shall please," was historically understood as a tool to placate patients' requests for treatment when there was none available. Since the midtwentieth century, the placebo effect is best known as a confounding factor in research in which inert, or "placebo," agents are used to achieve blinding in clinical trials. However, neither of these conceptions accurately reflects the potential clinical significance of placebo effects, which can be more broadly defined as healing derived from the context of the clinical encounter (Miller & Kaptchuk, 2008). For example, medical treatments typically are prescribed or administered within the context of a clinical setting and a relationship between clinician and patient. The benefits from these treatments is a function both of the specific efficacy of the treatment itself, such as the effects of morphine in producing analgesia, and the therapeutic effects from the clinical context. These contextual therapeutic effects, known as "the placebo effect," can enhance the benefit of known effective treatment interventions by means of various psychological and neurobiological mechanisms. To a varying degree, placebo effects are present in most aspects of medicine and can be harnessed in order to improve symptoms and enhance well-being. As frontline health care providers, nurses are ideally situated to identify and encourage therapeutic placebo responses.

The Placebo Effect Defined

Nurses may be most familiar with placebos in the context of randomized trials in which the placebo

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functions as a control agent; it is considered to be inert and thus incapable of affecting the dependent variable being studied. An intervention is deemed effective by outperforming a placebo. However, often in a clinical trial, members of the placebo group will show improvement in symptoms. A variety of factors may explain this improvement, including the natural history of many medical conditions that display waxing and waning of symptoms. Another important factor is known as the "placebo effect," which arises not from pharmacological properties of the placebo agent itself but rather as a result of the context of the clinical encounter that surrounds its administration (Miller, Colloca, & Kaptchuk, 2009). Aspects of clinical encounters responsible for placebo effects include medical equipment, labeling and packaging of medications or treatments, verbal and nonverbal communication by clinicians, and rituals associated with treatment (Benedetti, Carlino, & Pollo, 2011b). Understood in its broadest definition, the placebo effect is any improvement in a patient's health "attributable to the symbolic impact of medical treatment or the treatment setting" (Brody, 2000, p. 650).

In addition to placebo effects associated with the classic examples of sugar pills or saline injections, evidence points to significant placebo responses associated with devices and invasive procedures, such as acupuncture (Cherkin et al., 2009; Haake et al., 2007; Meissner et al., 2013) and especially surgery (Meissner et al., 2013; Miller, 2012; Moseley et al., 2002). To a varying degree, placebo effects are likely to play a role in most treatments. This view is perhaps best illustrated by a study design that compares the efficacy of open versus hidden medication administration. For example, postoperative patients received morphine for the treatment of pain in two different ways: (a) the standard way of an injection in sight of the patient along with an assurance of pain relief or (b) by means of a computerized infusion pump, with patients told that they would be receiving pain-relieving medication but not informed about when it would be given. A substantially higher dose of morphine was needed to control pain when the administration of the drug was hidden (Amanzio, Pollo, Maggi, & Benedetti, 2001). Likely, all medications for symptomatic conditions work by a blend of intrinsic pharmacological activity mixed with placebo effects.

How Does the Placebo Effect Work?

Two discrete but overlapping concepts, conditioning and expectancy, are generally identified as elucidating the primary psychological mechanisms behind placebo effects (Finniss, Kaptchuk, Miller, & Benedetti, 2010). Other potential psychological mechanisms include relieving anxiety, modifying attention, promoting personal control, and altering the meaning of illness experience (Geers & Miller, 2014). The theory of conditioning suggests that repeated associations between a neutral stimulus (a placebo) and an active, effective intervention result in the ability of the neutral stimulus on its own to induce a response typical of the active intervention or the desired outcome (Finniss et al., 2010). For example, in a recent study involving children with attention-deficit/hyperactivity disorder, researchers paired a typical stimulant medication with the administration of an inert placebo pill (described to the children and their parents as an "inert capsule … that contained no active pharmacological ingredients" referred to both as a placebo and as a "dose extender"; Sandler, Glesne, & Bodfish, 2010, p. 371). The two pills were given together for 1 month; after which, the dose of stimulant was cut in half and remained paired with the same placebo for a second month. The comparison group took their typical stimulant dose without placebo pairing for the first month followed by 50% of their typical dose also without placebo pairing for the second month. In the treatment group, symptom control was preserved in the second month. On the other hand, without placebo conditioning, the comparison group experienced a clinically significant increase in hyperactive behavior when their dose was decreased (Sandler et al., 2010).

The theory of expectancy suggests that positive expectations about a given treatment can by themselves produce a favorable outcome (Brody & Miller, 2011). For example, a recent controlled trial studying the effect of Echinacea on symptoms related to upper respiratory infections showed that for those patients who reported "believing in the power of Echinacea to work," illnesses were of a shorter duration and less severe when given either Echinacea or a placebo pill with a 50% chance of being Echinacea (Barrett et al., 2011). In another recent study, researchers manipulated labeling to investigate the influence of expectations on the efficacy of pharmacological and placebo treatment of migraine headaches. Participants suffering from acute migraine attacks were given either rizatriptan (Maxalt, a selective serotonin agonist antimigraine medication, Merck, Kenilworth, NJ) that was labeled as "Maxalt," "Maxalt or placebo," or "placebo" or a placebo labeled as "Maxalt," "Maxalt or placebo," or "placebo." In all circumstances, rizatriptan provided superior pain relief compared with placebo. However, the efficacy of rizatriptan, as well as that of placebo, varied based on the labeling. Both rizatriptan and placebo were most effective when labeled as "Maxalt" and least effective when labeled as "placebo." Interestingly, placebo mislabeled as Maxalt provided equivalent pain relief as Maxalt mislabeled as placebo (Kam-Hansen et al., 2014).

Placebo effects observed in clinical trials for insomnia medications show the interplay between the theories of conditioning and expectancy. A meta-analysis suggests there is an overall 20% improvement in sleep latency and time to fall asleep as a result of placebo intervention (Perlis, McCall, Jungquist, Pigeon, & Matteson, 2005). According to Perlis et al. (2005), insomnia is thought to arise from hyperarousal, resulting in increased metabolic rate, adrenergic tone, and increased cortisol production. When patients