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Spirituality predicts outcome independently of expectancy following flower essence self-treatment

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Abstract

Objective: The aim of this study was to determine whether absorption and spirituality predict the placebo response independently of expectancy. **Method:** This was an open study of self-treatment with self-selected Bach flower essences. Participants' expectancy of the effect of flower essences, attitudes to complementary medicine, holistic health beliefs, absorption, and spirituality were measured prior to treatment. One month after the start of treatment, participants responded to an e-mail enquiry about symptom change using a single seven-point change scale. **Results:** One hundred sixteen participants (97 university undergraduates and 19 staff) completed all assessments. Spirituality and absorption together predicted additional variance compared with a cluster of expectancy measures comprising expectancy, attitude to complementary medicine, and holistic beliefs (increment in R^2=.042, P=.032), and spirituality alone (but not absorption alone) predicted more additional variance than did the expectancy cluster (increment in R^2=.043, P=.014). **Conclusion:** Our data are inconsistent with conventional explanations for the placebo effect. The mechanism underlying the placebo response is not fully understood.

Keywords: Absorption; Expectancy; Flower remedy; Nonspecific; Placebo; Spirituality

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Placebo research often requires participants to believe that they receive an active treatment when they are not, and this poses ethical problems, particularly if treatment is for real problems and over a period of time. Although deceptive instructions can be used in laboratory analogue situations, in the case of real symptoms, it is common to use the conditional instruction that "you may be receiving an active treatment"; yet results for conditional and deceptive instructions are not identical [1]. In this study, we report a new "ethical" placebo methodology for a real-life clinical context using flower essences. Flower essences (or remedies) are sold in chemists and health stores and believed by many people to be active treatments yet have been shown in a systematic review [2] and double-blind placebo controlled trials [3,4] to be no different from placebo. Flower essences owe their origin to the homeopathic physician, Edward Bach, who believed that much of illness had a spiritual in contrast to a mental or a physical basis, and that when flowers were floated in crystal-clear natural water, the water acquired an esoteric property, specific to that flower, that had a curative effect when taken by patients [5].

Two mechanisms are thought responsible for placebo effects. Response expectancy theory [6,7] suggests that placebo effects are due to patients expecting a therapeutic action. Conditioning theory suggests that if an active treatment is associated with a delivery system, then the delivery system acquires therapeutic properties by association. The majority of research supports the view that, irrespective of whether expectancies are acquired cognitively (e.g., information) or through learning, placebo effects are mediated through expectancy [8]. However, one recent review suggests that nonconscious learning and conscious expectancy learning can both contribute to the placebo [9]. In the case of flower essences, the only plausible explanation is that of expectancy. Flower essences are not pharmacologically active so conditioning is not possible, nor are "medicines"

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such as homeopathy that use a similar delivery system of small amounts of brandy [10]. Thus, it seems plausible that flower essences are effective because people acquire beliefs that they are effective, i.e., through a consciously mediated process involving expectancy.

If placebos are effective via a mechanism of conscious expectancy, then variation in outcome should correlate only with the patient's expectation of effectiveness. There are limited data suggesting that mechanisms in addition to expectancy are involved in placebo responses. In two analogue studies [11,12], participants were given psychological coping strategies (distraction and imagery), and their reported ability to become absorbed in these tasks was measured along with the expectancy that they would be successful. Reported (task-related) absorption predicted pain relief independently of expectancy. The authors interpret these findings that coping strategies are effective independently of expectancy, and that people who become more absorbed in that strategy benefit more from it.

In addition, there is some indirect evidence that expectancy is not a good predictor of placebo response in complementary and alternative medicine (CAM; i.e., real-life rather than analogue studies). A large (N=202) double-blinded, placebo-controlled study of a homeopathic remedy for asthma in general practice showed a significant improvement in both treatments, but no difference between homeopathy and placebo [13]. The authors measured attitude to CAM prior to treatment. However, despite the high power of the study, there was no significant association between attitude to CAM and improvement on either physiological measures or quality of life [14]. In another study [15], the effectiveness of acupuncture was compared with standard treatment in an open, randomised, controlled trial. Both groups showed significant reduction in pain, but there was a small significant (P=.03) advantage to acupuncture at 24 months. Prior to treatment, 127 patients believed that acupuncture would be effective and 54 did not know or (of whom only one) thought it would not work. In the acupuncture group, improvement at 24 months in those who believed in acupuncture was nonsignificantly less than that in those who were unsure. In the standard treatment group, there was a nonsignificant trend in the opposite direction.

Personality correlates of a behaviour can provide insight into the mechanisms underlying that behaviour. There has been considerable research, much of it in the 1950s to 1970s, aimed at discovering a placebo responding personality, but despite this considerable research, the consensus view is that such a dimension does not exist and that placebo responding may not be a stable characteristic [16]. This consensus view is disputed, either on the basis that it is premature [1] or on the basis that there is evidence already available to the contrary. Fisher and Greenberg [17] reviewed the often inconsistent evidence for several different candidate personality variables and conclude that there is sufficient evidence to show that acquiescence is a predictor of the placebo response. Acquiescence scales measure either affirmative response bias (the tendency to respond yes) or a tendency to agree with others' assertions. In the case of either interpretation, an association between acquiescence and placebo responding, were it to be found, would not suggest a placebo-related mechanism separate from that of expectancy. Similarly, the recent finding that optimism predicts placebo (or nocebo) responding is consistent with an expectancy mechanism in that optimists/pessimists are more likely to develop positive/negative expectations [1].

An entirely different approach to examining the personality correlates of placebo responding is to test the predictors of *use* of CAM, on the theoretical rationale that people who use CAM are likely to be those who benefit most. Several psychological factors predict the use of CAM [18], including health beliefs [19]. There is evidence that CAM users are higher on trait absorption [20] and on spirituality [21]. The association with absorption is interesting in view of the research, cited above, showing that absorption in a coping strategy (i.e., task specific rather trait absorption) predicts outcome independently of expectancy [11,12]. In addition, absorption is associated with better health outcome [22,23], as is spirituality [24,25]. The reason for these associations is not entirely clear. Not only are there multiple definitions and measures of spirituality [26], there are several explanations of why spirituality may be related to health [27], which may be linked to a placebo-related mechanism.

Two methodological problems arise when determining whether a personality factor predicts outcome in addition to expectancy. The first is that the expectancy and personality measures may differ in terms of reliability. If the expectancy measure is less reliable, then a finding that personality predicts independently may be an artefact created by differences in reliability. The second problem relates to the conditioning-expectancy debate and the extent to which expectancies are introspectable. Kirsch [28] has suggested that expectancies must be introspectable (to treat them otherwise leads to unfalsifiability), but may vary in time. This is because expectancy is fluid and changeable rather than a fixed trait.

Our solution to these difficulties is to use a cluster measure of expectancy by adding to the estimate of expectancy measures of attitudes and beliefs that are consistent with expectancy. If people have a positive attitude to CAM or holistic health beliefs, then it is reasonable that these people are likely to have greater expectancies of success of flower essences. The use of these additional expectancy-related measures not only increases reliability but also provides a correlate of expectancy that is less influenced by temporal instability.

The aim of this research is to examine whether personality predicts outcome independently of expectancy in a naturalistic observational study where participants are provided with (genuine) flower essences. We test whether absorption and spirituality (i.e., two personality predictors of CAM use), either together or separately, predict outcome in addition to the effect of expectancy. As absorption and spirituality are