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Prediction of psychological reactions to bone density screening for osteoporosis using a cognitive-behavioral model of health anxiety

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Abstract

Pre-screening measures derived from a cognitive-behavioral theory of health anxiety were significant predictors of individual differences in post-screening reactions to a health screening procedure, bone densitometry. Predictors included specific illness beliefs (vulnerability, severity/consequences, coping and treatment) and general health anxiety measures. Three months after a low bone mineral density (BMD) result, women with high levels of pre-existing general health anxiety gave higher ratings of anxiety about osteoporosis and perceived likelihood of developing osteoporosis than women with low levels of pre-existing health anxiety, even though the two groups' initial ratings had not differed significantly. Women with a low BMD result generally showed "minimization" of the seriousness of low BMD but women with very high levels of pre-existing health anxiety did not. After a high BMD result, highly health anxious women were only temporarily reassured. The results were consistent with the cognitive-behavioral analysis of health anxiety.

Keywords: Cognitive-behavioral; Anxiety; Screening; Minimization; Bone density; Osteoporosis

In recent years there has been a rapid increase in the number of potential health screening methods, and this trend is likely to continue. Although health screening may have benefits, such as allowing preventative measures or treatment to be initiated at an earlier stage of the disease process, it can also be associated with certain costs. Adverse psychological effects of screening have been identified in a range of different types of testing, and include anxiety, mood disturbance, worries about one's health and relationship problems (e.g. Lerman, Trock, Rimer, Jepson,

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Brody, & Boyce, 1991; Mossey, 1981; Palmer, Tucker, Warren, & Adams, 1993). For this reason, it has been suggested that people should be offered "counseling" as part of the testing process (e.g. Clarke, 1995). However, given the large increase in the number of tests available, it will clearly not be feasible to offer counseling to everyone undergoing testing in the future. Instead, it may be preferable to develop ways of predicting which people are likely to experience distress after health screening, so that vulnerable individuals can be offered interventions aimed at preventing or minimizing distress. If it were possible to identify predictors that are related to the *mechanisms* involved in the generation of screening-related distress, this would help to provide an empirical basis for the development of such intervention strategies. Furthermore, if factors such as particular pre-scan beliefs were found to be associated with post-scan distress, it may also be possible to address these beliefs in the information given to everyone before they undergo screening.

Studies of the psychological effects of screening have generally not used psychological theory to predict individual differences in responses to the health test. A noticeable exception is work examining the hypothesis that people's preference for a "monitoring" or "blunting" coping style (Miller, 1987) will influence how much distress they experience after screening. For example, Wardle, Collins, Pernet, Whitehead, Bourne and Campbell (1993) examined whether these types of coping styles would moderate women's responses to ovarian cancer screening. They found that women with a high monitoring style showed a greater increase in distress after receiving a positive scan result on one of their measures of psychological functioning.

Croyle, Ditto and colleagues have carried out interesting experimental laboratory studies looking at the one possible mechanism involved in coping with a high risk test result (see Croyle, & Ditto, 1990). Participants were randomly allocated to a "positive" or "negative" result from a test that they were told detected an enzyme deficiency which was a risk factor for a pancreatic disorder. It was found that participants who were told that they had tested positive appraised the threat posed by this risk factor as less serious than those who tested negative. If people are told that there is a simple and painless treatment for the risk factor, the minimization effect does not occur. The authors conclude that this is consistent with the idea that people are motivated to down-play serious health threats and suggest that minimization may be an adaptive way of coping (Ditto, Jemmott, & Darley, 1988). This minimization effect has also found in a prospective study of bone density screening (Rimes, Salkovskis, & Shipman, 1999). Minimization does not appear to be associated with monitoring and blunting coping styles (Croyle, Sun, & Louie, 1993) or other individual differences variables such as self-esteem, monitoring-blunting coping style, repression-sensitization or social desirability (see Ditto, & Croyle, 1995).

The present study investigated whether a cognitive-behavioral model of health anxiety (Salkovskis, & Clark, 1993; Warwick, & Salkovskis, 1990) could be used to help predict individual differences in reactions to health screening such as distress or minimization (see also Salkovskis, & Rimes, 1997). The model suggests that emotional reactions to health information are a result of the person's interpretation or appraisal of the situation, and that this interpretation will be guided by the person's pre-existing beliefs and assumptions about health and illness. The model suggests that some people have "maladaptive" assumptions about their health which result in these people being likely to interpret health information in a particularly threatening way and hence experience high levels of anxiety. Some of these beliefs will concern illness in general (e.g. "My body is weak since being so ill as a child") and will make the individual vulnerable