

Stress management, finding benefit, and immune function: positive mechanisms for intervention effects on physiology

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Introduction

The report by McGregor et al. [1] adds to evidence from this group that cognitive–behavioral stress management (CBSM) for breast cancer patients increases reports of finding benefit from the cancer experience [2]. A previous report by Cruess et al. [3] found that CBSM also decreased serum cortisol levels, and that benefit finding mediated treatment effects on cortisol. The present report associates change in benefit finding during treatment with change in T cell proliferative response.

In both reports [1,3], the association between benefit finding and potentially beneficial physiological outcomes was independent of distress. That is, the positive changes in women's views of their experiences with cancer did not depend on decreases in distress to predict physiology. Though this type of stress management intervention is primarily designed to decrease distress, and doing so can affect health [4], these reports demonstrate that positive mechanisms may also be important for health outcomes.

There is a dearth of literature on positive psychological processes and health, which parallels psychology's general focus on dysfunction over growth [5]. Thus, we know very little about the importance of positive constructs to health, particularly the mechanisms through which these constructs may influence physiology. We consider two questions that we believe are critical for advancing our understanding of benefit finding and health: (1) how might a stress management intervention lead to positive changes in benefit finding, and (2) what are the mechanisms through which benefit finding translates into immune change?

What aspects of CBSM promote benefit finding?

Many cancer patients spontaneously report finding positive meaning or benefit from their cancer experience [6–8], but the factors that promote these changes have not been determined. To determine how CBSM promotes benefit finding, it may be useful to discriminate the different *types* of benefits endorsed by patients in the McGregor study, which mirror those seen in previous research on stress-related growth [9]. One type of benefit is a more patient, accepting attitude towards life, including a greater ability to adjust to events that cannot be changed and to take things as they come. A second type of benefit is a positive change in self-view, specifically a perception of oneself as stronger and better able to manage stress and problems. Changes in these domains likely occur as a direct result of the cognitive restructuring and coping skills training at the heart of CBSM, which promotes the development of more adaptive cognitive coping strategies [10]. A third type of benefit is a change in interpersonal relationships, including a stronger sense of connection with friends and family members and a greater empathy for all human beings. These changes are likely related to didactic training in use of social support and enhanced by the expression and support promoted by the group experience. At a broader level, greater empathy may be fostered by an enhanced experience of one's vulnerability and sharing that vulnerability with others in the group setting.

A fourth type of benefit is a deeper sense of purpose in life and a greater focus on important goals and priorities. This domain is the most removed from the didactic instruction provided by CBSM and may be more closely linked to the emotional expression and cognitive processing fostered by the group experience. Expression and processing of thoughts and feelings about stressful life events are thought to facilitate emotional adaptation [11,12] and may also promote a reconsideration of the direction of one's life and one's priorities and goals [13]. Studies show that

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discussion and cognitive processing are associated with perceptions of positive growth and meaning in the aftermath of stressors, including cancer [7,14–16]. However, cognitive processing does not inevitably lead to growth; indeed, prolonged and unresolved processing of traumatic experiences can result in worse mental health [17]. One important function of CBSM may be to provide a supportive and structured context for processing to occur that makes it more likely to resolve positively.

What are the mechanisms for immune effects?

There are a number of potential psychological mediators between benefit finding and physiological change. McGregor et al. [1] suggest that benefit finding may work by changing appraisals of future stressors from threat to challenge (cf. Ref. [18]). We suggest four additional psychological mechanisms, drawing from the domains of benefit finding identified above. First, the development of more intimate and loving relationships with family and friends may have beneficial physiological consequences. Social support is known to be important for overall health [19] and has also been linked to positive changes in neuroendocrine, cardiovascular and immune systems [20]. Second, a new or renewed engagement with meaningful life goals may have a positive influence on immune status. Individuals who place more importance on intrinsic goals, such as relationships, personal growth and finding meaning in life, show positive changes in markers of immune status, including CD4 T cell levels [14] and NK cell activity [13]. Third, benefit finding may influence immune status by enhancing positive affect. Although positive emotions have rarely been studied in psychoneuroimmunology, there is intriguing evidence suggesting that both induced and dispositional positive affect are associated with improved immune function [21,22] and lower risk of immune-related illnesses [23,24]. Finally, there may be a direct link from cognitive change to physiological change, for example, if benefit finding were to result in lower levels of physiological arousal (cf. Ref. [25]).

A more difficult question addresses the physiological mechanisms between psychological and immunological change. McGregor et al. [1] cite catabolic mediators such as cortisol as one possibility, and this is a plausible explanation, especially given their earlier findings [3]. However, it is important to consider whether positive psychological changes have their own pathways, separate from those associated with stress and distress. These pathways are much less well elaborated than their catabolic counterparts (e.g., the hypothalamic–pituitary–adrenal axis), but some candidates include parasympathetic nervous system activity [26], growth factors [27] and other neuroendocrine factors such as oxytocin [28].

Reports of positive cognitive change resulting from traumatic events, such as finding meaning or benefit in

the experience, were initially viewed with skepticism. However, the existence of such change is now more generally accepted. The challenge now is to determine the factors that impact positive changes and whether, when and how such changes translate into better psychological and physiological functioning.

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