Theory, Measurement, and Controversy in Positive Psychology, Health Psychology, and Cancer: Basics and Next Steps

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Abstract The aims of this commentary are two-fold: First, to amplify some of the points that Aspinwall, Tedeschi, Coyne, Tennen, and Ranchor have raised, noting the importance of a return to basics. Second, to posit next steps in theory development and methods at the intersection of health psychology, positive psychology, and cancer. Additional theory development, more applications of large prospective studies, and instrument refinements are warranted to understand the effects of positive constructs on health outcomes and adaptation to cancer. This area of research would be strengthened by studies that incorporate survival, health-related quality of life, and well-being outcome measures, using cancer registries and/or multiple raters. More observational studies are necessary. Attention to social justice questions is suggested in future studies at the intersection of these fields.

Keywords Positive health · Adaptation to cancer · Methods · Theory

Introduction

Aspinwall and Tedeschi [1] and Coyne and Tennen [2] ask us to re-consider some fundamental assumptions about positive psychology, health psychology, and cancer as well as proffer some trenchant comments about current methods at the intersections of these fields of study. The aims of this commentary are two-fold: First, to amplify some of the points that each of these authors has raised, noting the importance of a return to basics with respect to theory development, research design approaches, and instrumentation. Second, to posit logical next steps derived from the conclusions of this series of papers.

Health psychology is “…devoted to understanding the ways people stay healthy, the reasons they become ill, and the ways they respond when they become ill” [3]. A complete picture of adaptive functioning includes elements that promote successful management of illness and, in some cases, restoration of health [1]. Both sets of papers explore some potential frames for this complete picture, relying on the history of work in health psychology as well as other sub-fields, including developmental, social, clinical, and personality psychology [4, 5]. They acknowledge the compelling meta-analyses linking positive affect, well-being, and health [6–8], although they also recognize the considerable methodological challenges inherent in these examinations [9]. They share a call for additional research that incorporates both positive and negative constructs related to human adaptation to cancer as well as cardiovascular (and other) diseases. They cite the consistent findings of studies linking stress and impaired immune function, but find less consistent findings for the salutary effects of positive psychology constructs such as optimism at the biologic level. They both decry the use of positive psychology for “saccharine terrorism” with exaggerated claims based on their own and others’ work.

These thoughtful papers highlight and elaborate important constructs of interest to positive psychology in the context of cancer, such as positive affect, optimism, and post-traumatic growth; the multiple pathways linking these constructs to psychological and biologic outcomes [9–12]; and the role of moderators, such as ethnicity [13, 14], and mediators, such as social support. Further work in this area is...
the important next step in this field. To paraphrase Paul Lazarsfeld’s famous remark, “Theory is the most practical of all things.” Good theory is simple, comprehensive, logically coherent, and posits relationships among constructs that explain the hypothesized outcomes. Extending existing robust models in social, personality, clinical, developmental, and health psychology to include constructs of core interest to positive psychology, and tying them more specifically to health processes such as medical decision-making, enrollment in clinical trials, symptom-reporting, treatment adherence, communication with providers, end-of-life preferences, biologic morbidity, as well as mortality, would enrich the search for comprehensive approaches to understanding human adaptation to cancer.

With respect to psychosocial outcomes, theory may guide research to answer such intriguing questions posed by these papers as whether there are benefits over and above the losses to adaptation; whether there are important differences between benefit-finding and post-traumatic growth [15]; whether cancer is a “critical period” in the life course, forcing existential examinations, or another challenge to which individuals respond in a normative fashion; and whether healthy communities can be created by drawing on principles of positive psychology. Additional research could further specify which benefits emerge, among which kinds of participants, with which diagnoses, so that tailored intervention programs could be developed, tested, and, if effective, disseminated to clinical practice settings.

Focusing on biological outcomes (that received somewhat less attention in these papers), theory-based studies could address specific potential mechanisms through which different positive phenomena may be related to the phases of prevention, genesis, progression, and regression of cancer and other diseases (e.g., via health behaviors, screening practices, decision-making, tumor cell proliferation, angiogenesis, invasiveness), while at the same time pushing forward our understanding of how these processes may operate differently for varied forms of cancer, over time [1]. Coyne and Tennen [16] make a compelling case for a focus on cardiovascular disease rather than cancer as the prototypic exemplar for the study of positive phenomena. Nonetheless, some strong evidence suggests that cancer remains a relevant area for further study. For example, the work of Lutgendorf and her colleagues offers a useful illustration of endocrine and cell-signaling pathways through which psychosocial factors might influence ovarian cancer activity (e.g., catecholamine activation of tumor cell expression of vascular endothelial growth factor, IL-6, and matrix metalloproteinases [17–21]). Although much of this work has focused on stress, findings also have hinted at potential effects of positive constructs (e.g., positive associations between social integration and IL-6 levels [22]; relationships between social support and MMP-9 in ovarian tumor-associated macrophages [23]), and illustrate directions that might be further pursued. Conceptually driven studies might also explore other relevant, and perhaps more promising, clinical targets, beyond progression or survival, such as fatigue, sleep disturbance, pain, or infectious complications (e.g., via altered glucocorticoid regulation of proinflammatory cytokine responses [24, 25]).

As with sound approaches to all phenomena in behavioral medicine, fundamentals of a theory that incorporates both the observed positive and negative effects of cancer on adaptation to the disease would include multiple levels (the social context, health care system, provider, person, and biology). For example, with respect to social context, comprehensive theory could capture the increased prevalence of benefit-finding among cultural subgroups such as African American women. At the level of the healthcare system, it might address how benefit-finding may be affected by variations in the supply and quality of integrated medicine clinics, or by differences in how providers communicate with patients about treatment approaches and potential outcomes. Differences in resilience at the individual level [26–29], varied genetic predispositions to optimism [30], or well-being [31], and survival over time may be explored. With theory as a base, hypotheses about both direct and indirect mechanisms of change could be posited for testing in large, longitudinal prospective cohorts, such as the Sister Study [32], the Breast Cancer Family (B-CFR) [33] and Colon Cancer Family (C-CFR) Registries [34], and the Nurses’ Health Study [35]; each study is large enough to power a rigorous uncovering of confounds. For example, using the instruments that each already administers, the Sister Study and the population-based C-CFR offer opportunities to examine stress and cancer outcomes, over time, using biologic and survey data among affected individuals and their family member(s) [36, 37]. The B-CFR and the C-CFR collect social support measures over time [37, 38] among women at increased risk for, or affected by, breast or colon cancer, and their family members. The Nurses Health Study, a well-mined research resource, could offer insights into the predictors of changes in health-related quality of life and mortality over time [39]. In addition, the population-based B-CFR and C-CFR offer multiple opportunities for sub-studies of enrolled participants, as discussed further below. Theory-based prospective data collection, through the B-CFR and C-CFR, for instance, could address some of the criticisms of retrospective cohort analyses posed by Coyne and Tennen [2].

From a wide theoretical “nomological net,” ([40], p. 47) new operational measures subsequently could be developed, modified, and tested, thereby addressing Coyne and
Tennen’s [2] criticism of the conceptual inadequacy of some of the most widely used measures of positive adaptation to illness, such as benefit-finding. Questions about conceptual adequacy may be answered by additional observational studies using qualitative and quantitative measures of benefit-finding across the life course in both clinical and healthy samples.

While it is uncertain whether entirely new measures of positive states “in their own right” [1] are necessary [41], existing instruments could be refined based on theories of positive affect as an emotion [42–44]; additional psychometric evaluations of extant instruments are also warranted, especially to explore convergent validity. For example, Coyne and Tennen [2] highlight the importance of using psychometrically sound measures, both prior to and after the illness, to reduce both recall and halo bias, even though following thousands of individuals over time until a large enough subset are diagnosed with cancer is often not feasible. In interpreting the results of their meta-analysis of positive affect and health, Pressman and Cohen [9] highlight numerous other critical methodologic issues that are relevant to refining measures in this field, including: ensuring adequate item range, particularly to capture moderate responses; measuring emotions separately rather than as composites; employing better assessments of mood intensity and duration over time; capturing naturalistic and induced positive affect; and examining average levels of positive affect within and between individuals. Multiple measures from multiple raters (e.g., partners, friends) could be collected to examine both positive and negative thoughts, feelings, and expectations, in addition to self-report.

Objective measures of health are critical as well, to reduce confounding from self-reported predictors and outcomes. Measures of survival, using The Surveillance, Epidemiology, and End Results (SEER) database and state cancer registries, are excellent sources of objective morbidity and mortality measures, particularly for multi-year, multi-sample comparisons. In fact, population-based registries in general, such as the existing B-CFR and C-CFR, as well as the burgeoning psychosocial registries for persons diagnosed with cancer [45] offer opportunities for using a common core of instruments, reliable measures of treatment and health outcomes (with inter-linkages to SEER and death certificates), systematic correction for survival bias, and triangulation of data sources (e.g., from self-report and biomarker or health administrative data) to prospectively capture both positive and negative adaptation to illness [46]. In addition, health-related quality of life and well-being outcomes collected among representative populations, especially with linkages to SEER (e.g., the SEER-Medicare Health Outcomes Survey; http://outcomes.cancer.gov/surveys/seer-mhos/), could enrich the measurement of adaptation to cancer, enabling the evaluation of both psychosocial and disease endpoints.

As also suggested by Aspinwall and Tedeschi [47], interventions developed to alter behaviors to enhance adaptations to cancer should respond to Gordon Paul’s [48] (paraphrased) challenge to the early field of psychotherapy outcome measurement: what interventions, delivered by whom, are most effective for these individuals with those specific problems, under what set of conditions, and why? Given the state of the science at the intersection of these fields regarding benefit-finding and post-traumatic growth, additional observational studies are warranted prior to more intervention research. Some positive concepts such as resilience, however, may be sufficiently understood from other fields of psychology to design rigorous strategies to improve “at risk” cancer patients’ adaptations to their disease [29].

As Coyne and Tennen [2, 49] also note, it may be premature to implement interventions cultivating positive psychological states with posited effects on immune functioning, cancer progression, and mortality, despite the importance of continued observational studies on the impact of stress and positive constructs on health and the progression of disease. NCI’s 2002 initiative, the Biological Mechanism of Psychosocial Effects on Disease, has supported increased attention to elucidating the biological and molecular mechanisms associated with influences on cancer etiology, progression, and management. Additional transdisciplinary research that bridges basic cancer biology and biobehavioral science is warranted, particularly in oncology settings (e.g., [23]), in order to validate such concepts as post-traumatic growth.

Finally, both papers highlight the tyranny of the victim that results from relying on personal disposition to fight cancer. As Barbara Ehrenreich explores in Bright-Sided: How the Relentless Promotion of Positive Thinking has Undermined America [50], “this focus shifts attention from the larger social, political, and economic forces behind poor health care, poverty, unemployment,” and other social injustices that increase cancer-related morbidity and mortality among population subgroups. Healthy communities were an early focus of the field of positive psychology, even though individuals have received the most attention thus far. Comprehensive theory and measurement will need to address the social context within which positive adaptation to cancer may arise, as stated earlier. Ultimately, interventions will need to address multi-level approaches, from the policy to the biology. As Barbara Ehrenreich quips, “It can’t all be fixed by assertiveness training [50].”

In short, by returning to basics in theory development, research design, and instrument fine-tuning, these papers pose directions for the future of this emerging area of research.
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