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Have a Little Faith: Measuring the Impact of Illness on Positive and Negative Aspects of Faith

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Abstract

OBJECTIVE—The importance of faith and its associations with health are well-documented. As part of the Patient Reported Outcomes Measurement Information System, items tapping positive and negative impact of illness (PII & NII) were developed across four content domains: Coping/Stress Response; Self-Concept; Social Connection/Isolation; Meaning and Spirituality. Faith items were included within the concept of meaning and spirituality.

METHODS—This measurement model was tested on a heterogeneous group of 509 cancer survivors. To evaluate dimensionality, we applied two bi-factor models, specifying a general factor (PII or NII) and four local factors: Coping/Stress Response, Self-Concept, Social Connection/Isolation, and Meaning and Spirituality.

RESULTS—Bi-factor analysis supported sufficient unidimensionality within PII and NII item sets. The unidimensionality of both PII and NII item sets was enhanced by extraction of the faith items from the rest of the questions. Of the 10 faith items, 9 demonstrated higher local than general factor loadings (range for local factor loadings = .402 to .876), suggesting utility as a separate but related “faith” factor. The same was true for only 2 of the remaining 63 items across the PII and NII item sets.

CONCLUSIONS—While conceptually and to a degree empirically related to Meaning and Spirituality, Faith appears to be a distinct subdomain of PII and NII, better-handled by distinct assessment. A 10-item measure of the impact of illness upon faith (II-Faith) was therefore assembled.

Keywords

cancer; oncology; measurement; psychosocial impact; faith

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INTRODUCTION

Religion and spirituality are important to a majority of the general population in the United States. More than 90% of adults express a belief in God or higher power and more than 70% of adults identify religion as one of the most important influences in their lives.[1] The role of religion and spirituality is often underscored when individuals are confronted with physical health concerns. Patients and family caregivers rely on spirituality and religion to help them cope with serious physical illnesses,[2,3] and recent reviews have highlighted the relevance of religion and spirituality to cancer more specifically.[4,5] While the definitions of religion and spirituality are thoroughly discussed elsewhere,[6,7] there is growing data that religion and spirituality are related concepts. Evidence to date suggests a salutary relationship between religion or spirituality and outcomes (e.g., morbidity, mortality, psychological adjustment, quality of life). [8–10] In addition, recent research suggests when questionnaires include “faith” items with sense of meaning, purpose or life appreciation items, the “faith” component may be distinct from more existential counterparts.[11]

As part of the Patient Reported Outcome Measurement Information System (PROMIS) Cancer Supplement funded by the NIH Roadmap for Medical Research Initiative (U01 AR052177, R01 CA60068; PI: Cella), we developed measures of psychosocial illness impact which included four content areas across negative and positive impact: Stress/Coping, Self-Esteem, Social Impact, Meaning/Spirituality. This project utilized rigorous measurement development strategies, including an extensive literature review, expert input, focus groups, cognitive interviews, and item-response theory methodologies. This conceptual model was tested using 754 cancer patients and survivors. (see [12] for additional details regarding the development of the conceptual model and items generated for testing). Items were then refined and added to enhance the completeness of the measurement continuum and were tested using 509 cancer patients and survivors. This manuscript reports on data from the latter testing results.

Given the importance of religion and spirituality for individuals with chronic illnesses such as cancer, and the relative lack of brief assessments incorporating both negative and positive aspects of religious faith, we sought to: (1) identify items from the Meaning/Spirituality item set of the Psychosocial Illness Impact Measure useful for assessing positive and negative aspects of religious faith in a Faith short-form, and (2) explore the psychometric properties of the resulting Faith short-form. For the purposes of this manuscript we chose to focus on those aspects of religious faith reflected in beliefs, practices, or experiences with particular relevance to psychosocial adaptation to illness.

METHODS

Sample and Procedures

Participants (N=509) were recruited from (1) the Duke Cancer Care Research Program in Durham, NC (n=72); (2) the Duke Tumor Registry (n=283); and (3) NexCura, a pharmaceutical internet panel company (n=154). Participants were eligible if they were 18 years or older, had a diagnosis of cancer and were fluent in English. The Institutional Review Board approved the study, and all participants provided informed consent.

Measures

Positive and Negative Psychosocial Illness Impact [12]: Four item sets were created, corresponding to the four content areas described above. Each item describes an event that may have happened as a result of having cancer. Participants describe how much that event impacted their lives by indicating, “How true was this before your illness?” as well as, “How true is this now, since your illness?” Participants respond using a five-point scale from “not

at all” to “very much.” A total of 86 items were administered across positive (46 items) and negative (40 items) psychosocial illness impact areas. Subscale and overall scores are created by summing the items on the respective scales. Additionally, the following measures were included in the testing to evaluate convergent and discriminant validity.

Benefit-Finding Scale (BFS)[13]: The BFS assesses the perception that positive contributions were made to one’s life by the experience of being diagnosed with and treated for cancer. The items assess a variety of positive domains, including acceptance, interpersonal growth, and a stronger sense of purpose in life. Coefficient alpha for the BFS was .94.

Impact of Events Scale (IES)[14]: The IES is a 15-item self-report measure of intrusive and avoidant cognition, and is frequently used in evaluating stress reactions after traumatic experiences. The IES was keyed to the experience of cancer (i.e. ‘Indicate how frequently these comments were true for you during the past 7 days with respect to your experience with cancer’). Coefficient alpha for the IES total score was 0.90.

Analyses

We used confirmatory factor analysis (CFA) and bi-factor analysis to evaluate dimensionality of items. Acceptable CFA results were indicated by Tucker-Lewis Index (TLI) and comparative fit index (CFI) values of 0.90 or greater, and root mean square error of approximation (RMSEA) < 0.1. The bi-factor analysis better captures the illness impact framework by allowing each item to load on a general factor and one local factor. If standardized loadings on the general factor (e.g., negative impact of illness) are uniformly high (i.e., >0.4) and substantially larger than loadings on local factors (e.g., Self-concept), it is appropriate to report a single score. If local factors essentially represent separate constructs, loadings on the general factor will not be uniformly high, making it more appropriate to report local factor scores separately. We used Pearson correlation coefficients to examine correlations between newly derived measures and indices of convergent and discriminant validity. For these analyses, only the “after” scores (i.e., “How true is this now, since your illness?”) of the Positive and Negative Psychosocial Illness Impact items were used. Analyses were conducted with MPlus v5.0 (Muthén & Muthén, Los Angeles, CA, USA) and IBM SPSS Statistics v19.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

Demographic Characteristics

Participants were primarily White (85.9%), married or living with a partner (75.3%), had at least some college education (83.2%) and a household income higher than \$50,000 (66.0%). They had an average age of 60.4 years (SD=11.4); 50.3% were male; 30.3% were full-time employed and 36.2% were retired. Participants’ had a wide range of cancer diagnoses including: 24.4% breast, 17.1% colorectal, 15.7% prostate, and 10.2% lung. The average time since cancer diagnosis was 4.7 years (SD=5.1) with 16.3% of participants diagnosed less than 1 year, 32.3% more than 5 years, and the remainder between 1–5 years. A majority of participants (58.9%) had received no treatments within the past month while 21.6% received chemotherapy and 7.1% received radiation therapy; 21.0% had experienced a cancer recurrence. Most participants reported either “normal activity without symptoms” (54.0%) or “some symptoms, but do not require bed rest during the waking day” (34.6%). In terms of their religious or spiritual orientation, 65.8% described their primary religious affiliation as Protestant and 39.9% reported their religious affiliation was “very important” to them. Most participants viewed themselves as “moderately” to “very” religious (73.4%) and “moderately” to “very” spiritual (82.3%).

CFA and Bi-factor Analysis

A one-factor CFA was insufficient to support unidimensionality within the item sets: negative impact of illness (NII): CFI=0.89, TLI=.97, RMSEA=0.13; positive impact of illness (PII): CFI=0.77, TLI=.91, RMSEA=0.20. For the bi-factor analysis, the general factor was defined as psychosocial illness impact (either PII or NII), and local factors were Coping/Stress Response, Social Connection/Social Isolation, Self-concept, Meaning and Spirituality. Both PII and NII item sets were tested separately using this bi-factor analytic approach. Bi-factor analysis showed all items had significant loadings on the general factor, with factor loadings ranging from 0.440 to 0.862 for PII and from 0.382 to 0.901 for NII. Acceptable fit indices were found for NII (CFI=0.95, TLI=0.98, RMSEA=0.08) and for PII (CFI=0.93, TLI=0.98, RMSEA=0.099) confirming the measurement model was valid for both. These results support the sufficient unidimensionality of each set of PII and NII items and two summation scores (PII & NII) with four sub-domains represented by local factors.

However, when comparing item loadings between general and local factors, some items showed significant loadings on both, indicating they could be combined to yield an overall score or a subscale score. Loadings on the local factors were larger than those on the general factors for several items from positive and negative Meaning and Spirituality. Specifically, five PII (e.g., “I find strength in my faith or spiritual beliefs”) and four NII (e.g., “I am losing my faith”) Meaning and Spirituality items had higher local than general factor loadings (see Table 1), suggesting utility as a separate but related “faith” factor. In comparison, only two of the remaining 33 PII items and none of the remaining 30 NII items loaded more highly on the local than the general factors.

These nine “faith” items were then separated from their respective PII- and NII-Meaning and Spirituality item sets to enhance the unidimensionality of the parent psychosocial illness impact measure. We reviewed the remaining items from the NII-Meaning and Spirituality set for content similar to the existing nine “faith” items (i.e., use of the terms “God”, “prayer”, “faith”, or “spiritual beliefs”). One additional negative “faith” item was identified (“I feel punished by God”). Although it loaded more highly on the general than the local factor, both loadings were $>.4$, suggesting this item characterizes NII-Faith as well as NII more generally. Thus, content considerations and psychometric performance allowed us to identify a 10-item measure of the psychosocial impact of illness for issues of faith (II-Faith) with separate 5-item PII-Faith and a 5-item NII-Faith subscales.

Within and Across Subscale Correlations

PII-Faith and NII-Faith both demonstrated good internal consistency ($\alpha = 0.96$ and 0.77 , respectively), and were inversely correlated ($r = -.509$, $p < .001$). Corrected item-total correlations ranged from 0.88 to 0.91 for PII-Faith and from 0.42 to 0.71 for NII-Faith. Correlations with external validation measures were in the expected direction and were moderate to strong ($r = .3$ to $.5$, $ps < .001$) for most of the bivariate relationships examined (Table 2).

DISCUSSION

The experience of cancer is a psychosocial transition which can have both positive and negative outcomes. The positive and negative impacts of illness are best conceptualized and measured as two independent factors with conceptually distinct content areas such as Coping/Stress Response, Social Connection/Social Isolation, Self-concept, Meaning and Spirituality. [12] Faith is a concept related to Meaning and Spirituality, but psychometrically distinct. [15] With the exception of the Brief RCOPE, [16] few measures provide brief assessment of positive and negative faith dimensions for understanding the entire scope of

the psychosocial impact of cancer. A 10-item measure of PII and NII on issues of faith provides promise for brief, psychometrically sound measurement across the cancer care continuum. Assessment of PII and NII on issues of faith may prove useful in maximizing healthy psychological adaptation for cancer patients and survivors and facilitate identification and utilization of appropriate multidisciplinary care options (e.g., chaplain services).[17]

This study is not without limitations. We describe the development of measures assessing the psychosocial impact of illness, but our validation sample is cross-sectional and our measures rely on retrospective recall. To more fully understand the impact of cancer, longitudinal designs are preferable. A second concern is the data is drawn from a predominantly white convenience sample. Racial and ethnic minorities often ascribe more importance to their religious and spiritual beliefs than do whites. [18] Additional work should examine the degree to which the psychometric properties of the II-Faith remain across more diverse samples with respect to race and ethnicity as well as with respect to disease type and treatment status throughout the entire cancer care continuum.

In summary, the II-Faith provides promise as a brief, valid, and reliable measure of the impact of illness on issues of faith. It was developed through a rigorous and sophisticated measurement approach and is an optional short form within the PROMIS framework of psychosocial illness impact. Independent assessment of positive and negative faith dimensions may prove useful in understanding the entire scope of the psychosocial impact of cancer. Future directions may include examining the concurrent validity of the II-Faith with measures of religious salience, religious beliefs, positive and negative religious coping, and exploring the utility of this measure as a screening tool and its links to religious struggle; which has been found to be predictive of poorer outcomes such as greater emotional distress[19] and increased risk of mortality. [20] Ultimately, a better understanding of PII and NII on issues of faith may prove useful in maximizing healthy psychosocial adaptation for cancer patients and survivors for whom faith is important.

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References

1. Gallup Inc. [Accessed 4/11/2011] Religion. 2010. <http://www.gallup.com/poll/1690/Religion.aspx#1>
2. Murray SA, Kendall M, Boyd K, Worth A, Benton TF. Exploring the spiritual needs of people dying of lung cancer or heart failure: a prospective qualitative interview study of patients and their carers. *Palliat Med.* 2004; 181:39–45. [PubMed: 14982206]
3. Kim Y, Wellisch D, Spillers R, Crammer C. Psychological distress of female cancer caregivers: effects of type of cancer and caregivers' spirituality. *Support Care Cancer.* 2007; 1512:1367–1374. [PubMed: 17516094]
4. Stefanek M, McDonald PG, Hess SA. Religion, spirituality and cancer: Current status and methodological challenges. *Psychooncology.* 2005; 146:450–463. [PubMed: 15376283]
5. Thune-Boyle IC, Stygall JA, Keshtgar MR, Newman SP. Do religious/spiritual coping strategies affect illness adjustment in patients with cancer? A systematic review of the literature. *Soc Sci Med.* 2006; 631:151–164. [PubMed: 16427173]
6. Hill PC, Pargament KI, Hood RW, et al. Conceptualizing religion and spirituality: points of commonality, points of departure. *J Theory Soc Behav.* 2000; 30:51–78.
7. Miller WR, Thoresen CE. Spirituality, religion, and health. An emerging research field. *The American Psychologist.* Jan.2003 581:24–35. [PubMed: 12674816]

8. Powell LH, Shahabi L, Thoresen CE. Religion and spirituality. Linkages to physical health. *Am Psychol*. 2003; 581:36–52. [PubMed: 12674817]
9. Yanez B, Edmondson D, Stanton AL, et al. Facets of Spirituality as Predictors of Adjustment to Cancer: Relative Contributions of Having Faith and Finding Meaning. *J Consult Clin Psychol*. 2009; 774:730–741. [PubMed: 19634965]
10. Salsman JM, Yost KJ, West DW, Cella D. Spiritual well-being and health-related quality of life in colorectal cancer: a multi-site examination of the role of personal meaning. *Support Care Cancer*. 2011; 19:757–64.10.1007/s00520-010-0871-4 [PubMed: 20405147]
11. Murphy PE, Canada AL, Fitchett G, et al. An examination of the 3-factor model and structural invariance across racial/ethnic groups for the FACIT-Sp: a report from the American Cancer Society's Study of Cancer Survivors-II (SCS-II). *Psychooncology*. 2010; 193:264–272. [PubMed: 19367561]
12. Lai JS, Garcia SF, Salsman JM, Rosenbloom S, Cella D. The psychosocial impact of cancer: evidence in support of independent general positive and negative components. *Qual Life Res*. 2011 epub ahead of print. 10.1007/s11136-011-9935-2
13. Helgeson VS, Tomich PL. Surviving cancer: a comparison of 5-year disease-free breast cancer survivors with healthy women. *Psychooncology*. 2005; 144:307–317. [PubMed: 15386765]
14. Horowitz M, Wilner N, Alvarez W. Impact of Event Scale: A measure of subjective stress. *Psychosom Med*. 1979; 413:209–218. [PubMed: 472086]
15. Brady MJ, Peterman AH, Fitchett G, Mo M, Cella D. A case for including spirituality in quality of life measurement in oncology. *Psychooncology*. 1999; 85:417–428. [PubMed: 10559801]
16. Pargament KI, Smith BW, Koenig HG, Perez L. Patterns of Positive and Negative Religious Coping with Major Life Stressors. *J Sci Study Relig*. 1998; 374:710–724.
17. Fitchett, G.; Canada, AL. The role of religion/spirituality in coping with cancer: evidence, assessment, and intervention. In: Holland, JC.; Breitbart, WS.; Jacobsen, PB., editors. *Psycho-Oncology*. 2. Oxford: Oxford University Press; 2010. p. 440-446.
18. Moadel AB, Morgan C, Dutcher J. Psychosocial needs assessment among an underserved, ethnically diverse cancer patient population. *Cancer*. 2007; 1092:446–454. [PubMed: 17123273]
19. Fitchett G, Murphy PE, Kim J, Gibbons JL, Cameron JR, Davis JA. Religious struggle: prevalence, correlates and mental health risks in diabetic, congestive heart failure, and oncology patients. *Int J Psychiatry Med*. 2004; 342:179–196. [PubMed: 15387401]
20. Pargament KI, Koenig HG, Tarakeshwar N, Hahn J. Religious struggle as a predictor of mortality among medically ill elderly patients: a 2-year longitudinal study. *Arch Intern Med*. 2001; 16115:13–27.

Table 1

Bi-factor Analyses of Separate Positive Illness Impact and Negative Illness Impact Items (Meaning and Spirituality content only)

Positive Illness Impact – Meaning & Spirituality Content	General	Local
My life is meaningful	0.849	0.136
I appreciate life	0.841	0.141
I have a sense of peace	0.830	0.371
I can appreciate each day fully	0.822	0.104
I feel peaceful	0.810	0.339
I have a sense of purpose in life	0.782	0.272
I see what is really important in my life	0.715	0.165
I feel close to God	0.492	0.792
I find strength in prayer	0.474	0.817
I find comfort in my faith or spiritual beliefs	0.464	0.866
I find strength in my faith or spiritual beliefs	0.451	0.876
I have a strong faith	0.440	0.834
Negative Illness Impact – Meaning & Spirituality Content	General	Local
My life lacks purpose	0.865	0.443
My life lacks meaning	0.833	0.469
I have trouble feeling peace of mind	0.802	0.185
I question the purpose of my life	0.796	0.266
I feel I have been given more than I can take	0.768	0.124
I feel punished by God	0.639	0.435
Difficult times weaken my spiritual beliefs	0.580	0.679
I am losing my faith	0.569	0.773
Difficult times weaken my faith	0.521	0.636
I find it hard to pray	0.382	0.402

Note: Items in **bold font** comprise the Psychosocial Illness Impact-Faith Subscales (negative and positive).

Table 2**Bivariate Correlations among Select Study Variables**

Measures	Faith – Pos	Faith – Neg
To what extent do you consider yourself a religious person?	.710	–.307
To what extent do you consider yourself a spiritual person?	.641	–.225
Positive Illness Impact - Meaning/Spirituality	.509	–.533
Negative Illness Impact - Meaning/Spirituality	–.290	.597
Positive Illness Impact – Total Score	.464	–.535
Negative Illness Impact – Total Score	–.222	.532
Benefit Finding Scale	.416	–.170
Impact of Event Scale – Total Score	–.073 [#]	.360

Note: All ps significant at $p < .001$ unless otherwise noted.

[#]
p=.101.

Pos=Positive, Neg=Negative.