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Wang, Ashley Wei-Ting
Hoyt, Michael A

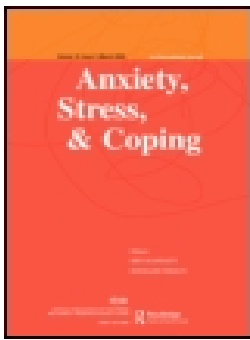
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Ashley Wei-Ting Wang & Michael A. Hoyt

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REPORT



Cancer-related masculinity threat in young adults with testicular cancer: the moderating role of benefit finding

Ashley Wei-Ting Wang ^a and Michael A. Hoyt^{b,c,d}

^aDepartment of Psychology, Soochow University, Taipei, Taiwan; ^bPopulation Health and Disease Prevention, University of California, Irvine, CA, USA; ^cChao Family Comprehensive Cancer Center, University of California, Irvine, CA, USA; ^dInterdisciplinary Institute for Salivary Bioscience Research, University of California, Irvine, CA, USA

ABSTRACT

BACKGROUND AND OBJECTIVES: Perceiving benefit from a health-related stressor such as cancer has been associated with better psychological adjustment in various cancer populations; however, it has not been studied in the context of young adulthood or gender-related cancer threat. This study investigated the role of benefit finding in psychological adjustment among young adults with testicular cancer, and whether BF moderates cancer-related masculine threat.

DESIGN: This study utilizes a cross-sectional design with a diverse sample of young adult testicular cancer survivors.

METHODS: Men with a history of testicular cancer ($N = 171$; M age = 25.2, $SD = 3.32$) completed questionnaires of benefit finding, cancer-related masculine threat, and indicators of psychological adjustment.

RESULTS: Multiple regression analysis revealed that cancer-related masculine threat was associated with worse adjustment across indicators and that benefit finding was related to higher positive affect and lower depressive symptoms. Benefit finding attenuated the potentially adverse effect of cancer-related masculine threat on negative affect and depressive symptoms such that cancer-related masculine threat demonstrated a stronger association with negative affect and depressive symptoms for people with relatively low BF.

CONCLUSIONS: For young adult men with testicular cancer, finding benefit appears to promote well-being in the face of masculine cancer threat.

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cancer-related masculine
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Testicular cancer and its treatments can lead to disruption across life domains and threaten quality-of-life (Smith et al., 2016). The preponderance of new diagnoses of testicular cancer occur in young adults (ages 18–29) (NCI, 2019), a life stage marked by establishing independence and by challenges in relationships and career pursuits (Arnett, 2000). Young men report disruptions in body image, elevated anxiety, changes in sexual confidence, and lowered adult self-image after treatment (Ryan & Hoyt, 2018; Smith et al., 2016). Such adverse outcomes can be perceived as inconsistent with masculine identity, contributing to psychological distress and declines in physical health (Hoyt, Stanton, Irwin, & Thomas, 2013). Cancer-related masculine threat is enhanced for those who adopt a traditional and restrictive masculine gender role (Hoyt, 2009; Maliski, Rivera, Connor, Lopez, & Litwin, 2008). Cancer-related masculine threat may be marked by a sense of loss, diminished meaning, or hopelessness. However, moderating influences of cancer-related masculine threat, particularly those with potential to enhance meaning, hopefulness, and a sense of beneficial growth have yet to be identified.

Despite its profound challenges, cancer can beget unexpected positive change. Benefit finding (BF) refers to an individual's perception that notable positive changes have resulted from a challenging, stressful, or even traumatic life event such as cancer (e.g., improved relationships, enhanced life purpose) (Tomich & Helgeson, 2004). Research extols the positive impact of BF in cancer survivorship (e.g., Sawyer, Ayers, & Field, 2010), though predominately studied in women with breast cancer. Studies that do include men suggest that women engage in more BF than men (e.g., Helgeson, Reynolds, & Tomich, 2006; Vishnevsky, Cann, Calhoun, Tedeschi, & Demakis, 2010).

BF is associated with higher positive adjustment and, to a lesser extent, with lower negative adjustment (Helgeson et al., 2006; Kvillemo & Bränström, 2014). It has potential to bolster positive coping resources including enhanced sense of meaning, strengthened close relationships, and more optimistic stress appraisals (Bower, Low, Moskowitz, Sepah, & Epel, 2008; Davis, Nolen-Hoeksema, & Larson, 1998). Despite the potential of BF, few studies have focused on men with cancer and with varying results. In men with prostate cancer, one study found that BF was unrelated to quality of life (Thornton & Perez, 2006), while posttraumatic growth (a related construct of BF) was associated with psychological resilience and viewing cancer as a challenge (vs. threat) (Wilson, Morris, & Chambers, 2014). Finally, Wang and Hoyt (2018) documented that BF is associated with HPA activity by way of increased positive affect in prostate cancer survivors. These studies of men with prostate cancer predominately include samples of men in mid to older adulthood.

Little work has examined BF in young adults diagnosed with cancer. Zebrack and colleagues (2015) were able to distinguish posttraumatic growth from posttraumatic stress in young adults with cancer, establishing that growth after cancer is not merely the absence of distress. In a study of younger (ages 18–55) cancer survivors, posttraumatic growth has been shown to facilitate cancer adjustment (Park, Chmielewski, & Blank, 2010). The current study extends this research to examine BF and cancer adjustment in a group of young adult men with testicular cancer.

Studies of cancer-related masculine threat have failed to identify potential moderators of the cancer-related masculine threat-distress relationship, particularly the modulating potential of BF after cancer. Adopting a buffering hypothesis, BF can be viewed as a coping resource that protects the individual from the adverse impact of cancer-related masculine threat (Pakenham, 2005). In this context, BF from cancer might reflect hope, meaning, and/or optimism even in the presence of relatively high levels of cancer-related masculine threat. In fact, evidence supports BF's ability to buffer the influences of psychosocial vulnerabilities (e.g., posttraumatic stress symptoms, intrusive thoughts) on depression or psychological adjustment in breast cancer patients (Morrill et al., 2008; Park et al., 2010; Wang et al., 2017).

The current study

The current study examines the relationships of cancer-related masculine threat and BF and both positive and negative adjustment indicators in young men with testicular cancer. It was predicted that cancer-related masculine threat will be related to worse adjustment (i.e., high negative affect, low positive affect, high depressive symptoms) and that BF would be associated with better psychological adjustment (direct effects hypotheses). Further, the potential attenuating effect of BF was also tested in which BF is expected to lessen the negative association of cancer-related masculine threat with adjustment.

Methods

Participants and procedures

Young men with testicular cancer were identified by the California Cancer Registry and invited to participate in a study of "health-related quality of life after testicular cancer." One hundred and seventy-one English-speaking young adults between 18 and 29 years of age with a history of testicular cancer

were recruited. Men with severe psychiatric disorder(s) or cognitive impairment were excluded. Following informed consent, participants completed questionnaires by mail or in person and were compensated \$50. All procedures were approved by the corresponding author's Institutional Review Board.

Participants were on average 25.2 ($SD = 3.3$) years of age, 45% were White, 34.5% Hispanic/Latino, 7% Asian, and nearly 13% identified as "Other" or "Mixed". The modal annual income range was "\$15,001–\$45,000" (31.5%). Clinically, 65.9% received their initial diagnosis within 3 years of study entry. All participants underwent at least one surgical procedure (i.e., radical inguinal orchiectomy) and 53.2% received chemotherapy. Nearly 35% of the sample had stage I diagnosis, 65% had stage II or III.

Measures

The Benefit Finding sScale (BFS; Tomich & Helgeson, 2004) measured the degree to which patients found benefit from testicular cancer. Participants rated the degree of BF across various domains (e.g., stronger interpersonal relationships). Responses ranged from *Not at all* (1) to *Extremely* (5). A total score was computed by averaging responses of all 17 items. The internal consistency of the BFS was .95 in this study.

Cancer-related Masculine Threat Scale (Hoyt et al., 2013) is a 25-item scale measuring the extent to which one perceives cancer and cancer-related change as inconsistent with his masculine gender role (e.g., "Having cancer makes me feel like less of a man"). Scale ratings ranged from *disagree strongly* (1) to *agree strongly* (5). A total score was computed by averaging all items. Internal consistency coefficient was .86 in this study.

Psychological adjustment to cancer. Three indicators of psychological adjustment were measured: positive affect (PA), negative affect (NA), and depressive symptoms. The Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988) was used to assess PA and NA. The PANAS measures positive and negative affective states using a list of 10 adjectives in each scale. Respondents rate the degree to which they felt each emotion "in the past few weeks", from *Very slightly or Not at all* (1) to *Extremely* (5). Mean scores across PA and NA items were calculated for each participant. In this study, internal consistency coefficients were .90 and .90 for PA and NA, respectively.

The Center for Epidemiologic Studies Depression Scale (CES-D, Radloff, 1977) consists of 20 items reflecting depressive symptoms. Participants rate the extent to which they experience each symptom over the past week from *rarely or none of the time* (0) to *all of the time* (3). Summed scores of all items were used. Internal consistency was .94.

Self-esteem was measured by the Rosenberg Self-Esteem Scale (Rosenberg, 1965), a 10-item scale that measures global self-worth on a 4-point Likert scale format ranging from *strongly agree* (0) to *strongly disagree* (3).

Statistical analysis

Zero-order correlations for key variables and demographic and medical variables were conducted. These included participant age, education, ethnicity (ethnic minority versus not), marital status (married/partnered versus not), and cancer stage, time since diagnosis, type of surgery, type of treatment (chemotherapy, radiation, or no treatment) and history of depressive disorder. Medical and demographic variables that were significantly correlated with at least one dependent variable (i.e., PA, NA, or depressive symptoms) were statistically controlled in model testing. Multiple linear regression was used to test hypotheses. In each model, demographic and clinical covariates were entered in the first block, BF and cancer-related masculine threat in the second block, and the moderation term (BF \times cancer-related masculine threat) was added in the final block. All continuous

predictors were centered prior to entry in the model. When interaction terms were significant, simple slope analyses were conducted following Aiken and West (1991).

Results

Descriptive and correlation analyses

Descriptive statistics and bivariate correlations were computed for study variables including NA ($M = 1.80$, $SD = .74$), PA ($M = 3.38$, $SD = .88$), CES-D ($M = 12.99$, $SD = 12.08$), cancer-related masculine threat ($M = 2.43$, $SD = .64$), and BF ($M = 3.43$, $SD = 1.00$). Cancer-related masculine threat was significantly correlated with all outcome measures NA ($r = .50$, $p < .001$), PA ($r = -.41$, $p < .001$), and CES-D ($r = .50$, $p < .001$). Further, BF was significantly correlated with PA ($r = .43$, $p < .001$) and CES-D ($r = -.20$, $p = .034$), but not with NA ($r = -.13$, $p = .103$) or cancer-related masculine threat ($r = -.10$, $p = .177$). Of note, years of education, ethnicity (ethnic minority status), and cancer stage were identified as relevant covariates, given observed relationships with cancer adjustment. Each was included in the subsequent regression models.

Multiple linear regression and interaction analyses

Results of regression analyses are shown in Table 1. Results supported the hypothesis that cancer-related masculine threat is positively associated with worse adjustment. Controlling for covariates, cancer-related masculine threat had direct associations with all three dependent variables (i.e., NA, PA, and CESD) in expected directions. Similarly, BF was positively associated with PA and negatively associated with CES-D. However, there was no significant main effect on NA.

Results also partially supported the hypothesis that BF buffers cancer-related masculine threat. There was a significant interaction effect (cancer-related masculine threat \times BF) on NA and CESD; however, this interaction was not significant for PA. Simple slope analysis reveals that cancer-related masculine threat demonstrated a stronger positive association with NA and depressive symptoms in men reporting relatively low BF (CESD: $B = 7.35$, $SE = .05$, $\beta = .38$, $t = 5.76$, $p < .001$; NA: $B = 12.76$, $SE = .07$, $\beta = .44$, $t = 6.28$, $p = .04$), compared to those reporting relatively high BF (CESD: $B = 3.65$, $SE = .06$, $\beta = .13$, $t = 3.24$, $p = .049$; NA: $B = 4.85$, $SE = .08$, $\beta = .23$, $t = 2.14$, $p = .03$). See Figure 1a and 1b.

Post-hoc analyses

Examining the possibility that specific psychological resources account for the relationship of BF and cancer adjustment, analyses were repeated including self-esteem. Although self-esteem was modestly associated with all indicators of adjustment (PA: $B = .78$, $p < .001$; NA: $B = -.71$, $p < .001$; CES-D: $B = -.71$, $p < .001$), associations of cancer-related masculine threat and BF with adjustment indicators did not substantially change in magnitude, direction, or significance. The cancer-related masculine threat \times BF interaction term also remained significant.

Discussion

In this study, we examined BF in a sample of young men with testicular cancer. Our findings mirror studies of older men with prostate cancer and confirm that cancer-related masculine threat is associated with worse adjustment to cancer. BF was also significantly related to both a positive (i.e., PA) and negative (i.e., depressive symptoms) domain of adjustment. Moreover, BF was found to buffer the effect of cancer-related masculine threat on NA and depressive symptoms. As predicted, this pattern of results suggests that perceiving positive change as a result of cancer has potential to mitigate the harmful impact of gender-related cancer threat, particularly for negative domains of adjustment.

Table 1. Regression analyses of Benefit finding and Cancer-related masculine threat.

	NA					PA					CESD							
	ΔR^2	B	SE	β	95% CI	ΔR^2	B	SE	β	95% CI	ΔR^2	B	SE	β	95% CI			
Covariates	.05					.04					.06*							
Education		-2.39	.87	-.21**	[-.12, -.01]		2.19	1.03	.17*	[.01, .14]		-4.33	1.45	-.23**	[-.10, -.01]			
Ethnicity		.88	1.14	.06	[-.26, .15]		-1.09	1.36	-.06	[-.21, .25]		.59	1.91	.02	[-.16, .17]			
Cancer stage		.04	.44	.01	[-.07, .08]		-.52	.52	-.08	[-.14, .03]		.79	.74	.08	[-.03, .10]			
Main Effect	.22***					.30***					.23***							
BF		-0.67	0.51	-0.09	[-.18, .02]		3.61	0.57	0.41***	[.24, .47]		-2.06	0.85	-1.64*	[-.15, -.02]			
CMT		5.45	0.82	0.47***	[.23, .43]		-4.62	0.92	-0.34***	[-.40, -.17]		8.71	1.35	0.45***	[.17, .34]			
Interaction	.02*					.00					.03**							
BF \times CMT		-1.86	0.34	-0.15*	[-.13, -.05]		0.17	0.95	0.01	[-.11, .13]		-3.80	1.36	-0.19**	[-.18, -.08]			
		$F(6, 164) = 11.08***; R^2 = 0.29$						$F(6, 164) = 14.11***; R^2 = 0.34$						$F(6, 164) = 13.12***; R^2 = 0.33$				

Note. Education was coded as 1 (less than high school graduation), 2 (high school graduate), 3 (college graduate), 4 (graduate degree); Ethnicity was coded as 1 (white) or 0 (non-white). NA = Negative

Affect; PA = Positive Affect; CES-D = The Center for Epidemiologic Studies Depression scale; CMT = Cancer-related masculine threat; BF = Benefit finding.

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

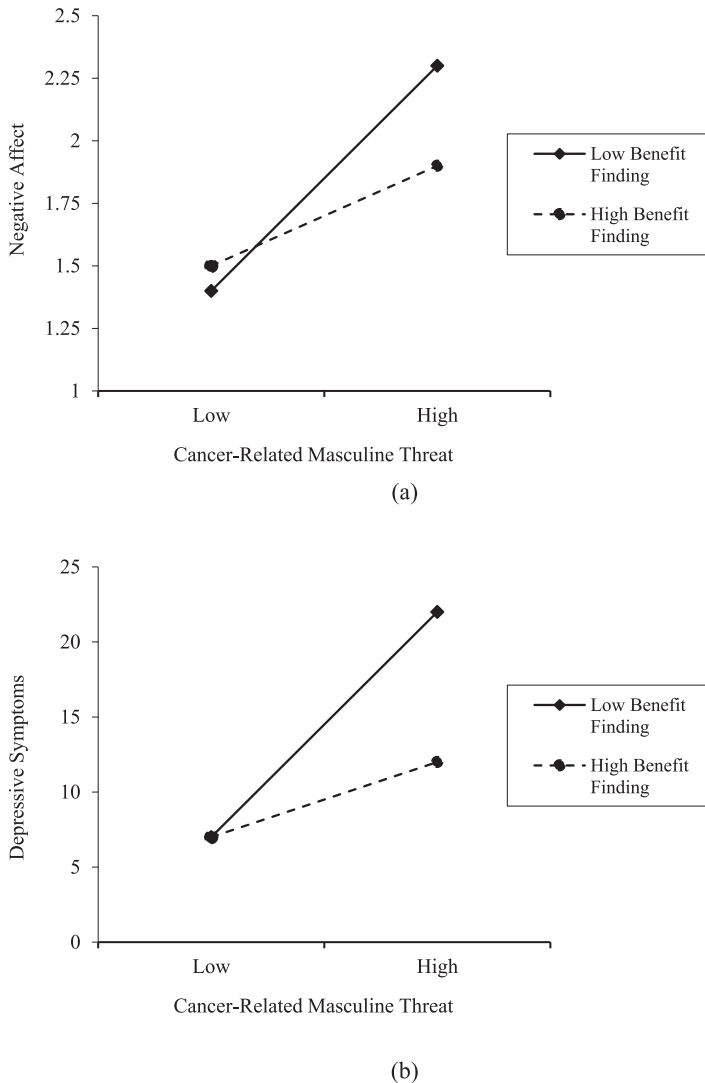


Figure 1. Buffering effect of Benefit finding on negative affect and depressive symptoms.

BF may reflect cognitive adaptation in response to cancer (Taylor, 1983). Thus, the findings of direct and buffering effects signal the complex role of BF in cancer adjustment. As such, the buffering hypothesis addresses the possibility that BF or growth from cancer is protective against the adverse effects of cancer-related stress (Pakenham, 2005) such that BF might reflect positive cognitive engagement, either by positively reappraising the harm and limitation caused by cancer (self-enhancing appraisal; Taylor, 1983) or by making meaning out of life-changing events (meaning-based coping; Park & Folkman, 1997); though notably post-hoc testing suggest that these patterns are not better accounted for by general psychological resources (i.e., self-esteem). Such BF-related cognitive adaptation is likely to extol benefit in the context of relatively high perceptions of cancer-related vulnerability (i.e., cancer-related masculine threat in testicular cancer), but may be of less consequence with lower distress.

Notably, young men in our study reported relatively higher levels of BF ($M = 3.43$) compared to samples of men with prostate cancer ($M = 2.08 - 3.32$) (Kinsinger et al., 2006; Pascoe & Edvardsson,

2015; Penedo et al., 2006). It is likely that younger survivors are motivated to find benefit, particularly in the context of a diagnosis with a higher survival rate. In part, such motivation might be underscored by the fact that younger patients report greater psychosocial interruption after cancer (Boyle, Stanton, Ganz, & Bower, 2017; Helgeson et al., 2006; Tedeschi & Calhoun, 2004). Cancer diagnosis in young adulthood can challenge valued, developmentally-typical goal pursuits (Hullman, Robb, & Rand, 2016). Cognitive adaptation in this context (e.g., reappraising limitations; self-enhancement; meaning-making) could serve to protect goal pursuits particularly in the presence of diminished self-image (e.g., cancer-related masculine threat). Thus, BF can be construed as a well-matched, positive resource that facilitates satisfactory resolution of masculine threat when the gendered self is threatened.

The current study relied on a cross-sectional design. Although directionality was theory driven, causal interpretations cannot be inferred. It is also possible that adjustment influenced BF or cancer-related masculine threat. The question of whether BF has a prospective benefit on adjustment or the dynamic relationship of BF, cancer-related masculine threat, and distress over time remains. Also, this study recruited from a small clinical population; and the resulting sample size is relatively small. Replication of findings in larger samples will be important. In addition, we speculate that previous inconsistent findings regarding buffering effects of BF (e.g., Morrill et al., 2008; Park et al., 2010) might reflect unmeasured moderators of BF. Future studies should consider plausible moderating factors, for example, a study with women with breast cancer found that the favorable effect of BF occurred only among women with higher education (Wang et al., 2017¹; see also Lechner et al., 2003; Sawyer et al., 2010). This study utilized a measure of masculine threat grounded to traditional notions of masculinity. However, culturally-grounded conceptualizations such as machismo or caballerismo (Arciniega, Anderson, Tovar-Blank, & Tracey, 2008) should be examined in cultural subgroups.

Our findings highlight the importance of age or developmental stage in understanding BF in the cancer context. We also introduce cancer-related gender influences in understanding the buffering impact of BF. This study may have useful clinical implications for young male cancer survivors. Bolstering BF has the potential to promote positive adjustment to cancer and could serve as a target for psychosocial intervention. The strongest benefit may be achieved by fostering meaning-based coping, positive reappraisal, and acceptance in response to negative alterations in masculine self-image and the navigation of developmentally appropriate life goals.

Note

1. Notably, covariate (education, time since diagnosis, cancer stage) by BF were not significant in the current study.

Disclosure statement

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ORCID

Ashley Wei-Ting Wang  <http://orcid.org/0000-0002-9268-1127>

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