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Cancer-Related Masculine Threat, Emotional Approach Coping, and Physical Functioning Following Treatment for Prostate Cancer

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Objective: Aspects of masculinity and gender role, particularly those that are traditional and restrictive, are related to poorer physical and psychological outcomes in men with cancer. This longitudinal study uses a cancer-specific assessment to determine whether cancer-related masculine threat (CMT) predicts prostate-related (i.e., urinary, bowel, sexual) functioning over time, and whether cancer-related emotional approach coping (EAC) processes explain these relationships. Whether coping self-efficacy and emotional suppression explain effects of CMT on EAC also is tested. **Methods:** Sixty-six men (M age = 65.76; SD = 9.04) who underwent radical prostatectomy and/or radiation therapy for localized prostate cancer within two years were assessed on physical and psychological variables at study entry (T1), and two (T2) and four (T3) months later. **Results:** Analyses controlling for baseline functioning and age revealed that CMT predicted declines in (T1 to T3) urinary ($B = -.21, p < .05$), bowel ($B = -.24, p < .05$), and sexual ($B = -.17, p < .05$) function. CMT also predicted decreased emotional processing (T1 to T2), but not emotional expression. Decreased emotional processing predicted declining prostate-related functioning and helps explain the effect of CMT on bowel and sexual (but not urinary) functioning. Low coping self-efficacy ($p < .05$), but not emotional suppression, was a mechanism by which CMT predicted emotional processing. **Conclusions:** The extent to which men believe that cancer is inconsistent with their masculinity exacerbates declines in prostate-related functioning following cancer treatment. CMT likely shapes coping responses and negatively affects the efficacy of emotion-directed coping. Emotion-regulating coping processes, particularly the ability to process cancer-related emotions, appears to be one pathway through which gender role affects recovery from prostate cancer.

Keywords: prostate cancer, masculinity, emotional approach coping, emotional suppression, coping self-efficacy

Higher levels of aspects of masculinity (Maliski, Rivera, Connor, Lopez, & Litwin, 2008), gender role conflict (Hoyt, 2009), and gender-linked personality characteristics (Helgeson & Lepore, 2004; Hoyt & Stanton, 2011) are related to poorer outcomes in men with cancer. This is particularly true when cancer-related experiences are inconsistent with hegemonic or dominant forms of

socially constructed masculinity (OliFFE, 2005; Wall & Kristjanson, 2005), often characterized by expectations to be independent, self-reliant, in control, powerful, strong, and stoic, among other characteristics (Courtenay, 2000; Spector-Mersel, 2006; van den Hoonaard, 2009). Common symptoms and experiences associated with being treated for prostate cancer, such as erectile dysfunction, incontinence, loss of libido, and feelings of vulnerability and fear, are linked to traditional gender role expectations and threatened masculine self-image in men with prostate cancer (e.g., Arrington, 2008; Bokhour, Clark, Inui, Silliman, & Talcott, 2001; Burns & Mahalik, 2008; Maliski et al., 2008; Stansbury, Mathewson-Chapman, & Grant, 2003; Wall & Kristjanson, 2005). In the period following treatment, prostate cancer patients commonly describe difficulties maintaining social and familial role functions, and report experiencing bodily changes that invoke feelings of weakness, embarrassment, and frustration. It is poorly understood whether the management of such emotional responses contributes to prostate cancer treatment-related symptoms over time. Much of the work to date has focused on gathering in-depth accounts of men's experiences (e.g., Maliski et al., 2008), yet few empirical studies have sought to identify the specific impact that gender role parameters have on measurable health outcomes. This longitudinal study uses a cancer-specific assessment of gender role threat to

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predict changes in urinary, bowel, and sexual functioning over time, and tests whether cancer-related emotional approach coping (EAC) processes explain these relationships.

Various gender-related constructs have been examined in the context of men's health. Helgeson and Lepore (1997) found positive cross-sectional relations of unmitigated agency—a gender-linked personality trait characterized by an exclusive focus on one's self—with prostate cancer-related difficulties (e.g., sexual interest and functioning) and poorer mental health. In a longitudinal study, unmitigated agency predicted declining urinary and bowel function (Helgeson & Lepore, 2004). Unmitigated agency might also prevent men from benefiting from various coping efforts. Higher unmitigated agency predicts poorer psychological adjustment to cancer in men with greater social support (Hoyt & Stanton, 2011). The impact of gender role conflict, or the negative cognitive, emotional, and behavioral consequences associated with male gender role socialization (O'Neil, Good, & Holmes, 1995), is also linked to psychological outcomes in men with cancer. In a cross-sectional study, Hoyt (2009) found associations of gender role conflict with more depressive symptoms, cancer-related thought intrusions, and lower psychosocial functioning in men with cancer. However, these constructs represent sets of general attitudes or dispositional traits; neither unmitigated agency nor gender role conflict is situationally specific to the prostate cancer context.

One way that gender-related expectations might affect outcomes is by way of coping efforts aimed at regulating emotional responses to cancer (see Stanton, 2011). Emotion regulation is a process that involves generating emotional responses, as well as modulating the manner in which one experiences and communicates such responses (Ochsner & Gross, 2005). Stanton, Danoff-Burg, Cameron, and Ellis (1994) noted that coping through emotional approach is comprised of two emotion-regulating processes: emotional processing and emotional expression. In the case of prostate cancer, emotional processing includes active attempts to acknowledge, explore, and come to understand one's emotions related to prostate cancer, whereas emotional expression represents active verbal and nonverbal efforts to communicate or symbolize cancer-related emotional experiences. The EAC Scales (Stanton, Kirk, Cameron, & Danoff-Burg, 2000) are free of confounding expressions of distress and self-deprecation and provide discriminant validity with measures of psychological adjustment (see Stanton et al., 1994, Study 2). Although observational studies and intervention trials generally show that EAC facilitates positive adjustment in women with breast cancer (see Stanton, 2011), research focusing on men with cancer is limited. Moreover, findings in clinical and nonclinical samples of men are inconsistent, linking EAC to both salutary outcomes (Baker & Berenbaum, 2007; Berghuis & Stanton, 2002; Smith, Lumley, & Longo, 2002), and poorer adjustment and higher rumination (Stanton, Kirk, et al., 2000). Relevant gender-related factors may help resolve such inconsistencies when considered within the context of specific stressful events.

Despite the evidence suggesting a benefit of EAC on cancer-related psychological outcomes, less attention has been given to examining its relationship with physical functioning in medical populations. Studies have shown EAC to be related to lower affective chronic myofascial pain (Smith et al., 2002), including lowered physical impairment in men. EAC has also been related to increased vigor, fewer medical visits for cancer-related morbidities, and improved self-reported health in women with breast

cancer (Stanton, Danoff-Burg, et al., 2000). Several mechanisms of how effective regulation via emotional approach positively impacts health and functioning have been discussed, including adaptive goal clarification and pursuit, physiological habituation, and cognitive reappraisal of stressors (see Stanton, 2011, for a discussion). Further, evidence has suggested that use of EAC is related to several biological processes implicated in health status or disease progression, including left frontal EEG asymmetry and lowered proinflammatory markers (Master et al., 2009). Thus, use of EAC processes over time might work to modulate responses to stress and protect against negative health consequences.

Understanding how gender role socialization is associated with EAC will better inform intervention development and practice recommendations. Several processes have been theorized. One possibility is emotional suppression (Wong, Pituch, & Rochlen, 2006), which involves conscious inhibition of emotionally expressive behavior (Gross, 1998). Gender norms suggest that men overrely on suppressing emotions, particularly when emotional responses are perceived as appearing "unmanly" (Brody, 2000), and that the socialization of restrictive emotionality in boys begins early (e.g., Underwood, Coie, & Herbsman, 1992). In fact, Levant (Levant et al., 2007) and others (Mahalik, Good, & Englar-Carlson, 2003; O'Neil, Good, & Holmes, 1995) have identified constrained emotionality as a core component of traditional (restrictive) masculinities. Men, working to meet expectations to restrict emotionality, would lack incentive to express and process emotions. Instead, they would engage in *intentional* efforts to suppress them (a "motivational deficit" hypothesis). In contrast, some masculinities might undermine confidence in the ability to effectively utilize emotion-directed coping (a "skills deficit" hypothesis; i.e., low coping self-efficacy). In fact, initiatives to reduce depression in men have targeted men's difficulties in recognizing and acknowledging negative affective states (see Rochlen, Whilde, & Hoyer, 2005), and restrictive emotionality associated with gender role conflict has been associated with men's ability to identify feelings (Wong, Pituch, & Rochlen, 2006).

The Current Study

Calling upon stress and coping theory (Lazarus & Folkman, 1984), Hoyt and Stanton (2012) proposed a model of adjustment to chronic illness in which contextual factors, including gender-related processes, influence physical and psychological responses to disease-related stressors by way of cognitive and behavioral coping and appraisal processes. The current study adopted this framework to examine the influence of CMT on urinary, sexual, and bowel functioning in prostate cancer patients. To do this, we tested a hypothesized model in which men who endorse more CMT evidence declines in prostate-specific functioning across time. Studies to date have relied largely on global (instead of situational) assessments of gender-related processes. Exceptions include a cross-sectional study (Clark, Bokhour, Inui, Silliman, & Talcott, 2003; also see Thornton, Perez, Oh, & Crocitto, 2011) in which patients with more sexual and bowel dysfunction also reported lower masculine self-esteem related to prostate cancer. The current study uses an assessment of gender-linked attitudes specific to the context of cancer that may better assess appraisal of cancer-specific stressors and related efforts to manage demands. The second aim is to elucidate the relationships of EAC with CMT and prostate-specific functioning. EAC is postulated to

explain the relationship between CMT and health outcomes whereby CMT limits the use of EAC processes. A final, exploratory aim is to examine emotional suppression and emotional coping self-efficacy as possible mechanisms by which gender processes influence emotion-regulating coping efforts. A conceptual model of the hypothesized relationships is depicted in Figure 1.

Method

Participants

Men who had undergone radical prostatectomy or radiation therapy for localized prostate cancer within the prior two years were recruited to take part in a larger study on “health-related quality of life after prostate cancer.” The 24 months following treatment for prostate cancer are marked by relatively rapid decline and then recovery of prostate-specific physical functioning (Litwin, Melmed, & Nakazon, 2001; Stanford et al., 2000), though substantial heterogeneity across men exists. Sixty-eight participants were recruited via physician/clinic referrals ($n = 7$), community outreach and advertisement ($n = 24$), and an institutional tumor registry database ($n = 37$). Participants were screened to exclude individuals who did not meet entrance criteria (e.g., localized disease, time since treatment) and those with significant cognitive impairment. Two participants withdrew from the study following enrollment.

Participants were English-speaking men who ranged from 45 to 87 years in age ($M = 65.76$, $SD = 9.04$). Clinical and sociodemographic variables are reported in Table 1. The average time between diagnosis and entering the study was 28.62 months ($SD = 20.45$; Range = 4–108). On average, participants concluded treatment 18 months prior to completion of the study ($SD = 10.00$; Range = 5–24 months); 71.2% of the sample underwent surgical treatment, 31.8% received radiation therapy, and a small number of participants received both surgical intervention and radiation treatment. The majority of participants (54.7%) reported being sexually active upon entering the study.

Procedures

The Institutional Review Boards at the University of California, Los Angeles and University of California, Merced approved all procedures. After providing written informed consent, participants attended an individual session (T1) to complete questionnaire and interview assessments. Participants were mailed an additional questionnaire to return by mail approximately 8 weeks later (T2) and returned for an in-person questionnaire and interview session 4 months after the first session (T3). Longitudinal studies of men treated for prostate cancer have reported detectable changes in prostate-specific functioning in as little as 3-month reassessments during the 2-year period following treatment (Litwin, Melmed, & Nakazon, 2001; Namiki et al., 2008). Some participants also provided samples of blood and saliva and completed at-home sleep monitoring as part of their participation in the larger study. Participants received \$25 after each in-person session (\$50 total).

Measures

Cancer-related masculine threat. Informed by the extant literature and pilot interviews with men with cancer, a 25-item ques-

tionnaire was developed to assess the extent to which one’s experience with cancer and cancer-related beliefs are inconsistent with one’s socialized gender role and masculine self-image. Participants were asked whether they agreed or disagreed with a number of statements—e.g., “Having cancer makes me feel like less of a man”; “Cancer makes me inferior to other men”; “Cancer is taking away my masculinity”; “My body has to function well for me to feel like a man”—on a scale from 1 (*disagree strongly*) to 5 (*agree strongly*).¹ A total score was computed for each participant by averaging responses (at T1) of all items. To help evaluate the developed scale, endorsement of traditional masculinity ideology—as measured by the Male Role Norms Inventory-Revised (MRNI-R; Levant et al., 2007)—and unmitigated agency (UA)—as measured by the Extended Personality Attributes Questionnaire (Spence, Helmreich, & Holahan, 1979)—was also assessed. Moderate positive correlations with the MRNI-R ($r = .52$, $p < .001$) and UA ($r = .48$, $p < .01$) suggest that CMT is a related but separable construct. Further, CMT demonstrated high stability from T1 to T3 ($r = .85$, $p < .001$) and good internal consistency ($\alpha = .81$).

Prostate-specific functioning. The UCLA Prostate Cancer Index (UCLA-PCI; Litwin et al., 1998) was administered at T1 and T3 to assess prostate-relevant indicators of physical functioning. The UCLA-PCI is a 20-item disease-specific questionnaire that uses multiple items to quantify urinary, bowel, and sexual functioning. Each domain is scored from 0 to 100, with higher scores corresponding with better functioning. In the current study, Cronbach’s alphas were .92 for T3 sexual functioning ($\alpha = .91$ at T1), .76 for T3 urinary functioning ($\alpha = .83$ at T1), and .73 for T3 bowel functioning ($\alpha = .76$ at T1).

Emotion-regulating coping processes. *Emotional approach coping* processes were measured at T1 and T2 using Stanton and colleague’s (2000) EAC scales, which consist of the 4-item scales of Emotional Processing (e.g., “I take time to figure out what I’m really feeling”; “I delve into my feelings to get a thorough understanding of them”) and Emotional Expression (e.g., “I feel free to express my emotions”; “I let my feelings come out freely”). Participants were instructed to complete items with specific reference to responses to prostate cancer problems and experiences on a 4-point response scale (1 = *I don’t do this at all*; 4 = *I do this a lot*). As measured by the EAC scales, EAC processes may include either verbal or nonverbal attempts at expression and either intrapersonal or interpersonal efforts at coping. Both EAC scales have shown sound internal consistency and predictive validity (see Austenfeld & Stanton, 2004, for a review of the psychometric properties). In the current study, Cronbach’s alphas were .83 for T2 emotional processing ($\alpha = .82$ at T1) and .92 for T2 emotional expression ($\alpha = .90$ at T1).

Emotional self-efficacy was measured at T2 using the Stanford Emotional Self-Efficacy Scale-Cancer (SESES-C; Giese-Davis et al., 2004). This instrument consists of 15 items rated on a 100-point scale (0 = *not all confident*; 100 = *completely confident*) and assesses the degree to which individuals have confidence in their abilities to manage cancer-related emotions (e.g., “Ask for the emotional support I need from family members”). The total emotional self-efficacy score was used. Internal consistency for the present sample was $\alpha = .89$.

¹ Scale items are available on request from Michael A. Hoyt.

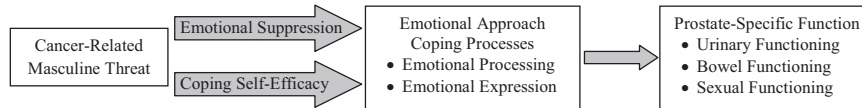


Figure 1. Conceptual model of hypothesized relationships.

Emotional suppression was measured at T2 by the 4-item Emotion Suppression scale of the Emotion Regulation Questionnaire (ERQ-S; Gross & John, 2003). Emotional suppression involves the tendency to use strategies for the inhibition of emotionally expressive behavior (e.g., “I control my emotions by not expressing them”). Participants rated each item on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Cronbach’s alpha = .83.

Health status and demographics. Participants self-reported their age, level of education, income, employment status, ethnicity, and other sociodemographic variables. They also included information regarding health history, health behaviors, and diagnosis and treatment factors.

Data Analyses

Descriptive statistics and zero-order correlations were computed for key variables. Relationships between study variables and potential covariates were examined. These variables included participant age, education (in years), ethnicity, marital status (married/partnered or not), time since diagnosis (in months), time since completing treatment (in months), and current depressive symptoms. These were measured by the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The sample included only patients with localized disease; therefore, cancer stage was not considered.

In light of the study goals of predicting associations across time in dependent variables, separate models were developed to examine potential explanatory factors in the relationship between CMT and dimensions of prostate-specific functioning. These factors were tested using maximum likelihood estimation in *Mplus* (Version 3.01;

Muthén & Muthén, 2004). Path analysis was used to assess whether EAC processes explained the contributions of CMT in changing prostate-specific functioning. To evaluate goodness of model fit, multiple fit indices were computed including χ^2 , root mean squared error of approximation (RMSEA), standardized root mean squared residual (SRMR), and the comparative fit index (CFI).

Indirect pathways were tested using the *Mplus* “Model Indirect” command and indirect path coefficients were tested for significance using *z* tests. Indirect effects were tested based on bootstrapped standard errors for indirect paths generated in *Mplus* (Muthén & Muthén, 2004). This method makes fewer assumptions about the sampling distribution than existing statistical methods for assessing indirect relationships (e.g., Sobel test; Kobrin, Rothman, & Aiken, 2008).

Results

Descriptive Statistics and Identification of Covariates

Table 2 displays descriptive statistics and correlations for primary study variables. No data were missing at T2 or T3. Sexual ($M = 41.50, SD = 28.19$), urinary ($M = 76.21, SD = 24.65$), and bowel ($M = 85.57, SD = 13.87$) function were similar to samples of men treated for localized disease (Gore, Kwan, Lee, Reiter, & Litwin, 2009). Average levels of urinary and bowel functioning remained relatively stable from T1 to T3 ($ps > .05$), and average sexual functioning declined slightly but not significantly. Mean values of emotional expression ($M = 2.52, SD = .84$) and of emotional pro-

Table 1
Participant Characteristics (N = 66)

Characteristic	Percentage	Characteristic	Percentage
Ethnicity:			
White (non-Hispanic)	84.8%	Job Status:	
African American/Black	10.6%	full-time employment	35.4%
Hispanic/Latino	3.1%	part-time employment	10.8%
Native American	1.5%	retired	47.7%
Education:			
high school	10.7%	unemployed/disability	6.1%
some post-high school	21.2%	Relationship Status:	
2-year college degree	9.1%	married/partnered	89.4%
4-year college degree	25.7%	widowed/divorced	7.5%
advanced degree	33.3%	single, never married	3.1%
Annual Household Income:			
\$15,000 or less	3.1%	Treatment:	
\$15,001–\$45,000	9.2%	prostatectomy/surgery	71.2%
\$45,001–\$75,000	26.2%	radiation therapy	31.8%
\$75,001–\$100,000	21.5%	hormone therapy	9.1%
\$100,001 or more	40.0%		

Note. Several participants reported receipt of more than one treatment type. Only two participants reported current receipt of hormone therapy at time of participation. Mean age was 65.76 ($SD = 9.04$). Mean months since diagnosis was 28.62 ($SD = 20.45$). Mean Gleason sum was 6.0 ($SD = 1.45$).

Table 2
Descriptives and Correlations for Study Variables (N = 66)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1. CMT (T1)	2.13	.54	—	-.18	-.04	-.19	-.16	-.19	-.25*	-.25*	.01	-.33*	-.32*	-.52***	.14
2. EE (T1)	2.52	.84		—	.62***	.71***	.62***	.13	.03	.10	.22†	-.06	-.10	.35**	-.52***
3. EP (T1)	2.66	.89			—	.57***	.73***	.01	-.02	.05	.16	-.22	-.12	.42**	-.35**
4. EE (T2)	2.26	.83				—	.75***	.05	.11	.17	.20	.10	.07	.47***	-.57***
5. EP (T2)	2.47	.79					—	.09	.07	.10	.28*	.08	-.04	.46***	-.45***
6. UCLA-PCI-S (T1)	41.50	28.19						—	.35**	.42**	.85***	.25†	.28*	.15	-.28*
7. UCLA-PCI-U (T1)	76.21	24.65							—	.32**	.17	.73***	.05	.07	-.11
8. UCLA-PCI-B (T1)	85.57	13.87								—	.33*	.34*	.65***	.23*	-.17
9. UCLA-PCI-S (T3)	37.50	27.32									—	.17	.20	.12	-.32*
10. UCLA-PCI-U (T3)	76.21	20.89										—	.34**	.01	-.06
11. UCLA-PCI-B (T3)	87.65	13.00											—	.15	.01
12. SESES-C (T2)	66.78	25.04												—	-.47***
13. ERQ-S (T2)	3.43	1.47													—

Note. Changes in urinary, bowel, and sexual functioning from T1 to T3 were not statistically significant.

CMT = Cancer-Related Masculine Threat; EE = Emotional Expression; EP = Emotional Processing; UCLA-PCI = UCLA Prostate Cancer Index (S = sexual functioning, U = urinary functioning, B = bowel functioning); SESES-C = Stanford Emotional Self-Efficacy Scale—Cancer; ERQ-S = Emotion Regulation Questionnaire—Suppression.

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

cessing ($M = 2.66$, $SD = .89$) at T1 were slightly lower than those documented by Stanton, Danoff-Burg, et al. (2000) in women with breast cancer. These latter levels were 2.95 ($SD = .84$) and 3.00 ($SD = .80$), respectively. Of the identified potential covariates, only age was significantly related to endogenous variables and was included in subsequent analyses. Consistent with Hoyt (2009), older men reported less use of EAC ($r = -.26$, $p < .05$).

Predictive Models of Prostate-Specific Functioning

Analyses controlling for age and respective measures of prostate-specific functioning at T1—to account for initial values on dependent variables—revealed that CMT predicted a decline (T1 to T3) in urinary ($B = -.21$, $p < .05$), bowel ($B = -.24$, $p < .05$), and sexual ($B = -.17$, $p < .05$) function.

Path analyses assessed the potential role of EAC processes in the relationship between CMT and change in prostate-specific functioning. All three models testing the effects on sexual, $\chi^2(7) = 12.61$, $p = .08$, CFI = .97, RMSEA = .091, SRMR = .038; urinary, $\chi^2(7) = 10.41$, $p = .17$, CFI = .98, RMSEA = .083, SRMR = .044; and bowel, $\chi^2(7) = 10.28$, $p = .17$, CFI = .98, RMSEA = .082, SRMR = .043, functioning exhibited relatively good fit, as depicted in Figure 2.

As shown in Figure 2, CMT predicted a decline in emotional processing (T1 to T2), but not emotional expression. Decreased emotional processing predicted deterioration in urinary, bowel, and sexual functioning; the indirect effect was significant for bowel ($-.47$, $p < .05$) and sexual functioning ($-.74$, $p < .05$), but not urinary function ($-.14$, $p = .46$). As shown in the Figure, models accounted for 75% of the variance in sexual functioning, 56% in urinary functioning, and 43% in bowel functioning.²

In separate analyses, emotional suppression and emotional coping self-efficacy were considered as potential intervening processes in the effect of CMT on emotional processing. Examination of correlations (see Table 2) reveal that CMT is related to emotional coping self-efficacy ($r = -.52$, $p < .001$) and not emotional suppression ($r = .14$, *ns*). Controlling for T1 emotional processing, emotional coping self-efficacy ($B = .62$, $p < .001$) predicted T2

emotional processing. Further, the indirect effect was significant ($p < .05$).

Discussion

Findings reveal that, among men, belief that cancer is inconsistent with their gender role or sense of masculinity is associated with lower prostate-related functioning over time; including sexual, urinary, and bowel function following cancer treatment. CMT appears to shape coping responses and negatively affect men's self-efficacy in emotion-directed coping. The regulation of emotions, particularly the tendency to process emotions, appears to be one way by which gender role influences recovery from prostate cancer. Men with higher CMT were less likely to process their cancer-related emotions, and results suggest that emotional processing plays an intervening role in the relation of CMT with sexual and bowel (but not urinary) functioning. It is difficult to discern the uniqueness of urinary functioning to explain why indirect paths were nonsignificant. It may be that other relevant coping processes operate in this relationship. For instance, qualitatively, many men in this study discussed that the uncertainty of urinary leakage and the necessity for the use of incontinence pads motivated behavioral disengagement and avoidance behavior.

Functionalist theories of emotions (Levenson, 1994) posit that the processing of emotions is adaptive and plays an important role in

² To consider the possibility that prostate-specific functioning is partially psychological in nature, path models were examined controlling for urinary, sexual, and bowel symptom bother (as measured by the UCLA-Prostate Cancer Index). Symptom bother refers to the distress associated with domain-specific dysfunction. Correlations among T1 bother scores and T2 functioning were significant and positive ($r_s = .27$ to $.54$, $p_s < .05$). Changes in relationships among key model variables were negligible in terms of direction and magnitude. The more parsimonious models were retained. A model was also tested to examine depressive symptoms (CES-D) as a dependent variable. Relationships among variables were similar in that emotional processing ($B = -.13$, $p < .05$), and not emotional expression ($B = .09$, *ns*), was related to lower depressive symptoms.

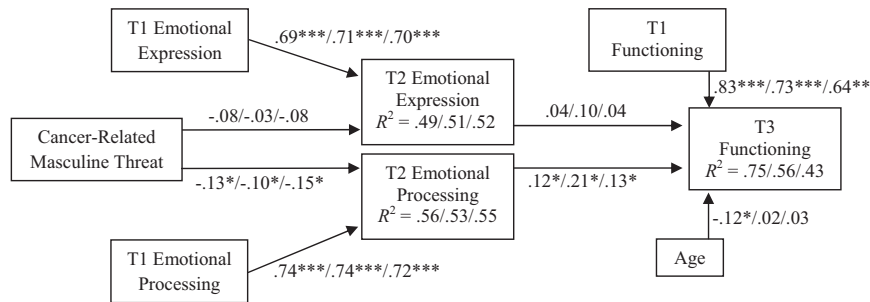


Figure 2. Path diagram depicting relationships among masculine cancer threat, EAC processes, and indicators of prostate-specific functioning. The three standardized coefficients correspond with models predicting sexual, urinary, and bowel functioning, respectively. * $p < .05$. ** $p < .01$. *** $p < .001$.

prompting goal-directed action. However, gender socialization away from emotional processing might prevent men from achieving health-enhancing goals (e.g., self-care, prevention, and mobilization of social support). Gender-cognitive schemas form at an early age and are among the most salient in guiding behavior and judgments of the appropriateness of behavior (Bem, 1977). In fact, gender socialization theories assert that men anticipate negative social consequences from sharing emotions and so tend toward avoidance of emotion and emotion-regulating processes (see Range & Jenkins, 2010). It is noteworthy that bivariate correlations of CMT and emotional processing were nonsignificant, yet significant associations were observed when accounting for baseline levels of emotional processing. This suggests that CMT is related to changes in use of emotional coping strategies in response to cancer-related stressors. It may be that engagement with emotion-laden cognitions call upon self-schemas (e.g., "I am invulnerable") disconfirmed by signaling cancer-related experience (Rimé, 2010), thus lowering the likelihood of future processing. However, we did not find support for the role of intentional attempts to suppress emotions, suggesting that a deficit in one's motivation to engage with emotions does not appear to be an explanatory process. Rather, CMT affected emotion processing, in part, by influencing men's sense of confidence in their skill to manage cancer-related emotions. Thus, it is possible that some men reporting high CMT lack facility in effective emotional processing. Such a skill deficit may lead men to engage in less constructive forms of emotional processing (e.g., rumination; Stanton, Kirk et al., 2000).

Although cancer-related coping through emotional expression was associated with higher coping self-efficacy and lower emotional suppression, it was not associated with indicators of physical functioning in this study. As with physical outcomes, emotional processing and not emotional expression also predicted depressive symptoms (see footnotes). These findings are inconsistent with previous studies that have suggested a benefit of expressing cancer-related emotions in men on psychological adjustment (Berghuis & Stanton, 2002; Hoyt, 2009). CMT also was not associated with emotional expression. Future explorations of masculinity and expression of cancer-related emotions should more closely examine the possibility that the relations among CMT, emotional expression, and adjustment depend on other factors; such as the degree that expressions of emotion are shared with others, are perceived to be socially acceptable, and performed in such a way as to facilitate cancer-related goal pursuit or interpersonal relationships.

It is important to acknowledge that masculinity is a multidimensional construct. To date, scholarly work has only focused on some

aspects (e.g., traditional gender role norms, gender role conflict, gender role stress). This work has begun to highlight how such dimensions of masculinity exert ill effects on health and health behavior (Ricciardelli & Williams, 2011). At the same time, attention is beginning to be given to positive influences of masculinity on salutary health outcomes and adjustment (e.g., Levant, Wimer, & Williams, 2011), suggesting a more complex picture of the consequences of some gender role attributes. It will be important to identify aspects of masculinity (e.g., agency; Helgeson & Lepore, 2004) that support effective emotion regulation and enhance psychological and physical recovery from prostate cancer.

A strength of this study is that it extends the literature beyond the examination of sex differences in coping and adjustment processes in order to begin to elucidate gender-driven processes that might help explain differences. Also, the longitudinal design with three assessment points allowed for a more rigorous test of prediction of change over time (Fleeson, 2007) and the possibility of intervening processes that occurred in temporal order. However, study limitations should be noted. This study relied on a relatively small sample recruited from several sources. Participants in the study were homogenous in disease-related and sociodemographic characteristics. The current sample was comprised of primarily white, highly educated men of higher socioeconomic status, and hence was not representative of all men with prostate cancer. Further, constructions of masculinities and gender role undoubtedly intersect with social and cultural contexts (Arciniega, Anderson, Tovar-Blank, & Tracey, 2008; Wade, 2009; Zanchetta, Monteiro, Gorospe, Pilon, & Peña, 2010). It is critical to recruit samples with diversity across race, ethnicity, socioeconomic status, age, and cultural experience. The study relied on a developed measure of CMT. Although scale properties were sound, scale validation will improve with its use in additional studies with more diverse samples. Moreover, other dimensions related to masculinities (e.g., sense of responsibility, sexual self-schemas), as well as additional emotion-regulating processes of the relation between masculinity and prostate cancer-related functioning (e.g., avoidance, dyadic coping), warrant examination. It is possible that alternative models exist to represent these data; however, findings are consistent with the proposed conceptual framework whereby appraisals of CMT precede emotion regulation strategies that, in turn, affect prostate-specific outcomes. Finally, all measures were self-reported, introducing the possibility that relationships were due to a common response bias. Although self-report is appropriate in assessing such private behaviors as urinary and

bowl function, the use of self-report measures relies on the assumption that individuals have conscious awareness of their physical, psychological, and behavioral processes. Despite these limitations, these results inform our limited understanding of the impact of traditional masculine norms and EAC in men.

This study examined the predictive utility of CMT on changes in coping processes and physical symptoms over time. Decrements in masculine self-esteem have been shown to coincide with declining prostate-related physical functioning (Thornton, Perez, Oh, & Crocitto, 2011). In the current study, effects were demonstrated on functional outcomes when initial levels of functioning were controlled. Future work using momentary assessments of specific stress and coping experiences will help distinguish the dynamic interplay of gender-related expectations on emotional coping efforts in real time. Likewise, examination of dyadic processes will better illuminate the social context in which coping occurs. Also, although this study focused on a relatively wide period after treatment for prostate cancer, CMT might also have implications at other points in the disease course, particularly at the point of detection and screening (e.g., Rivera-Ramos & Buki, 2011) and treatment decision making (Oliffe & Thorne, 2007). For instance, gender-socialized attitudes may be inconsistent with seeking preventive health care (Addis & Mahalik, 2003) or feelings toward digital rectal examinations (Rivera-Ramos & Buki, 2011). A study including a baseline assessment prior to treatment initiation would be most useful. Finally, identification of the biological pathways by which CMT affects physical health is also warranted. This study implicates emotion regulation processes that have been associated with dysregulated neuroendocrine and inflammatory markers (Kemeny & Shestyuk, 2008).

The study of masculinity and gender role processes provides a method for investigating the underlying sociocultural context of coping and adjustment processes in the context of cancer and other chronic illnesses. Potential clinical implications exist. Addressing patients' masculine self-image might be critical for some men in seeking help and regulating difficult emotions. Better tools are needed to understand what the *patient* believes about gender role and cancer, regardless of providers' assumptions or the relative norms of culture. Though it may be difficult for some men to seek out support or professional assistance from other men, it may be that issues related to masculinity, sexuality, and related emotions will be uniquely understood by others who presumably were exposed to similar gender socialization. Finally, validation and normalization of emotional experiences may be clinically important. Some men might benefit from skill-based approaches that extend beyond verbalization of emotions to meaning-making and contextualization of emotional experience.

This study adds to our understanding of men's health and the impact of aspects of gender-related influences on physical functioning following treatment for prostate cancer. It suggests that the degree to which cancer threatens one's masculine identity contributes to lowered use of emotion-regulating coping processes and ultimately leads to declines in prostate-specific physical functioning. It is necessary to translate the growing body of research on gender role and cancer into effective clinical approaches. Interventions that reduce masculine threat, challenge unconstructive gender norms, and promote adaptive emotion regulation may benefit men with cancer.

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