

Masculine norms about emotionality and social constraints in young and older adult men with cancer

Katie Darabos^{1,2} · Michael A. Hoyt^{1,2}

Received: November 5, 2015 / Accepted: March 22, 2016
© Springer Science+Business Media New York 2016

Abstract Beliefs that men should restrict their display of emotions, or restrictive emotionality, might contribute to adjustment to cancer and this might be sensitive to social receptivity to disclosure. The present research examined relationships of restrictive emotionality, social constraints, and psychological distress in young adults with testicular cancer ($N = 171$; Study 1) and older men with prostate cancer ($N = 66$; Study 2). Study 1: positive associations were observed for social constraints and restrictive emotionality with depressive symptoms. Social constraints moderated the relationship, such that high restrictive emotionality was associated with higher depressive symptoms in those with high constraints. Study 2: only social constraints (and not restrictive emotionality) was positively associated with depressive symptoms and cancer-related intrusive thoughts. The social constraints \times restrictive emotionality interaction approached significance with depressive symptoms, such with high social constraints low restrictive emotionality was associated with higher depressive symptoms compared to those with less constraints. No significant associations were found for intrusive thoughts in either study. Findings demonstrate unique relationships with psychological distress across the lifespan of men with cancer given perception of constraints and adherence to masculine norms about emotionality.

Keywords Restrictive emotionality · Social constraints · Masculinity · Cancer disparities · Psychological distress

Introduction

Cancer diagnosis and treatment often result in psychological and physical difficulties such as depression, anxiety, fatigue, and pain (Jacobson & Andrykowski, 2015) as well as disruption in fulfillment of social and family roles, changes in self-perceptions, and altered interpersonal relations (Hoyt & Stanton, 2012). Such disruptions can negatively impact psychological adjustment to cancer. Moreover, the psychosocial needs of people with cancer at different stages of lifespan development may vary. Younger adults faced with a cancer diagnosis often describe increased dependence on parents, disruptions in social life, educational or vocational delays, premature confrontation with mortality, and potential loss of fertility (Zebrack, 2011). Older adults face overlapping, yet unique, concerns such as maintaining long-standing familial roles (e.g., providing financial support), navigating sexual changes in the context of older adulthood, maintaining marital quality, and shifting work-related priorities (Couper et al., 2006; Maliski et al., 2008). Given these varying challenges, psychological distress might manifest differently in young and older adults.

The social-cognitive processing model supports that adjustment to cancer depends on the extent to which individuals perceive their environment to be supportive and open to emotional disclosure (Lepore, 2001). For example, some individuals might react negatively to the sharing of cancer-related emotions by showing criticism or personal discomfort. Others might change the subject, withdraw from conversation, or even avoid the individual. Such

✉ Michael A. Hoyt
michael.hoyt@hunter.cuny.edu
Katie Darabos
kdarabos@gradcenter.cuny.edu

¹ Department of Psychology, The Graduate Center,
City University of New York, 365 Fifth Avenue,
New York, NY 10016, USA

² Department of Psychology, Hunter College, City University
of New York, 695 Park Avenue, New York, NY 10065, USA

actions, either perceived or actual, are referred to as “social constraints” and have consistently been positively associated with psychological distress among individuals with cancer (Adams et al., 2014; Lepore & Revenson, 2007). Additionally, the benefits of a supportive social environment to psychological adjustment to cancer are well established (see Helgeson & Cohen, 1996). Interpersonal support enhances cognitive processing by allowing individuals to disclose emotions within an environment that provides receptive and noncritical responses (Lepore, 2001). In turn, cancer-related negative emotions or intrusive thoughts may be attenuated (Lepore, 2001). Unresponsiveness from others associated with social constraints can hinder the cognitive processing of emotions that is typically facilitated through disclosure within supportive social exchanges. This can also lead individuals to feeling isolated and misunderstood and intensify psychological distress (Lepore & Revenson, 2007; Pistrang & Barker, 2005).

Evidence also indicates that beliefs about men’s adherence to culturally defined standards for male behavior (i.e., masculine ideology) (Pleck et al., 1993) in male cancer patients can be harmful to men’s adjustment to cancer and to mental health (Hoyt, 2009; Maliski et al., 2008). Restrictive emotionality, a traditional masculine norm defined by a set of prescriptive statements about how men should limit their display of emotion, might be one dimension of masculine ideology that has important implications for understanding men’s mental health following an emotionally stressful life event (Burns & Mahalik, 2007; Wester & Vogel, 2012). In fact, prescriptive statements about what men *should* be like (e.g., Men should be detached in emotionally charged situations) compared to descriptive statements about what men are *actually* like (e.g., Men are tough) (Thompson et al., 1992) tend to be more influential in shaping men’s behavior as adherence to masculine norms tends to be derived from societal expectations about *how* men should perform and act (Prentice & Carranza, 2002). Thus, given these expectations, perceived social constraints to emotional disclosure might interact with restrictive emotionality norms to differentially affect men’s adjustment to cancer.

Previous research suggests that men with cancer might be more vulnerable to social barriers to emotional expression (Zakowski et al., 2003). In fact, in a mixed cancer sample, Hoyt (2009) found that emotional expression was related to greater psychological distress for individuals in highly constrained environments. Surprisingly, little work has examined adherence to restrictive emotionality in the sense of involving a less subjective and more culturally defined account of emotional expression and behavior with associations to social constraints as seen with studies of emotional expression (Hoyt, 2009; Zakowski et al., 2003). Few studies that have measured adherence to restrictive emotionality norms have

shown that, for adult men, high levels of restrictive emotionality are associated with a range of adjustment difficulties such as increased health-related anxiety (Wade, 2009), increased depressive symptoms (Hammond, 2012), and decreased willingness to seek psychological help (Berger et al., 2005). A central question is whether adherence to culturally defined norms for male emotional expression among those experiencing social constraints will be related to better or worse adjustment and mental health among young and older adult men with cancer.

One way by which social constraints impart negative consequences to mental health and quality of life is by promoting inhibition in thinking or talking about cancer (Lepore & Helgeson, 1998; Lepore & Revenson, 2007). In studies of men with cancer, including prostate cancer, there is clear evidence for a direct relationship between social constraints and cancer-related intrusive thoughts and avoidant disclosure behaviors (Halbert et al., 2010; Hoyt, 2009; Lepore & Helgeson, 1998). This relationship appears stable across the disease trajectory. Among prostate cancer patients well past the initial diagnosis period, greater intrusive thoughts was positively associated with psychological distress for men in high socially constrained environments compared to those in a more supportive environment (Lepore & Helgeson, 1998).

It remains unclear whether such findings are generalizable to younger survivors. Young adults with cancer might be more vulnerable to constraints from their interpersonal environment given the social nature of challenges indicative of young adulthood that are most threatened by a cancer diagnosis, such as initiating romantic relationships, fertility concerns, fostering one’s professional identity, and maintenance of masculinity and self-image (Carpentier et al., 2011; Zebrack, 2011). Young adults’ social networks might be larger, less close knit, and less sensitive to the needs and challenges of a cancer diagnosis than older adult social networks, which might also include life-long friendships, children and grandchildren, and a spouse or partner (Antonucci et al., 2004; Lang, 2001).

Little research also exists on the impact of upholding such masculine beliefs in young adults with cancer. Qualitative findings from young adult men with testicular cancer indicate that the tendency to uphold and adhere to masculine expectations, such as the need to be strong, is a barrier to receiving emotional support, often resulting from motivations to suppress emotions in order to remain strong for others (Love et al., 2014). As a result young men turn to broader social outlets (i.e., online support groups and forums) to receive support from other cancer patients and survivors (Love et al., 2014) where, presumably, given anonymity on online platforms, consequences of breaking away from traditional masculine norms are minimal and emotional disclosure can occur. However, to our knowledge,

no work has examined the extent to which the interpersonal context attenuates the impact of restrictive emotionality in male cancer patients across the age spectrum. The presence of a cancer diagnosis during young adulthood might perpetuate further adherence to masculine norms (i.e., toughness, restrictive emotionality, restriction of feminine behavior), while older adult men might have more facility renegotiating gender norms when facing new circumstances. If so, older adult men might be better able to engage in more constructive forms of emotional processing (Hoyt, 2009). Taken together, the context of the interpersonal environment and adherence to restrictive emotionality norms might exhibit unique relationships to psychological distress in young and older adult men with cancer.

The current studies

There is a call for increased attention to the intersection of masculinity and cancer in psycho-oncology research with more emphasis on how the societal expectations of being a man intersects with experiences of cancer support (Wenger et al., 2014). The studies reported here address this intersection by examining the relationship of social constraints and restrictive emotionality with psychological distress in both young and older men with cancer. In both studies, it is hypothesized that social constraints and restrictive emotionality will be positively associated with depressive symptoms and cancer-related intrusive thoughts. Further, social constraints are hypothesized to moderate the relationship between restrictive emotionality and psychological distress, such that greater perceived social constraints will be associated with higher levels of depressive symptoms and cancer-related intrusive thoughts in men with relatively high restrictive emotionality; this will be true of both young adults with testicular cancer and older adults with prostate cancer. Given the finding that young men who adhere to restrictive emotionality norms are more susceptible to depressive symptoms (Hammond, 2012) and may be more sensitive to social constraints (Cohee et al., 2016), it is hypothesized that the relationship of high social constraints and high restrictive emotionality with depressive symptoms and cancer-related intrusive thoughts will be stronger for young adults with testicular cancer than in older adults with prostate cancer.

Study 1

Methods

Participants and procedures

Young adults with testicular cancer were identified by the California Cancer Care Registry and invited to participate

in a study on “health-related quality of life after testicular cancer.” Eligibility criteria included: (a) men between 18 and 29 years of age, (b) history of testicular cancer, and (c) ability to read and understand English. Men with severe psychiatric disorder(s), cognitive impairment, or non-clearance by their physician were excluded. Participants completed questionnaires by mail or in person and were compensated \$50. All participants provided signed consent and procedures were approved by the appropriate ethics board.

Demographic and medical characteristics of the sample are displayed in Table 1. Participants included 171 men who ranged in age from 18 to 29 years ($M = 25.2$, $SD = 3.32$), and were predominantly White (45 %) or Hispanic (34.5 %), and single (54.4 %). The majority underwent surgical procedure (e.g., retroperitoneal lymph node dissection, radical orchiectomy) (80.1 %) and received chemotherapy (53.2 %). Nearly 35 % of the sample were diagnosed with stage I cancer, and 65.9 % of the sample received their initial diagnosis within 3 years of study entry.

Measures

Restrictive emotionality Restrictive emotionality was measured by the Male Role Norms Inventory-Revised (MRNI-R) (Levant et al., 2007). The 7-item restrictive emotionality subscale measures the extent to which one believes that men should limit their display of emotion. Participants rated their agreement with items (e.g., “*Being a little down in the dumps is not a reason for a man to act depressed*”, “*Men should not be too quick to tell others that they care about them*”) on a 6-point Likert-type scale ranging from (1) *strongly disagree* to (6) *strongly agree*. A total score was calculated as an average of all items with higher scores indicating greater agreement with the restrictive emotionality norm. Cronbach’s alpha was 0.85.

Social constraints Social constraints experienced in the past month from family and friends (other than spouse or partner) were measured by the 15-item version of the Social Constraints Scale (Lepore & Ituarte, 1999). The scale measures the extent one perceives social responses that hinder the expression of cancer-related thoughts and feelings (e.g., “*How often has your friends and family changed the subject when you tried to discuss your illness*”). Participants rated their agreement with items on a 4-point scale ranging from (1) *never* to (4) *often*. A total score was calculated as an average of all items, with higher scores indicating greater social constraints. Cronbach’s alpha was 0.90.

Table 1 Demographic characteristics of young and older adults

Variable	Young adults <i>N</i> = 171 <i>n</i> (%)	Older adults <i>N</i> = 66 <i>n</i> (%)	<i>p</i> for difference
Age [mean (<i>SD</i>)]	25.2 (3.3)	65.76 (9.0)	<.001
Race/ethnicity			<.001
White	77 (45.0)	56 (84.8)	
Hispanic/Latino	59 (34.5)	2 (3.1)	
African American	1 (0.6)	7 (10.6)	
Asian	10 (5.8)		
Native American/Alaskan	1 (0.6)		
Other/mixed	23 (13.5)	1 (1.5)	
Education			<.001
Some high school	8 (4.7)		
High school/GED	26 (15.2)	7 (10.6)	
Some college	55 (32.2)	14 (21.2)	
2-year college degree	19 (11.1)	6 (9.1)	
4-year college degree	47 (27.4)	17 (25.8)	
Graduate degree	16 (9.4)	22 (33.3)	
Annual Income			<.001
≤\$15,000	41 (24.1)	2 (3.1)	
\$15,001–\$45,000	53 (38.2)	6 (9.2)	
\$45,001–\$75,000	45 (26.5)	17 (26.2)	
\$75,001–\$100,000	16 (9.4)	14 (21.5)	
>\$100,000	15 (8.8)	26 (40.0)	
Employment status			.018
Full-time employment	70 (40.9)	24 (36.4)	
Part-time employment	39 (22.8)	7 (10.6)	
Student	21 (12.3)		
Medical leave/disability	9 (5.3)	2 (1.5)	
Unemployed	32 (18.7)	1 (1.5)	
Relationship status			<.001
Single, never married	93 (54.4)	2 (3.0)	
Committed relationship/partnered	50 (29.2)	8 (12.1)	
Married/remarried	27 (15.8)	51 (77.3)	
Divorced/widowed	1 (0.6)	5 (7.6)	
Surgery	137 (80.1)	47 (71.2)	.167
Chemotherapy	91 (53.2)	0 (0)	<.001
Radiation	26 (15.2)	21 (31.8)	.011
History of depression	22 (12.9)	10 (15.2)	.646
Months since diagnosis [mean (<i>SD</i>)]	31.30 (13.56)	28.62 (20.45)	.256

^a *t* test/ χ^2 differences between young adults and older adults

Depressive symptoms Depressive symptoms during the past week were measured by the 20-item Center for Epidemiologic Studies Depression scale (CES-D) (Radloff, 1977). Respondents rated their agreement with items on a 4-point scale ranging from (0) *rarely or none of the time* to (3) *all of the time* which are summed to a total score where higher scores indicate more depressive symptoms. Sample items include, “*I felt depressed*” and “*I felt happy*” (re-

verse scored). A total score of 16 is typically used as a cut off for identifying individuals at risk for clinical depression (Lewinsohn et al., 1997). Cronbach’s alpha was 0.94.

Cancer-related intrusive thoughts Intrusive thoughts during the past week were measured using the 7-item intrusion subscale of the Impact of Events Scale (IES)

(Horowitz et al., 1979), which was altered to specifically measure the frequency of cancer-related intrusive thoughts. The IES is a widely used measure within the cancer context (Salsman et al., 2015). Respondents were asked to rate their agreement with items on a 4-point scale ranging from (0) *not at all* to (5) *often*. A total score was calculated as an average of all items with higher scores indicating greater intrusive thoughts. Cronbach's alpha was 0.90.

Data analysis

Descriptive statistics and zero-order correlations were conducted for key study variables. Associations between demographic variables (age, education, income, employment status (employed vs. not), partner status (single vs. not), ethnicity (Caucasian vs. not), medical variables (time since diagnosis, type of surgery, type of treatment (chemotherapy, radiation, no treatment) and history of a depressive or anxiety disorder with dependent variables (depressive symptoms and cancer-related thoughts) were examined as possible covariates. Multiple linear regression was used to test hypotheses. In each model, relevant covariates were entered in the first block, social constraints and restrictive emotionality in the second block, and the moderation term (social constraints \times restrictive emotionality) was included in the final block. To avoid multicollinearity, variables were centered around the mean, and interaction terms were analyzed in accordance with methods outlined by Aiken and West (1991). To interpret significant interaction terms, simple slopes analyses were conducted with values at one standard deviation above and below the mean of social constraints (Aiken & West, 1991).

Results

Descriptive statistics and identification of covariates

Descriptive statistics and correlations of key study variables were examined (see Table 2). Average levels of restrictive emotionality were consistent with prior reports by young adults (Levant et al., 2007). On average, young adult men reported *sometimes* encountering socially constrained environments. Nearly 34 % ($n = 58$) of the sample scored at or above threshold (≥ 16) on the CES-D, which is suggestive of clinical depression (Radloff, 1977). On average, young adult men reported *rarely* experiencing cancer-related intrusive thoughts.

Bivariate correlations among demographic, medical, and dependent variables were also computed. Education, income, employment status, and history of a depressive or anxiety disorder (yes/no) were significantly associated with at least one outcome variable and were included as covariates. No significant associations were observed between dependent variables and other demographic (e.g., age) or clinical variables (e.g., time since treatment).

Hypotheses testing

Results of the regression analyses are presented in Table 3. Higher levels of social constraints ($\beta = .41, p < .001$) and of restrictive emotionality ($\beta = .12, p < .05$) were significantly related to higher levels of depressive symptoms, as predicted. These main effects were qualified by a significant social constraints \times restrictive emotionality interaction, which explained an additional 2 % of the variance beyond the main effects (see Fig. 1a). Simple slope anal-

Table 2 Descriptive statistics and correlations for study variables

Variable	Descriptive statistics			Correlations			
	Mean	SD	Range	1	2	3	4
<i>Young adults (testicular cancer)</i>							
1. Restrictive emotionality	2.76	1.08	7–39	–	.16*	.19*	.09
2. Social constraints	1.55	0.54	13–46		–	.57**	.52**
3. CES-D	13.12 ^a	12.19	0–48			–	.51**
4. IES	6.57 ^a	7.73	0–35				–
<i>Older adults (prostate cancer)</i>							
1. Restrictive emotionality	2.49	0.98	7–40	–	.14	.12	.09
2. Social constraints	1.42	0.50	15–43		–	.47**	.61**
3. CES-D	8.85 ^a	8.08	0–36			–	.53**
4. IES	3.33 ^a	5.62	0–20				–

* $p < .05$; ** $p < .01$

^a Differences between young and older adults on CES-D and IES were statistically significant, $p < 0.01$

yses revealed that among young adult men with medium ($\beta = .07$, $p < .05$) or high ($\beta = .15$, $p < .001$) social constraints, high restrictive emotionality was associated with greater depressive symptoms. The simple slope was non-significant ($\beta = -.01$, ns) at low social constraints. As predicted, higher levels of social constraints were significantly related to greater cancer-related intrusive thoughts ($\beta = .47$, $p < .001$). However, neither the main effect for restrictive emotionality, nor the interaction of social constraints and restrictive emotionality were significant for cancer-related intrusive thoughts. Post hoc power calculations demonstrated power to be greater than 0.80 for both analyses ($\beta > .99$)

Discussion

Findings revealed positive associations of social constraints and restrictive emotionality with depressive symptoms for

young adults with testicular cancer. The significant moderating effect of social constraints on depressive symptoms suggests that the combination of a high adherence to restrictive emotionality norms and a socially constrained environment may be detrimental to young cancer survivors' mental health. Consistent with the social cognitive processing theory (Lepore, 2001), it may be that the perceived lack of interpersonal support combined with high adherence to restrictive emotionality norms in young adult men hindered the cognitive processing of emotions leading to greater depressive symptoms compared to those with low perceived constraints and low adherence to restrictive emotionality role norms where depressive symptoms were at their lowest.

The non-significant finding for cancer-related intrusive thoughts was surprising, although men reported rarely experiencing cancer-related intrusive thoughts, which possibly explains this null finding. It also may be that intrusive

Table 3 CES-D and IES regressed on social constraints and restrictive emotionality, testicular cancer

Variable	ΔR^2	B	SE	β
<i>CES-D</i>				
Block 1	.27***			
Education (in years)		-.03	.04	-.05
Income		-.02	.02	-.06
Employment ^a		.01	.08	.01
Hx of depression		.56	.16	.31*
Hx of anxiety		.15	.18	.07
Block 2	.45***			
Social constraints		.47	.07	.41***
Restrictive emotionality		.07	.03	.12*
Block 3	.46*			
Social constraints X				
Restrictive emotionality		.15	.07	.13*
$F(8,159) = 18.90***$, $R^2 = 0.46$				
<i>IES-Intrusive thoughts</i>				
Block 1	.08**			
Education (in years)		-.01	.08	-.01
Income		-.02	.04	-.04
Hx of depression		.48	.23	.15*
Block 2	.27***			
Social constraints		.96	.15	.47***
Restrictive emotionality		.002	.07	.002
Block 3	.26			
Social constraints X				
Restrictive emotionality		-.02	.15	-.01
$F(6,160) = 10.77***$, $R^2 = 0.26$				

Regression coefficients reflect values at the end of block 3, with all variables entered into the model

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

^a 0 = employed, 1 = not employed

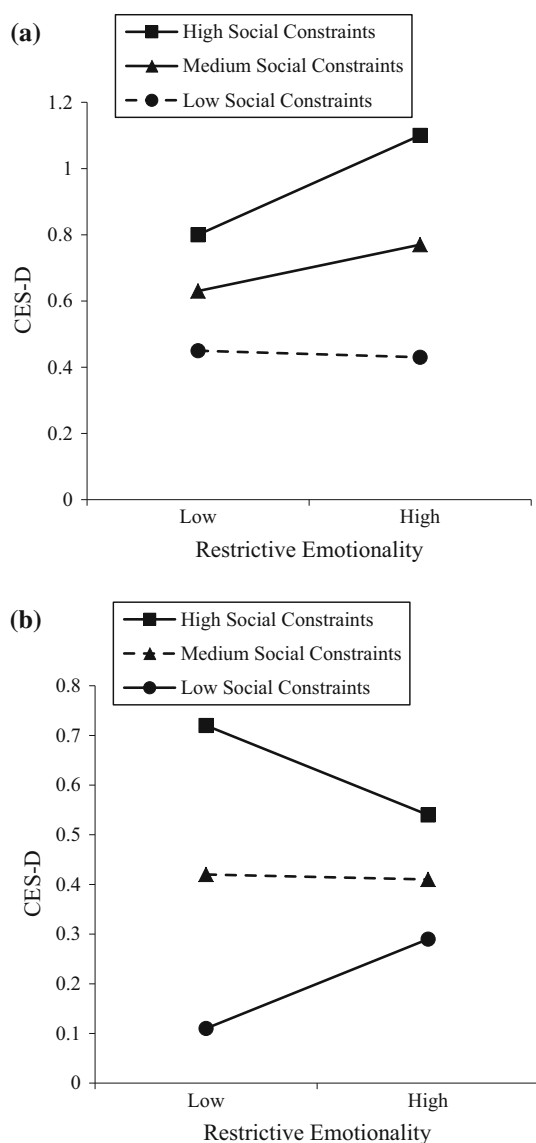


Fig. 1 **a** Social constraints and restrictive emotionality on CES-D, for young male testicular cancer patients. **b** Social constraints and restrictive emotionality on CES-D, older male prostate cancer patients. *Note: Dashed lines indicate non-significant simple slopes*

thoughts about specific concerns exacerbated by cancer not captured in the IES measure are more pervasive. For instance, concerns about infertility treatment or finances are common (Hall et al., 2012; Zebrack et al., 2009) and might be more distressing to young adult men than unwanted thoughts, images, and dreams specific to cancer. Future studies should consider additional outcome measures such as those that assess health-related quality of life, which is associated with restrictive emotionality (Wade, 2009), and aspects of well-being (physical, social, emotional, functional). These measures may be more indicative of struggles affecting young adults with cancer and more sensitive to the interaction of social constraints and restrictive emotionality.

Given the significant finding for depressive symptoms, and not for cancer-related distress, it may be that non-cancer related distress, as measured by the CES-D in the present study, is more sensitive to restrictive emotionality and social constraints. It could be that young adult men are better able to find outlets to disclosing cancer-related distressing thoughts compared to non-cancer related depressive thoughts. There is a tendency for young adult men to receive support from individuals who are struggling with similar concerns by engaging in online activities. In fact, qualitative findings from young adult men with cancer demonstrate that they are more open to talking about cancer-related concerns on an online platform than in face-to-face conversations (Love et al., 2014; Thompson et al., 2015). Comparisons between young adult online cancer support groups and face-to-face support groups showed significant differences in mean word frequencies for words related to anger, sadness, causation, and inhibition (Thompson et al., 2015). Although constraints can still be encountered in an online forum, anonymity might provide a safe and less socially constraining environment. Thus, disengagement from direct interpersonal interaction and engagement in online discussion forums might facilitate disclosure and help to decrease cancer-related intrusive thoughts. Future studies should consider the potential buffering effect that online social outlets might have on cancer-related intrusive thoughts for young adult men.

These findings highlight the importance of the social environment and adherence to restrictive emotionality norms on psychological distress in young adult men and offers new insight into the interaction of the social environment and one facet of masculinity for young adult men with testicular cancer.

Study 2

Methods

Participants and procedure

Participants were 66 men with prostate cancer enrolled in a larger study investigating health-related quality of life after prostate cancer treatment. Men had either radical prostatectomy or radiation therapy for localized prostate cancer within the prior 2 years to be eligible for participation. Participants were recruited via physician/clinic referrals, community outreach and advertisement, and an institutional tumor registry database. Men were excluded if they had severe psychiatric disorder(s) or cognitive impairment. Questionnaire and interview assessments were completed during an individual session with study staff. Participants were compensated \$25. All participants provided signed

consent and procedures were approved by the human subjects' protection board.

Demographic and medical characteristics of the sample are reported in Table 1. Participants ranged in age from 42 to 87 years ($M = 65.76$, $SD = 9.0$), and were predominantly White (84.8 %), married (77.3 %), and well-educated (59.1 % \geq 4-year college degree). The majority underwent surgery (71.2 %), over 30 % received radiation, had a mean Gleason score of 6.0 ($SD = 1.45$), and 78.3 % of the sample received their diagnosis within 3 years of study entry.

Measures

Participants completed identical measures as in Study 1. These included the Restrictive Emotionality subscale of the Male Role Norms Inventory-Revised (Cronbach's $\alpha = 0.85$), the Social Constraints Scale (Cronbach's $\alpha = 0.93$), the CES-D (Cronbach's $\alpha = 0.88$), and the intrusion subscale of the IES (Cronbach's $\alpha = 0.88$) modified to be specific to cancer-related intrusions.

Data analysis

The analytic strategy for all analyses was identical to Study 1.

Results

Descriptive statistics and identification of covariates

Descriptive statistics and correlations of key study variables are displayed in Table 2. On average, men reported *somewhat disagreeing* with restrictive emotionality norms which is consistent with prior work regarding older adults (Berger et al., 2005), and *sometimes* encountering socially constrained environments. Regarding depressive symptoms, 22.7 % ($n = 15$) met the CES-D cutoff of ≥ 16 . On average, adult men reported *rarely* experiencing cancer-related intrusive thoughts.

Age, income, ethnicity, and education were significantly associated with at least one outcome variable and were included as covariates in statistical models. There were no associations between dependent variables and marital status, time since diagnosis, time since surgery, type of surgery, type of treatment (chemotherapy, radiation, no treatment), or history of a depressive disorder ($p > .05$).

Hypotheses testing

The results of regression analyses are presented in Table 4. Higher levels of social constraints ($\beta = .55$, $p < .001$), but

not restrictive emotionality ($\beta = .001$, ns), were significantly related to greater depressive symptoms. The social constraints \times restrictive emotionality interaction was not significant. Consistent with study 1, simple slope analyses were conducted and revealed that among older adult men with high social constraints, low restrictive emotionality was associated with greater depressive symptoms ($\beta = -.10$, $p < .05$). Additionally, at low constraints, high restrictive emotionality was associated with greater depressive symptoms ($\beta = .09$, $p < .05$) (Fig. 1b). As predicted, higher levels of social constraints were significantly related to greater cancer-related intrusive thoughts ($\beta = .54$, $p < .001$). However, neither the main effect for restrictive emotionality, nor the interaction effect were significant for cancer-related intrusive thoughts. Post hoc power calculations demonstrated power to be greater than 0.80 for both analyses ($\beta > .99$).

Discussion

Of particular interest is the trend towards the moderating role of social constraints on the relationship between restrictive emotionality and depressive symptoms. This was a different pattern than evidenced for younger adults. Results suggest that depressive symptoms are greatest among men with high constraints and low adherence to restrictive emotionality norms. It may be that older adult men with relatively fewer limitations on the expression of emotions might be better able to cognitively process and engage in emotional disclosure in a supportive environment, resulting in fewer depressive symptoms. Although, when that supportive environment is perceived to be constrained, cognitive processing of emotions may be impaired in contrast to those with less constraining and supportive environments. These men may be open, willing, and might even have attempted to engage in emotional disclosure but perceived those in their close social network to be unresponsive—providing criticism, changing the topic, and/or withdrawing from conversation, resulting in a trend for greater depressive symptoms.

Understanding why depressive symptoms are highest in those with low restrictive emotionality deserves further research attention. It is possible that the impact of restrictive emotionality norms changes over the lifespan. Over time, older men might become more adept at navigating such norms within and outside of socially constrained environments. If true, the impact on general mental health would be mitigated. Cancer, however, might present novel emotional experiences and might render men more vulnerable to psychological distress. At the same time, men with low restrictive emotionality might have facility in finding outlets for disclosing (and processing) cancer-related emotions even when friends and family are not

Table 4 CES-D and IES regressed on social constraints and restrictive emotionality, prostate cancer

Variable	ΔR^2	B	SE	β
<i>CES-D</i>				
Block 1	.36***			
Age		-.001	.005	-.03
Income		-.007	.02	-.03
Ethnicity ^a		.54	.11	.49***
Block 2	.19***			
Social constraints		.43	.09	.55***
Restrictive emotionality		.000	.04	.001
Block 3	.03 [†]			
Social constraints X				
Restrictive emotionality		-.18	.10	-.19 [†]
$F(6,52) = 11.61***, R^2 = 0.52$				
<i>IES-intrusive thoughts</i>				
Block 1	.27***			
Age		-.03	.01	-.30**
Education (in years)		-.01	.02	-.05
Block 2	.56***			
Social constraints		.80	.15	.54***
Restrictive emotionality		.02	.07	.03
Block 3	.56			
Social constraints X				
Restrictive emotionality		.21	.18	.11
$F(5,54) = 16.06***, R^2 = 0.56$				

Regression coefficients reflect values at the end of block 3, with all variables entered into the model

** $p < .01$; *** $p < .001$; [†] $p < .10$

^a 0 = white, 1 = ethnic minority

receptive. The degree to which these men access internet or support groups, find support from co-workers and friends, or are receptive to accepting the help that is offered should be explored.

The non-significant finding for cancer-related intrusive thoughts was surprising, although as with young adult men, older adult men reported rarely experiencing cancer-related intrusive thoughts, which possibly explains this null finding. Additionally, given the significant finding for depressive symptoms it may be that depressive symptomology which assessed non-cancer specific distress, is more sensitive to restrictive emotionality and social constraints. By some reports, men with prostate cancer tend to avoid disclosure unless there is a *need to know*, which most often includes their spouse and immediate family members (Gray et al., 2000). Given that majority of the older adult sample were married, it may be that older adult men are more likely to disclose cancer-related thoughts to a spouse than symptoms that are associated with depression. Thus, the role of spousal support might act a buffer against distress in the present sample, although this deserves greater attention.

General discussion

The two studies presented here examined the moderating role of social constraints on the relationship between restrictive emotionality and psychological distress in young men with testicular cancer (Study 1) and older men with prostate cancer (Study 2). Although social constraints has been studied extensively in the cancer context (see Adams et al., 2014), this is the first study to examine social constraints in a young adult population and the first study to examine the interaction of social constraints and restrictive emotionality on psychological distress with different age groups within a cancer population. Notably, age and cancer type were not the only factors that differentiated between study populations. Several defining characteristics (treatment type, family life, SES indicators) varied significantly across these populations. The findings provide interesting insights into how adherence to restrictive emotionality norms can impact adjustment to cancer differently in these populations especially given that there were no significant differences between adherence to restrictive emotionality

norms and perceived social constraints across cancer populations.

Overall, younger cancer survivors reported greater depressive symptoms compared to older cancer survivors. This is consistent with research that suggests that depression seems to decrease over time since diagnosis (National Cancer Institute, 2014). Young adult men reported greater cancer-related intrusive thoughts compared to older men. Yet, the interaction of social constraints and restrictive emotionality on cancer-related intrusive thoughts was not significant for both populations. As mentioned previously, young and older cancer survivors might have additional outlets (i.e., online forums and spouse, respectively) to disclosing cancer-related concerns, thus facilitating cognitive processing and decreasing distress related to cancer-related thoughts.

Different patterns of relationships for depressive symptomatology might reflect different engagement with emotional processing. Younger adults, who tend to engage in less constructive forms of emotional processing compared to older adults (Hoyt, 2009), may have a harder time renegotiating norms related to the expression of emotion in the face of both a socially constrained environment and a cancer diagnosis, thus intensifying depressive symptoms. In contrast, older adults might be more adept at managing internal and external demands given that dispositional traits are more stable over time (Schneider, 2004), so that adherence to restrictive emotionality norms and high constraints shows no relation, though a trend towards depressive symptoms.

Expectations about emotional disclosure to family and friends might vary across the lifespan. At a time when older men are already restricting displays of emotion (Gray et al., 2000), encountering constraints from their interpersonal environment might serve to sustain psychological distress. Older men might also be reflecting on perceived constraints from only a small set of family and friends where constraints might be more accessible to memory and more impactful on psychological distress. Young adults with cancer tend to be more open about their diagnosis with friends, family, and colleagues (Hilton et al., 2009). Disclosure among a broader social network might make unsupportive behaviors by only a few less impactful to younger men, though results don't suggest this pattern. Future research might focus on the composition of the social environment of both younger and older adult men with cancer in order to identify factors that might be contributing to psychological distress.

Findings are consistent with social-cognitive processing theory (Lepore, 2001). In the present study, social constraints was associated with increased depressive symptoms and cancer-related intrusive thoughts in both young and older adult men with cancer. According to theory,

constrained social interactions hinder cognitive processing of emotions resulting in increased psychological distress, whereas the presumed emotional sharing facilitates positive psychological adjustment by allowing for cognitive processing of cancer-related concerns within a supportive environment.

It is important to point out that the current studies rely on dichotomous male–female/masculine–feminine gender norm distinctions. The use of this dichotomy was in line with the restrictive emotionality measure derived from Levant et al.'s. (1992) conceptualization of traditional hegemonic masculinity. Further, all men in these studies identified themselves as 'male' amongst a host of gender inclusive labels. It is important to consider that both biological sex and notions of gender extend well beyond the male and female dichotomy. Likewise, masculine and feminine role norms can differ greatly between cultures and across individuals. Future studies should take into account the potential limitations of the male–female/masculine–feminine gender role dichotomy to incorporate a more inclusive gender concept.

The studies have methodological limitations that should be considered. First, the data were cross-sectional in nature. Although directionality was theory driven, causal interpretations cannot be inferred. Future studies should explore the potential for a dynamic relationship of restrictive emotionality, social constraints, and distress that unfolds across time. It is equally possible that psychological distress influenced perceptions of social constraints. Second, all measures were self-report and all dimensions of the constructs may not have been captured fully. In addition, restrictive emotionality is just one component of traditional masculine ideology; future studies might take into account additional components of masculine norms across men with cancer. Lastly, the significant moderating effects of social constraints accounted for only a small amount of variance, however post hoc power analyses revealed that the studies were adequately powered.

These findings have clinical implications for health care providers working with male cancer populations. Providers should be attuned to behaviors that reflect adherence to restrictive emotionality norms such as foreclosing talking about cancer, including a reluctance to discuss concerns about masculinity, fertility, social and family role changes, sexual functioning and other worries as these behaviors might be driving psychological distress. Educating men of any age about unsupportive environments and how to cope with an environment that stifles (or is perceived to stifle) emotional disclosure along with encouraging men to communicate their feelings and concerns in a supportive environment might promote greater psychological adjustment to cancer and help change the way in which men feel the need to conform to restrictive emotionality norms.

This type of psychoeducational intervention, often seen in couples coping with cancer (Regan et al., 2015) emphasizes open/constructive communication patterns and active engagement (e.g., emotional sharing) and has been found to be successful in reducing psychological distress. As the majority of young men with cancer may not yet be in a monogamous or long-term intimate relationship, interventions focused on peer support could reduce social isolation by creating supportive communities to share experiences; structured interventions that include parents and family members have led to improvements in disease management and treatment adherence (Zebrack & Isaacson, 2012). Taken together, integrating awareness of how emotional disclosure might be restricted because of either normative beliefs or aspects of one's social environment may promote psychological adjustment in both young and older adult men with cancer.

Acknowledgments This work was supported by funds from the UCLA Cousins Center for Psychoneuroimmunology, the Livestrong Foundation, and supported by the National Institutes of Health under Grants T32-MH15750 and SC1-CA187494.

Compliance with ethical standards

Conflict of interest Katie Darabos and Michael A. Hoyt declare that they have no conflict of interest.

Human and animal rights and Informed consent All procedures followed were in accordance with ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

References

- Adams, R. N., Winger, J. G., & Mosher, C. E. (2014). A meta-analysis of the relationship between social constraints and distress in cancer patients. *Journal of Behavioral Medicine*, 38, 294–305. doi:[10.1007/s10865-014-9601-6](https://doi.org/10.1007/s10865-014-9601-6)
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, London: Sage.
- Antonucci, T. C., Akiyama, H., & Takahashi, K. (2004). Attachment and close relationships across the lifespan. *Attachment & Human Development*, 6, 353–370. doi:[10.1080/146167304000303136](https://doi.org/10.1080/146167304000303136)
- Berger, J. M., Levant, R. F., McMillan, K. K., Kelleher, W., & Sellers, A. (2005). Impact of gender role conflict, traditional masculinity ideology, alexithymia, and age on men's attitudes toward psychological help seeking. *Psychology of Men and Masculinity*, 6, 73–78.
- Burns, S. M., & Mahalik, J. R. (2007). Understanding how masculine gender scripts may contribute to men's adjustment following treatment for prostate cancer. *American Journal of Men's Health*, 1, 250–261.
- Carpentier, M. Y., Fortenberry, J. D., Ott, M. A., Brames, M. J., & Einhorn, L. H. (2011). Perceptions of masculinity and self-image in adolescent and young adult testicular cancer survivors: Implications for romantic and sexual relationships. *Psycho-Oncology*, 20, 738–745. doi:[10.1002/pon.1772](https://doi.org/10.1002/pon.1772)
- Cohee, A. A., Stump, T., Adams, R. N., Johns, S. A., Von Ah, D., Zoppi, K., et al. (2016). Factors associated with depressive symptoms in young long-term breast cancer survivors. *Quality of Life Research*. doi:[10.1007/s11136-016-1241-6](https://doi.org/10.1007/s11136-016-1241-6)
- Couper, J., Bloch, S., Love, A., Macvean, M., Duchesne, G. M., & Kissane, D. (2006). Psychosocial adjustment of female partners of men with prostate cancer: A review of the literature. *Psycho-Oncology*, 15, 937–953. doi:[10.1002/pon.1031](https://doi.org/10.1002/pon.1031)
- Gray, R. E., Fitch, M., Phillips, C., Labrecque, M., & Fergus, K. (2000). To tell or not to tell: Patterns of disclosure among men with prostate cancer. *Psycho-Oncology*, 9, 273–282. doi:[10.1002/1099-1611\(200007/08\)9:4<273::AID-PON463>3.0.CO;2-F](https://doi.org/10.1002/1099-1611(200007/08)9:4<273::AID-PON463>3.0.CO;2-F)
- Halbert, C. H., Wrenn, G., Weathers, B., Delmoor, E., Ten Have, T., & Coyne, J. C. (2010). Sociocultural determinants of men's reactions to prostate cancer diagnosis. *Psycho-Oncology*, 19, 553–560. doi:[10.1002/pon.1574](https://doi.org/10.1002/pon.1574)
- Hall, A. E., Boyes, A. W., Bowman, J., Walsh, R. A., James, E. L., & Girgis, A. (2012). Young adult cancer survivors' psychosocial well-being: A cross-sectional study assessing quality of life, unmet needs, and health behaviors. *Supportive Cancer in Cancer*, 20, 1333–1341. doi:[10.1007/s00520-011-1221-x](https://doi.org/10.1007/s00520-011-1221-x)
- Hammond, W. P. (2012). Taking it like a man: Masculine role norms as moderators of the racial discrimination-depressive symptoms association among African American men. *American Journal of Public Health*, 102, S232–S241. doi:[10.2105/AJPH.2011.300485](https://doi.org/10.2105/AJPH.2011.300485)
- Helgeson, V. S., & Cohen, S. (1996). Social support and adjustment to cancer: Reconciling descriptive, correlational, and intervention research. *Health Psychology*, 15, 135–148. doi:[10.1037/0278-6133.15.2.135](https://doi.org/10.1037/0278-6133.15.2.135)
- Hilton, S., Emslie, C., Hunt, K., Chapple, A., & Ziebland, S. (2009). Disclosing a cancer diagnosis to friends and family: A gendered analysis of young men's and women's experiences. *Qualitative Health Research*, 19, 744–754. doi:[10.1177/1049732309334737](https://doi.org/10.1177/1049732309334737)
- Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, 41, 209–218.
- Hoyt, M. A. (2009). Gender role conflict and emotional approach coping in men with cancer. *Psychology & Health*, 24, 981–996. doi:[10.1080/08870440802311330](https://doi.org/10.1080/08870440802311330)
- Hoyt, M. A., & Stanton, A. L. (2012). Adjustment to chronic illness. In A. S. Baum, T. A. Revenson, & J. E. Singer (Eds.), *Handbook of health psychology* (2nd ed., pp. 219–246). New York, NY: Taylor & Francis.
- Jacobson, P. B., & Andrykowski, M. A. (2015). Tertiary prevention in cancer care: Understanding and addressing the psychological dimensions of cancer during the active treatment period. *American Psychologist*, 70, 134–145. doi:[10.1037/a0036513](https://doi.org/10.1037/a0036513)
- Lang, F. R. (2001). Regulation of social relationships in later adulthood. *Journal of Gerontology: Psychological Sciences*, 56B, 321–326. doi:[10.1093/geronb/56.6.P321](https://doi.org/10.1093/geronb/56.6.P321)
- Lepore, S. J. (2001). A social-cognitive processing model of emotional adjustment to cancer. In A. Baum & B. Anderson (Eds.), *Psychosocial interventions for cancer* (pp. 99–118). Washington, DC: American Psychological Association.
- Lepore, S. J., & Helgeson, V. S. (1998). Social constraints, intrusive thoughts, and mental health after prostate cancer. *Journal of Social and Clinical Psychology*, 17, 89–106. doi:[10.1521/jscp.1998.17.1.89](https://doi.org/10.1521/jscp.1998.17.1.89)
- Lepore, S. J., & Ituarte, P. H. G. (1999). Optimism about cancer enhances mood by reducing negative social interactions. *Cancer Research, Therapy and Control*, 8, 165–174.
- Lepore, S. J., & Revenson, T. A. (2007). Social constraints on disclosure and adjustment to cancer. *Social and Personality Psychology Compass*, 1, 313–333. doi:[10.1111/j.1751-9004.2007.00013.x](https://doi.org/10.1111/j.1751-9004.2007.00013.x)

- Levant, R. F., Hirsch, L., Celentano, E., Cozza, T., Hill, S., MacEachern, M., et al. (1992). The male role: An investigation of norms and stereotypes. *Journal of Mental Health Counseling*, 14, 325–337.
- Levant, R. F., Smalley, B. K., Aupont, M., House, T. A., Richmond, K., & Noronha, D. (2007). Initial validation of the Male Role Norms Inventory-Revised (MRNI-R). *The Journal of Men's Studies*, 15, 83–100. doi:10.3149/jms.1501.83
- Lewinsohn, P. M., Seeley, J. R., Roberts, R. E., & Allen, N. B. (1997). Center for Epidemiological Studies-Depression Scale (CES-D) as a screening instrument for depression among community-residing older adults. *Psychology and Aging*, 12, 277–287. doi:10.1037/0882-7974.12.2.277
- Love, B., Thompson, C. M., & Knapp, J. (2014). The need to be Superman: The psychosocial support challenges of young men affected by cancer. *Oncology Nursing Forum*, 41, E21–E27. doi:10.1188/14.ONF.E21-E27
- Maliski, S. L., Rivera, S., Connor, S., Lopez, G., & Litwin, M. S. (2008). Renegotiating masculine identity after prostate cancer treatment. *Quality Health Research*, 18, 1609–1620. doi:10.1177/1049732308326813
- National Cancer Institute. (2014). *Depression-for health related professionals (PDQ)*. Retrieved from <http://www.cancer.gov/about-cancer/coping/feelings/depression-hp-pdq>
- Pistrang, N., & Barker, C. (2005). How partners talk in times of stress: A process analysis approach. In T. A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Couples coping with stress: Emerging perspectives on dyadic coping* (pp. 97–119). Washington, DC: American Psychological Association.
- Pleck, J. H., Sonenstein, F. L., & Ku, L. C. (1993). Masculinity ideology and its correlates. In B. M. Clinchy & J. K. Norem (Eds.), *The gender and psychology reader* (pp. 308–333). New, NY: New York University Press.
- Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. *Psychology of Women Quarterly*, 26, 269–281. doi:10.1111/1471-6402.t01-1-00066
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401. doi:10.1177/014662167700100306
- Regan, T. W., Lambert, S. D., Kelly, B., Falconier, M., Kissane, D., & Levesque, J. V. (2015). Couples coping with cancer: exploration of theoretical frameworks from dyadic studies. *Psycho-Oncology*. doi:10.1002/pon.3854
- Salsman, J. M., Schalet, B. D., Mndrykowski, M. A., & Cella, D. A. (2015). The impact of events scale: A comparison of frequency versus severity approaches to measuring cancer-specific distress. *Psycho-Oncology*, 24, 1738–1745. doi:10.1002/pon/3784
- Schneider, D. J. (2004). *The psychology of stereotyping*. New York, NY: The Guilford Press.
- Thompson, C. M., Crook, B., Love, B., Macpherson, C. M., & Johnson, R. (2015). Understanding how adolescents and young adults with cancer talk about needs in online and face-to-face support groups. *Journal of Health Psychology*. doi:10.1177/1359105315581515
- Thompson, E. H., Pleck, J. H., & Ferrera, D. L. (1992). Men and masculinities: Scales for masculinity ideology and masculinity-related constructs. *Sex Roles*, 27, 573–607. doi:10.1007/BF02651094
- Wade, J. C. (2009). Traditional masculinity and African American men's health-related attitudes and behaviors. *American Journal of Men's Health*, 3, 165–172. doi:10.1177/1557988308320180
- Wenger, L. M., Oliffe, J. L., & Bottorff, J. L. (2014). Psychosocial oncology supports for men: A scoping review and recommendations. *American Journal of Men's Health*. doi:10.1177/1557988314555361
- Wester, S. R., & Vogel, D. L. (2012). The psychology of men: Historical developments, current research, and future directions. In N. A. Fouad, J. Carter, & L. Subich (Eds.), *Handbook of counseling psychology* (Vol. 1, pp. 371–396). Washington, DC: American Psychological Association.
- Zakowski, S. G., Harris, C., Krueger, N., Laubmeier, K. K., Garrett, S., Flanagan, R., et al. (2003). Social barriers to emotional expression and their relations to distress in male and female cancer patients. *British Journal of Health Psychology*, 8, 271–286. doi:10.1348/135910703322370851
- Zebrack, B. J. (2011). Psychological, social, and behavioral issues for young adults with cancer. *Cancer*, 117, 2289–2294. doi:10.1002/cncr.26056
- Zebrack, B., Hamilton, R., & Smith, A. W. (2009). Psychosocial outcomes and service use among young adults with cancer. *Seminars in Oncology*, 36, 468–477. doi:10.1053/j.seminoncol.2009.07.003
- Zebrack, B., & Isaacson, S. (2012). Psychosocial care of adolescent and young adult patients with cancer and survivors. *Journal of Clinical Oncology*, 30, 1221–1226.