LGBT Health
Volume 3, Number 1, 2016

DOI: 10.1089/lgbt.2015.0090

The Health Effects of Masculine Self-Esteem Following Treatment for Localized Prostate Cancer Among Gay Men

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Abstract

Purpose: To identify factors associated with masculine self-esteem in gay men following treatment for localized prostate cancer (PCa) and to determine the association between masculine self-esteem, PCa-specific factors, and mental health factors in these patients.
Methods: A national cross-sectional survey of gay PCa survivors was conducted in 2010–2011. To be eligible for the study, men needed to be age 50 or older, reside in the United States, self-identify as gay, able to read, write, and speak English, and to have been treated for PCa at least 1 year ago. One hundred eleven men returned surveys.
Results: After simultaneously adjusting for the factors in our model, men aged 50–64 years and men aged 65–74 years reported lower masculine self-esteem scores than men aged 75 years or older. Lower scores were also reported by men who reported recent severe stigma. Men who reported feeling comfortable revealing their sexual orientation to their doctor reported higher masculine self-esteem scores than men who were not. The mental component score from the SF-12 was also positively correlated with masculine self-esteem.
Conclusion: PCa providers are in a position to reduce feelings of stigma and promote resiliency by being aware that they might have gay patients, creating a supportive environment where gay patients can discuss specific sexual concerns, and engaging patients in treatment decisions. These efforts could help not only in reducing stigma but also in increasing masculine self-esteem, thus greatly influencing gay patients' recovery, quality of life, and compliance with follow-up care.

Key words: health disparities, health services, masculinity, prostatic neoplasms, quality of life (QoL), sexual minority men.

Introduction

For many men, prostate cancer (PCa) treatment has profound effects on masculine identity and self-esteem.[1] Self-esteem may be conceptualized as the totality of internal, external, and social factors that a person associates with their own personal attributes or identity.[2] Masculine self-esteem is focused more narrowly on attributes associated with the gender role strain paradigm as described by Pleck and other clinical psychologists.[3,4] Under this paradigm, masculine roles are defined by stereotypes and/or norms arising from societal gender ideologies. As a result, there has been a long-standing hypothesis that masculine gender role discrepancy strain (i.e., strain resulting from the extent that a man perceives his gender role as being different from societal stereotypes and/or norms) is negatively correlated with, and results in poorer, self-esteem.

A growing body of evidence describes masculinity in the context of PCa across the diagnosis and treatment spectrum, including studies about information seeking,[5,6] screening and

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diagnosis,[7,8] loss of sexual function following treatment,[9–11] and the impact of treatment and its effects on spousal and intimate relationships.[12–14] Regardless of the physiological outcome of treatment, which often involves a loss of urinary, bowel, and/or sexual function, men are expected to cope, adjust, and accept the impact of PCa on their lives and intimate relationships.[15] Research has shown that sexual dysfunction and incontinence following treatment result in decreased self-esteem and that while these aftereffects of treatment and aspects of quality of life (QoL) may improve by 1 year postsurgery, decreases in masculine self-esteem are more enduring.[1,16–19]

The combination of poor sexual function following treatment with adherence to traditional norms of masculinity may result in poor social, role, and mental health functioning.[20] Eton et al. reported a positive correlation between general self-esteem and general physical and mental functioning among men with localized PCa.[11] One question that remains is whether these associations are also true for gay men. It has been estimated that at least 5000 gay or bisexual men are diagnosed each year with having PCa and that 50,000 or more are PCa survivors.[21] Despite the growing number of gay PCa survivors, the extent to which PCa is associated with traditional masculine norms and QoL among gay men is still unknown.

The hypothesized association of enduring decrements in masculine self-esteem following PCa treatment with poor social, role, and mental health functioning is concerning among gay men who may already be experiencing social isolation before PCa treatment. One recent PCa study also reported worse mental health functioning and fear of cancer recurrence within a convenience sample of gay men following treatment for PCa when compared with published norms in the literature.[22] For example, support, especially from partners, mitigates negative effects of PCa, but the first national study of lesbian, gay, bisexual, and transgender (LGBT) elders has reported that gay men are less likely to be partnered or married than their straight counterparts, which can result in decreased social support.[23] In addition, older gay men have fewer children in the household and are more likely to live alone than straight older adult men.[23] In a subsequent analysis, Fredriksen-Goldsen et al. also identified social support and social network size serving as protective factors among LGBT older adults—decreasing the odds of poor general health, disability, and depression.[24]

Studies have also shown that gay men, in general, may feel more dissatisfied with their bodies than heterosexual men due to the strong emphasis placed on appearance in the gay community.[25–27] Historically, gay men have also demonstrated more stereotypically feminine interests, attitudes, speech patterns, and body movements when compared with their heterosexual peers.[28–30]Thus, we would expect that the experience of bodily changes following treatment for localized PCa would be different for gay men and that masculinity and sexual intimacy would be formulated differently. However, findings in the majority of PCa studies to date have been limited by the lack of diverse sexual orientation. Thus, similarities or differences cannot be determined until concepts such as masculine self-esteem are included among the growing, but still very limited, body of studies on PCa and gay men. To determine the association between masculine self-esteem, PCa-specific factors, and mental health factors in these patients, we examined these relationships using data from a cross-sectional national survey of gay PCa survivors in the United States conducted in 2010–2011.

Methods

Study population

To be eligible for the study, men needed to be age 50 or older, reside in the United States, self-identify as gay (i.e., bisexual men, transgender male-to-female and heterosexually identifying men who have sex with men were not included), and to have been treated for localized PCa (i.e., cancer stages I, II, or III) at least 1 year before the commencement of the study. Survey respondents were recruited almost exclusively through LGBT print publications across the United States, including a national gay magazine and LGBT community newspapers. Informed consent was obtained over the phone for all subjects before their participation in the survey, and all study procedures were reviewed and approved by the Boston University Medical Center Institutional Review Board.

Measures

Validated measures. The masculine self-esteem outcome was assessed using a validated scale developed as part of the PCa work of Clark et al. that asked questions such as feeling like a whole man, feeling weak and small, being too emotional, and comparing unfavorably to other men (eight items, Cronbach's $\alpha = 0.80$).[1,31] General physical and mental health were assessed using the physical and mental component scores (PCS and MCS, respectively) from the SF-12. The SF-12 is a validated short-form survey of 12 questions selected from the SF-36 Health Survey.[32] Well-validated, expanded prostate cancer index composite (EPIC)[33] subscales assessing urinary (11 items, Cronbach's $\alpha = 0.88$), bowel (12 items, Cronbach's $\alpha = 0.85$), and sexual functions (8 items, Cronbach's $\alpha = 0.79$) were included to measure physical functional impacts of PCa treatments. Severe stigma was assessed using the MacDonald and Anderson social stigma scale with severe stigma defined *post hoc* as scoring in the top 15% of the scale (four items, with values ranging from 1 [Not at all] to 5 [Very much], Cronbach's $\alpha = 0.82$).[34] The stigma items comprised the following: ''I avoid other people'', ''I feel that other people are avoiding me'', ''I feel odd and different from other people,'' and ''I feel self-conscious and embarrassed''. Among the social support measures, we included the partner or spouse support scale from the Medical Outcomes Study (five items ranging from 1 [Definitely true] to 5 [Definitely false], Cronbach's $\alpha = 0.79$).[35]

Additional factors. The following factors were also assessed: time since PCa diagnosis, type of PCa treatment received, rising prostate-specific antigen (PSA) after the first treatment, an inventory of sexual activities developed by the authors (i.e., anal intercourse, oral sex, kissing, mutual masturbation, erotic massage, rimming, BDSM/S&M, sexual role play, sexual toys, fisting, and spanking), relationship with PCa doctor (adapted from the Patient–Doctor Relationship Questionnaire [PDRQ-9][36]), a question about comfort in revealing one's sexual orientation to a doctor developed by the authors (''I am comfortable telling my PCa doctor that

Table 1. Characteristics of Gay Prostate Cancer Survivors

	Gay survivors (N = *111*)
Age, *n* (%)	
50–64	46 (41.4)
65–74	46 (41.4)
≥75	19 (17.2)
Partnership status, *n* (%)	
Partnered	69 (62.2)
Unpartnered	42 (37.8)
Race, *n* (%)	
White	99 (89.2)
Nonwhite	8 (7.2)
Missing	4 (3.6)
Highest level of education, *n* (%)	
High school or less	12 (10.8)
At least some college	99 (89.2)
Insurance, *n* (%)	
Private insurance	47 (42.4)
Medicare	42 (37.8)
Medicaid	7 (6.3)
Other	15 (13.5)
Employment, *n* (%)	
Employed	47 (42.3)
Unemployed	9 (8.1)
Retired	55 (49.6)
Annual income, *n* (%)	
Less than $50,000	49 (44.1)
$50,000 or more	54 (48.7)
Missing	8 (7.2)
Years since prostate cancer diagnosis	
Mean ± SD	6.4 ± 5.4
0/25th/50th/75th/100th	1/2/4/10/30
Prostate cancer treatments received first 6 months after diagnosis, *n* (%)	
Radical prostatectomy	67 (60.4)
External beam radiation	16 (14.4)
Brachytherapy	14 (12.6)
Other	4 (3.6)
Watch and wait	10 (9.0)
Rising PSA after first treatment, *n* (%)	
Yes	21 (18.9)
No	83 (74.8)
Do not know	7 (6.3)
EPIC scores	
Urinary function	
Mean ± SD	82.0 ± 15.7
0/25th/50th/75th/100th	18/74/86/93/100
Bowel function	
Mean ± SD	89.3 ± 12.4
0/25th/50th/75th/100th	38/85/94/98/100
Sexual function	
Mean ± SD	36.6 ± 20.6
0/25th/50th/75th/100th	0/20/36/52/81
SF-12	
Physical component score	
Mean ± SD	48.6 ± 10.1
0/25th/50th/75th/100th	21/42/52/56/63
Mental component score	
Mean ± SD	48.6 ± 10.1
0/25th/50th/75th/100th	22/42/52/57/61
Social support	
Social support (five items from MOS)	
Mean ± SD	3.9 ± 1.1
0/25th/50th/75th/100th	1/3/4/5/5
Number of close friends and relatives, *n* (%)	
0	4 (3.6)
1–5	52 (46.9)
6–10	22 (19.8)
More than 10	33 (29.7)
Replaced sex with other activities, *n* (%)	
Yes	65 (58.6)
No	46 (41.4)
Severe stigma, *n* (%)	
Yes	20 (18.0)
No	91 (82.0)
Helpful relationship with prostate cancer doctor	
Mean ± SD	4.0 ± 1.2
0/25th/50th/75th/100th	1/3/5/5/5
Patient comfortable revealing sexual orientation to doctor	
Yes	84 (77.1)
No	25 (22.9)

Cell counts totaling less than 111 represent participant nonresponse.
EPIC, expanded prostate cancer index composite; MOS, medical outcomes study; PSA, prostate-specific antigen; SD, standard deviation.

I am gay'', five-point Likert scale with values ranging from 1 [Strongly disagree] to 5 [Strongly agree]), anxiety, and depression. Anxiety and depression were each measured by two single-item questions, which asked whether a physician had ever provided a diagnosis of these conditions and whether daily activities were limited by these conditions. We also included a single five-point Likert scale item with values ranging from 1 (Not at all) to 5 (Very much), ''I have replaced sex with other activities''. ''Other activities'' was left to the interpretation of the men responding to the question; no follow-up inventory was provided.

Data analyses

All variables to be included were specified before any analyses were conducted. For categorical variables, we calculated proportions, and for continuous variables, we calculated the mean, standard deviation, and quintiles. We then conducted bivariate analyses to assess for differences in masculine self-esteem scores by each factor. Since the masculine self-esteem scores were non-normally distributed (i.e., nonparametric) we used the Kruskal–Wallis test to calculate *P*-values to assess differences with categorical variables and Spearman's rho to assess for correlation with continuous variables.

A multivariate, generalized linear model was then developed to control for potential confounders and identify factors associated with masculine self-esteem. To ensure that no important variables were overlooked, we identified independent variables for inclusion in the model based on a combination of their importance in the PCa literature or their potentially confounding effect. The final model included all variables with a $P < 0.15$ on bivariate analysis, and we then eliminated variables in a stepwise manner, retaining those chosen a

Table 2. Associations with Masculine Self-Esteem Scores Among Gay Prostate Cancer Survivors

	Average masculine self-esteem score ± SD (N = *111*)	P
Age		
50–64	66.6 ± 19.8	0.002
65–74	74.8 ± 19.0	
≥75	84.8 ± 13.6	
Partnership status		0.65
Partnered	72.6 ± 19.2	
Unpartnered	73.8 ± 20.3	
Race		
White	72.5 ± 19.0	0.50
Nonwhite	76.8 ± 24.2	
Missing	79.7 ± 26.6	
Highest level of education		
High school or less	70.6 ± 22.7	0.72
At least some college	73.4 ± 19.2	
Insurance		0.19
Private insurance	68.5 ± 20.0	
Medicare	75.6 ± 19.0	
Medicaid	78.6 ± 14.9	
Other	77.7 ± 19.8	
Employment		0.26
Employed	69.0 ± 22.0	
Unemployed	78.9 ± 11.4	
Retired	75.5 ± 17.8	
Annual income		0.31
Less than $50,000	70.9 ± 19.2	
$50,000 or more	73.8 ± 20.6	
Missing	81.6 ± 11.7	
Years since prostate cancer diagnosis		0.34
Spearman's rho	0.09	
Prostate cancer treatments received first 6 months after diagnosis		0.49
Radical prostatectomy	70.4 ± 20.6	
External beam radiation	75.1 ± 17.9	
Brachytherapy	77.0 ± 18.6	
Other	82.6 ± 22.3	
Watch and wait	78.4 ± 13.2	
Rising PSA after first treatment		0.06
Yes	64.7 ± 18.5	
No	74.6 ± 19.7	
Do not know	80.7 ± 13.3	
EPIC Scores		
Urinary Function		
Spearman's rho	0.19	0.06
Bowel Function		
Spearman's rho	0.13	0.19
Sexual Function		
Spearman's rho	0.22	0.02
SF-12		
Physical component score		0.04
Spearman's rho	0.20	
Mental component score		0.0002
Spearman's rho	0.36	
Social support		
Social support (five items from MOS)		0.01
Spearman's rho	0.24	
Number of close friends and relatives		0.048
0	80.5 ± 20.5	
1–5	68.5 ± 19.5	
6–10	73.1 ± 17.9	
More than 10	79.0 ± 19.4	
Replaced sex with other activities		<0.0001
Yes	66.3 ± 19.2	
No	82.9 ± 15.4	
Severe stigma		<0.0001
Yes	54.7 ± 15.8	
No	77.2 ± 17.9	
Helpful relationship with prostate cancer doctor		0.01
Spearman's rho	0.24	
Patient comfortable revealing sexual orientation to doctor		0.001
Yes	76.7 ± 18.4	
No	61.8 ± 19.6	

P-values were calculated based on the Kruskal–Wallis test or Spearman's correlation as appropriate.

priori as relevant for clinical reasons. Confounders were identified based on either results reported in the PCa literature or when a statistically significant association was identified between both masculine self-esteem and our primary independent variable (age) on bivariate analysis.

Age was categorized into three age groups: 50–64, 65–74, and 75+ years. Since the time since PCa diagnosis was highly variable among the respondents, we also included this variable in the model to help preserve the validity of the results. All variables included in the final model were also assessed for colinearity (Spearman's rho >0.60), and if two variables were found to be colinear, then one was dropped from the model. For the anxiety and depression measures, we chose to use the MCS as a combined mental health measure rather than the two single-item questions since the MCS is better validated and has been found to be a useful screening tool for both depression and anxiety disorders.[37,38] We then calculated the regression coefficients and accompanying 95% confidence intervals for all variables in the model. All analyses were conducted using SAS version 9.2 (Cary, NC).

Results

Sample characteristics

Most subjects (72%) learned about the study through our advertising in a national gay magazine or through a friend who had participated. Of the 138 surveys that were mailed, 133 were returned. Due to concerns of introducing selection

and measurement bias, 22 men were excluded from the analysis because they did not meet our inclusion criteria ($n=16$) or reported long-term hormone replacement therapy within the first 6 months postdiagnosis ($n=6$). Our available sample for analysis was therefore 111 men.

Table 1 shows the characteristics of the gay men in our sample. Overall, men were predominantly white with proportionate representation of both younger (ages 50–64) and older men (ages 65–74 and age 75 or older); more than half were in partnered relationships. Men were well educated, all reported having health insurance, and half reported an annual income of $50,000 or more. The average number of years since PCa diagnosis was six; however, respondents reported a wide range of time since diagnosis (1–30 years). EPIC urinary and bowel function scores were high (82.0 ± 15.7 and 89.3 ± 12.4, respectively) with sexual function reported lower at 36.6 ± 20.6. Most men (60%) received a radical prostatectomy within the first 6 months after diagnosis and the majority (77%) reported feeling comfortable revealing their sexual orientation to their doctor. Approximately half reported having up to five close friends and relatives, while the remainder reported more than five close friends or relatives; a small percentage (4%) reported having no close friends or relatives. Sixty percent reported replacing sex with other activities following PCa treatment, 18% reported experiencing severe stigma over the past month, while the majority when asked about the helpfulness of their relationship with their PCa doctor reported scores of four or greater on a five-point Likert scale.

Bivariate analyses

Table 2 shows the bivariate associations with the masculine self-esteem score. The strongest associations were found between replacing sex with other activities, severe stigma in the past month, and masculine self-esteem. On average, gay men who reported replacing sex with other activities also reported masculine self-esteem scores nearly 20 points lower than men who did not. A difference in scores of similar magnitude was also seen among men who reported experiencing severe stigma over the past month compared with men who did not. A moderate positive correlation was also identified between masculine self-esteem score and MCS (Spearman's rho = 0.36, $P=0.0002$). Masculine self-esteem scores also differed significantly by age with men aged 50–64 years reporting the lowest scores and men aged 75 years or older reporting the highest scores ($P=0.002$). Finally, men who were comfortable revealing their sexual orientation to their doctor reported masculine self-esteem scores that were 15 points higher on average than men who were not ($P=0.0001$).

Multivariate model

Our final adjusted model results (Table 3) closely reflected the associations we identified in our unadjusted bivariate results (Table 2). After simultaneously adjusting for the factors in our multivariate model, men aged 50–64 years and men aged 65–74 years reported lower masculine self-esteem scores than men aged 75 years or older (Table 3). A similar effect was also seen among men who reported recent severe stigma (i.e., past 4 weeks). Men who reported feeling comfortable revealing their sexual orientation to their doctor reported higher masculine self-esteem scores than men who were not. The mental component score from the SF-12 also remained positively correlated with masculine self-esteem after adjusting for other factors.

Discussion

Similarities to straight PCa survivors

The negative impact of the loss of sexual functioning and other side effects of PCa treatment on the masculine self-esteem of our sample is similar to that reported by straight men. Reported decreases in masculine self-esteem following PCa treatment among straight men, especially when accompanied by loss of sexual function, may be found in the PCa literature.[1,39,40] Correspondingly, while not found to be a differentiating factor within our sample, decrements in mental health status have also been reported following PCa treatment among straight men, most commonly manifesting as increased anxiety and/or depression.[31,41–43]

Table 3. Multivariate Model of Masculine Self-Esteem Among Gay Prostate Cancer Survivors

	Masculine self-esteem score (N = *108*)	
Independent variables	*B (95% CI)*	P
Age		
50–64	−17.69 (−28.91, −6.46)	0.002
65–74	−14.55 (−24.47, −4.64)	0.004
≥75	Referent	
Partnership status		
Unpartnered	−1.86 (−8.67, 4.96)	0.59
Partnered	Referent	
Education		
Less than college	−4.70 (−15.39, 5.99)	0.39
At least some college	Referent	
EPIC Scores		
Urinary function	−0.09 (−0.32, 0.14)	0.44
Bowel function	0.02 (−0.28, 0.31)	0.92
Sexual function	0.09 (−0.07, 0.24)	0.26
Replaced sex with other activities		
Yes	−6.36 (−13.59, 0.86)	0.08
No	Referent	
Severe stigma		
Yes	−8.53 (−17.16, 0.09)	0.05
No	Referent	
Patient comfortable revealing sexual orientation to doctor		
Yes	17.47 (10.14, 24.79)	<0.0001
No	Referent	
SF-12		
Physical component score	0.23 (−0.10, 0.56)	0.17
Mental component score	0.38 (0.06, 0.71)	0.02

All *P*-values were calculated from generalized linear models using maximum likelihood estimation. Model simultaneously adjusts for all variables. Models also adjusted for years since prostate cancer diagnosis, prostate cancer treatment received first 6 months after diagnosis, and number of close friends and relatives.

Gay men aging

Compared with older men, younger men reported lower masculine self-esteem. Studies of PCa survivors in presumptively straight populations are consistent with these findings, indicating that life experience such as dealing with cancer in their friends and family or their own experiences with other chronic conditions may increase the confidence and coping ability of older men when faced with a PCa diagnosis. Younger men are also more likely to be employed (rather than retired) with greater access to resources and may have different health expectations than their older counterparts, especially concerning cancer diagnoses. In addition, younger men may feel the loss of sexual function more acutely than older men,[44] especially as sexuality plays a central role in both gay and straight masculine identity.[45]

Older gay men reporting higher masculine self-esteem is also consistent with emerging research on resiliency in LGBT aging populations. Fredriksen-Goldsen et al. found that a high proportion of LGBT elders feel good about belonging to their communities and many (similar to the gay men in our study) have at least moderate levels of social support.[23] In addition, a large number of LGBT older adults in this study were found to engage regularly in wellness activities and moderate physical activity.[23] These may represent uniquely protective factors for LGBT communities in terms of physical and mental health and ones which help to promote resiliency over time, especially during a health crisis such as intensive cancer treatment and recovery.

Stigma and disclosure of sexual orientation

While there have been studies that have documented feelings of stigma, guilt, shame, and self-blame among cancer survivors and the negative effect of these feelings on psychological adjustment following treatment,[46,47] for LGBT patients, these feelings are also compounded by stigma experienced as part of their sexual orientation, magnifying the risk associated with poor mental health among gay elders. Men who reported feeling comfortable revealing their sexual orientation to their doctor also reported higher masculine self-esteem scores. This finding suggests that open communication with one's PCa physician may be an important factor in a gay man's recovery from PCa. Given that few PCa support groups exist specifically for gay men, increased opportunities for speaking openly and in a safe environment about treatment concerns and changes in sexual function could benefit post-treatment QoL for gay and bisexual men.

Methodological recommendations and limitations

This study has some important limitations. Its cross-sectional design precludes examination of causal or temporal relationships. In addition, varying time intervals between diagnosis and the survey may influence reported outcomes through recall bias and adaptation to post-treatment changes, resulting in improved QoL in the time since diagnosis and treatment, despite our attempt to control for this in our multivariate analyses. Our single-item questions on anxiety and depression were included as measures of relevant comorbidity, modeled after the format of the self-report version of the Charlson Comorbidity Index,[48] and were included as part of this inventory. We chose this approach to ascertain significant diagnosed depression and anxiety as relevant comorbidity. There was also some concern that using additional validated scales might overlap with the measurement of depression and anxiety symptoms by the MCS in the SF-12. Future studies should compare the performance of single-item anxiety and depression questions to the MCS in larger LGBT samples using a clinical mental health diagnosis as the gold standard. Our social support items also only measured positive social support relationships without considering important detrimental social interactions.[49]

Our subjects were self-selected, limiting our study's generalizability. Due to a lack of national health data sources in the United States that collect information on sexual orientation and gender identity, many researchers of LGBT health cannot recruit survey respondents or analyze data from the general population and instead use LGBT-oriented sources such as LGBT websites and community publications.[50–53] However, men who contacted us were highly motivated to participate in the hope that their participation might help other gay PCa survivors, as our high response rate indicates. In addition, despite our best outreach and recruitment efforts, few racial or ethnic minority men contacted us. However, our population is one of the largest samples of gay PCa survivors ever studied. The large sample size, high response rate, and comprehensive survey instrument, which allowed us to adjust for important known confounders of PCa QoL, provide important previously unavailable information about the QoL of gay PCa survivors.

Conclusion

This study draws attention to gay men as an invisible minority among PCa survivors who share many of the same effects as their heterosexual peers, although they are distinguished by experiences of resiliency and stigma. PCa providers are in a unique position to help reduce stigma and promote resiliency by being aware that they might have gay patients, creating a supportive environment where gay patients can discuss specific sexual concerns, and engaging patients in treatment decisions. These efforts by providers could help not only in reducing stigma but also in increasing masculine self-esteem, which may in turn positively influence gay patients' recovery, QoL, and compliance with follow-up care.

Acknowledgments

This research was supported by a grant from the National Cancer Institute (Co-PIs: D.A.-D./J.C., 1R03CA136114-01A1). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Cancer Institute or the National Institutes of Health. The authors would like to thank the gay PCa survivors who agreed to participate in this study.

Author Disclosure Statement

No competing financial interests exist.

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