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The Effects of Partnered Exercise on Physical Intimacy in Couples Coping with Prostate Cancer

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Abstract

Objective—The study examined whether couples coping with prostate cancer participating in a partnered exercise program - Exercising Together (ET) - experienced higher levels of physical intimacy (i.e., affectionate & sexual behavior) than couples in a usual care (UC) control group.

Method—Men and their wives (n=64 couples) were randomly assigned to either the ET or UC group. Couples in the ET group engaged in partnered strength-training twice weekly for six months. Multilevel modeling was used to explore the effects of ET on husband and wife engagement in both affectionate and sexual behaviors over time.

Results—Controlling for relationship quality, wives in ET showed significant increases in engagement in affectionate behaviors compared to wives in UC. No intervention effects were found for husbands.

Conclusion—Couple-based approaches to physical intimacy, after a cancer diagnosis, that facilitate collaborative engagement in non-sexual physical activities for the couple have potential to be effective for wives. More research is needed in this area to determine couples most amenable to such exercise strategies, optimal timing in the cancer trajectory, and the benefits of combining partnered exercise with more traditional relationship-focused strategies.

Keywords

physical activity; strength training; dyadic analysis; affectionate behaviors; relationship quality

Prostate cancer is the most common cancer diagnosis in men. Treatment outcomes are often favorable with over 2 million prostate cancer survivors presently living in the US (American Cancer Society, 2012). Men with prostate cancer and their wives experience high levels of psychological distress (Couper et al., 2006; Eton & Lepore, 2002). Prostate cancer has been called the “relationship disease” as men often experience long-term sexual dysfunction, which can have adverse consequences for the couple (Beck, Robinson, & Carlson, 2009; Couper et al., 2006), particularly couples who do not successfully renegotiate physical intimacy beyond penetrative sex (Gilbert, Ussher, & Perz, 2010). Couples who increase their

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engagement in non-sexual activities together (e.g., exercising together) may experience greater levels of intimacy and satisfaction with the relationship (Reese, Keefe, Somers, & Abernethy, 2010).

Couples coping with chronic illness are often unable to openly communicate about issues related to physical intimacy (Arrington, 2003; Sanders, Pedro, O'Carroll-Bantum, & al, 2006). Wives, in particular, have reported suppressing their sexual needs to protect their husband with prostate cancer (Couper et al., 2006; Gilbert et al., 2010). This silence is compounded by a shift in the relationship from intimate partners to care partners. Physical intimacy is central to psychological well-being (World Health Organisation, 1995) and mediates the effects of declining health on marital quality (Galinsky & Waite, 2014). Yet, it is often overlooked as a focus of routine cancer care and psychosocial-behavioral interventions in couples coping with cancer (Reese et al., 2010). Of the few interventions that have focused on sexuality in prostate cancer, positive benefits have not sustained beyond three months (Canada, Neese, Sui, & Schover, 2005) or excluded the partner (Lepore, Helgeson, Eton, & Schulz, 2003; Mishel et al., 2002). As couples often struggle to renegotiate sexuality (Gilbert et al., 2010; Sanders et al., 2006), innovative ways to promote verbal and non-verbal communication are needed.

Exercise studies in couples have not focused on cancer, are mainly descriptive and focus on involving spouses to get patients more active. A combined aerobic and strength training program in prostate cancer maintained levels of sexual activity (reported by men) compared to a decrease in sexual activity in a usual care control group, but partners were not included and affectionate behavior in men was not examined (Cormie et al., 2013). The developmental-contextual model of couples coping with chronic illness (Berg & Upchurch, 2007) inherently reflects the impact of the chronic illness on both patient and partner and purports that couples who engage in dyadic and collaborative coping strategies are more likely to experience higher levels of dyadic adjustment. The Exercising Together (ET) program was developed for a man with prostate cancer and his wife to strength train as an exercise team to improve physical functioning and body composition in each partner (Blinded, 2012). Primary outcomes of this randomized, controlled pilot study have shown the program to be feasible, acceptable and safe, with improvements in physical health for both members of the couple. Men in ET significantly increased their self-reported physical activity over time, though wives did not (Blinded, in review). By training as a team, the ET program engages men and women as equal, interactive partners coping and working together to improve their own and their partner's physical health. Thus, the couple-based approach could also be a compelling and innovative collaborative coping strategy to improve physical intimacy. The proposed study sought to explore the secondary benefits of the ET program on the physical intimacy of couples coping with prostate cancer.

Method

Participants & Procedures

Participants were 64 couples coping with prostate cancer (married or partnered) recruited through the Oregon State Cancer Registry with supplemental recruitment through community clinics and groups (Blinded, 2012). (Participant flow chart available as

supplemental online material). Men had completed primary treatment other than hormone therapy, were not currently undergoing radiation or chemotherapy, were not currently strength training, were aged 60 or over and had a co-residing partner willing to participate. After baseline testing, couples were informed of their group assignment, with follow-up data collection at 3 and 6 months. The study was approved by the Institutional Review Board at Oregon Health and Science University. Men with prostate cancer were, on average 71.8 (*SD* = 7.2) years of age and 5.6 (*SD* = 4.2) years since diagnosis; almost half received radiation therapy with a small number of men experiencing more advanced disease; and had, on average 3.28 (SD = 2.50) health conditions. Wives were, on average 68 (*SD* = 7.6) years of age and had 1.20 (*SD* =1.61) health conditions. Husbands and wives were predominantly white (92%) and knew each other 42.9 (*SD* = 13.9) years. ET and UC couples did not differ at baseline except for length of relationship $t(62) = 2.15$, $p < .05$; UC couples reported significantly longer relationships. Husbands and wives were moderate-strongly satisfied with their relationships (husband: M = 3.47 (0.56); wife: M = 3.24 (0.63).

Exercising Together Intervention

Couples assigned to ET attended twice weekly 1-hour group-based exercise sessions delivered by a single exercise physiologist for 6 months. ET is a partnered strength training program where each member of the couple acted as a trainer/coach while the other performed an exercise and men and women performed some exercises in tandem with each other. Partners assisted one another to get into proper exercise form, monitor to ensure form was maintained, corrected form as needed and verbally encouraged completion of the set. Aside from these planned interactions among the couple to facilitate teamwork during training, no additional tactics were employed to directly target communication or intimacy between partners. Approximately eight couples attended each training session. Median session attendance was 78% for husbands, 76% for wives and 75% for couples. For greater detail see (Blinded, 2012).

Measures

Physical intimacy behavior was measured three times using four affectionate (e.g., touching, kissing; husband:α= .90-.94; wife: α=.86-.92) and two sexual (sexual intercourse, foreplay; husband:α= .82 -.91; wife: α=.80-.84) behaviors on a 1 (none of the time) to 4 (most or all of the time) scale (Druley, Stephens, & Coyne, 1997). Men and their wives reported frequency of their own engagement in each behavior with their partner. (See Table 1 for average reports of engagement in affectionate and sexual behaviors in husbands and wives by group). Relationship quality was measured at baseline with the 15-item Mutuality scale (Archbold, Stewart, Greenlick, & Harvath, 1990). Husbands (α=.95) and wives (α=.93) responded on a 0 (not at all) to 4 (a great deal) scale; higher scores indicated more positive relationship quality.

Analysis plan

Multilevel modeling was used to analyze data at the level of the couple. A longitudinal multivariate outcomes model estimates a latent trajectory for each member of the couple, controls for interdependency of dyadic data, and autocorrelation among repeated assessments (Lyons & Sayer, 2005). Two models (one for affectionate behavior & one for

sexual behavior) were tested using HLM 7. The Level 1 model has four coefficients representing intercepts and slopes for men and their wives that become outcome variables in the Level 2 model. Level 2 models examined the effects of the intervention on changes in physical intimacy behavior.

Results

At Level 1 engagement in affectionate behavior was 2.49 ($p < .001$) for husbands and 2.47 ($p < .001$) for wives; engagement in sexual behavior was 1.48 ($p < .001$) for husbands and 1.43 ($p < .001$) for wives. Tau correlations of .64 for affectionate behaviors and .80 for sexual behaviors indicated moderate-strong associations between reports for husbands and wives. On average, there was no significant linear trend for husbands or wives in affectionate or sexual behavior over time. There was significant variability around each trajectory, except for husband engagement in sexual behavior (parameter was fixed). Table 2 shows results of the ET intervention on physical intimacy behaviors over time. Controlling for baseline relationship quality, wives in the ET group showed significant increases in engagement in affectionate behaviors compared to the UC group; husbands did not. No significant intervention effects were found between groups for engagement in sexual behaviors for either husbands or wives.

Discussion

The current study is the first RCT to explore the effects of partnered-exercise on physical intimacy in couples coping with prostate cancer. Consistent with the developmental-contextual model (Berg & Upchurch, 2007), couples who jointly engaged in a novel, collaborative coping strategy towards a common goal experienced significant increases in engagement in affectionate behaviors for wives. Couples experiencing a chronic illness often become enmeshed in the individualistic medical model that promotes distinct patient and caregiver roles. The ET intervention, which involved dedicated time exercising as a team and coaching/supporting one another may have helped to reconceptualize the relationship, particularly for wives.

Men in the intervention group, notably, did not report significant increases in affectionate or sexual behaviors. Although the intervention significantly improved muscle strength and body composition in men (Blinded, in review), data regarding their sexual functional ability was not directly captured limiting the ability to determine whether increases in sexual intercourse were realistic. The masculinity of men with prostate cancer can be deeply affected by the loss of sexual function leading to avoidance of all physical intimacy. Women, on the other hand, tend to gain intrinsic value and feelings of being loved from affectionate behaviors, even when sexual behaviors are avoided (Druley et al., 1997). Indeed, women are more likely to be interdependent in their self-representations (Acitelli & Antonucci, 1994), more aware and impacted by the quality of their relationship (Kiecolt-Glaser & Newton, 2001), and may benefit more from collaborative coping than men (Berg & Upchurch, 2007). As role and gender were confounded in the current sample, the disparate findings may well be a gender effect. Future research in more heterogeneous illness contexts (e.g., colorectal cancer) is needed.

Other potential explanations for the incongruent findings may involve the large patient age range, time since diagnosis and varied prostate cancer treatment regimens among men in the sample. Research has suggested physical activity within the first few months of diagnosis has the greatest chance of maintaining sexual function (Chambers et al., 2008). The current sample of men may have been far enough from diagnosis that physical intimacy behavior patterns were too ingrained and in need of additional strategies. A patient-centered intervention on men with prostate cancer receiving androgen deprivation therapy showed improved sexual functioning suggesting the important role of treatment history. Future couple-based exercise interventions in this area need to consider optimal timing of such novel approaches and target couples closer to diagnosis where an intervention might be more effective at preventing relationship decline. Finally, descriptive data suggest positive effects for wives emerged at three months warranting further research to examine the minimum length necessary for a partnered-exercise program to improve relational outcomes for each partner and explore benefits of longer-term exercise.

The current study had several limitations. First, the pilot study was small and the sample heterogeneous. Although results did not change when time since diagnosis was controlled for, future research should include more streamlined and meaningful starting points to enhance the ability to examine physical intimacy over time and begin by targeting those closer to diagnosis. Second, the sexual behavior subscale consisted of only two items (one regarding sexual intercourse). This limited operationalization of sexual behaviors may have played a part in non-significant results for this domain. Third, as this was an exploratory study of secondary benefits to partnered exercise, lack of statistical power may have played a role in non-significant findings (the original study was powered for differences in muscle strength and body fat). Fourth, although high correlations for both affectionate and sexual behaviors indicate most couples experienced similar ratings at baseline, future research clearly needs to examine the impact of disparate findings for husbands and wives on individual and couple outcomes. This may be particularly relevant for couples where increases in engagement, by one member of the couple, are either not reciprocated or desired by the partner. Finally, the ET intervention did not include any explicit relationship-focused skills or communication. Future work that combines partnered-exercise with more traditional communication-based components regarding the challenging topics of intimacy may be more effective than either in isolation for both husbands and wives.

In sum, findings suggest this may be a potentially novel and promising line for future research with larger, more homogeneous samples in illness contexts where role and gender are not confounded. Disparate effects, for husbands and wives, may underscore the complexity of how physical intimacy is perceived and negotiated within couples and need for couple-based approaches in research and practice to ensure a balanced approach to the well-being and desires of both members as they navigate the impact of the cancer context.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Means and SDs for Engagement in Affectionate and Sexual Behaviors for Husbands and Wives

	Exercising Together			Usual Control		
	Baseline	**3 Months**	**6 Months**	**Baseline**	**3 Months**	**6 Months**
Affectionate behaviors (husband)						
N	32	31	31	29	25	25
M (SD)	2.53 (0.69)	2.43 (0.76)	2.52 (0.78)	2.45 (0.77)	2.56 (0.84)	2.35 (0.67)
Affectionate behaviors (wives)						
N	32	31	32	32	25	25
M (SD)	2.55 (0.71)	2.67 (0.80)	2.70 (0.71)	2.38 (0.73)	2.31 (0.59)	2.35 (0.55)
Sexual behaviors (husband)						
N	32	31	31	29	25	25
M (SD)	1.56 (0.63)	1.71 (0.73)	1.57 (0.54)	1.35 (0.47)	1.40 (0.50)	1.36 (0.49)
Sexual behaviors (wives)						
N	32	31	31	32	25	25
M (SD)	1.55 (0.57)	1.65 (0.58)	1.63 (0.63)	1.30 (0.49)	1.28 (0.41)	1.36 (0.51)

Table 2

Multilevel Models Predicting Husband and Wife Reports of Engagement in Affectionate and Sexual Behavior over Time

	Engagement in Affectionate Behavior		Engagement in Sexual Behavior	
	Husband	Wife	Husband	Wife
	Parameter Estimate (*SE*)	Parameter Estimate (*SE*)	Parameter Estimate (*SE*)	Parameter Estimate (*SE*)
Fixed effects				
Intercept[a]	2.53 (0.12)***	2.45 (0.11)***	1.36 (0.08)***	1.30 (0.08)***
Husband relationship quality	0.45 (0.14)**	0.06 (0.13)	−0.16 (0.12)	−0.22 (0.09)*
Wife relationship quality	0.24 (0.12)*	0.58 (0.10)***	0.09 (0.11)	0.18 (0.09)*
Group assignment	−0.08 (0.16)	0.03 (0.15)	0.25 (0.13)	0.25 (0.13)
Linear slope[b]	−0.08 (0.03)*	−0.05 (0.04)	−0.01 (0.03)	0.02 (0.03)
Husband relationship quality	0.01 (0.05)	0.06 (0.04)	0.10 (0.08)	0.01 (0.04)
Wife relationship quality	0.02 (0.05)	−0.11 (0.05)*	0.02 (0.06)	0.02 (0.04)
Group assignment	0.06 (0.06)	0.14 (0.06)*	−0.01 (0.05)	0.01 (0.06)

Note.

[a]The intercept in the Level 1 model has been coded to represent baseline values.

[b]The linear slope in the Level 1 model represents rate of change per 3 months in each outcome variable over the 6-month period. Results did not change when time since diagnosis was included.

*$p < .05$.

**$p < .01$.

***$p < .001$.