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Sexual health and rehabilitation after ovarian suppression treatment (SHARE-OS): a clinical intervention for young breast cancer survivors

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Abstract

Purpose Each year, thousands of young breast cancer (BC) patients confront the difficult decision to medically suppress ovarian function and undergo abrupt, premature menopause to reduce risk of cancer recurrence. Unlike natural menopause, young women undergoing ovarian suppression (OS) face severe and disruptive side effects. Profound sexual dysfunction is one of the most prevalent, distressing side effects of OS treatment. Unmanaged sexual dysfunction is also a primary predictor of non-adherence to this potentially life-saving treatment. We developed and tested a brief, psychosexual intervention targeted to manage sexual dysfunction and psychological distress after OS in young BC survivors.

Methods Twenty young BC survivors with sexual dysfunction received a single 4-h group intervention that included sexual health rehabilitation, body awareness exercises, and mindfulness-based cognitive therapy (MBCT) skills followed by a single tailored booster telephone call 1-month later. Assessment of female sexual function and psychological distress was completed at baseline and 2 months post-intervention.

Results Analyses examined changes pre- to post-intervention. Female sexual health improved significantly from baseline to follow-up ($n = 19$, $p < 0.02$). Anxiety was also significantly improved at the 2-month ($p < 0.000$) timepoint, compared with baseline 1. Moderate-to-large effect sizes were observed regarding changes in sexual function and psychological distress.

Conclusions Significant improvements in sexual functioning and psychological distress were observed 2 months post-intervention.

Implications for Cancer Survivors These results demonstrate that delivery of a targeted intervention in brief, low-intensity group setting is a promising model for reducing distressing sexual dysfunction in young BC survivors on OS treatment.

Keywords Sexual health · Breast cancer · Sexual rehabilitation

Introduction

Each year, tens of thousands of young breast cancer (BC) patients confront the difficult decision to medically suppress their ovarian function in order to reduce their risk of cancer recurrence. Unlike natural menopause, treatment-induced ovarian suppression (OS) leads to abrupt, premature menopause that is characterized by severe and disruptive side effects [1]. Profound sexual dysfunction, including vulvovaginal atrophy, decreased arousal, loss of desire, and sexual satisfaction, is one of the most prevalent and distressing side effects of OS [2]. For young women, these symptoms are compounded by a unique combination of physical and psychological challenges. Sexual health problems can negatively affect identity, relationships, and self-esteem, and unfortunately, they do not self-resolve, but instead tend to worsen over time [3].

There is a paucity of evidence-based intervention available to help young BC survivors manage OS-induced sexual dysfunction and related psychological distress. This is of particular concern because significant sexual side effects are also a primary predictor of non-adherence with this potentially life-saving treatment [4]. Previously, we have developed a brief, evidence-based sexual health intervention for women treated for ovarian cancer and for women who underwent prophylactic oophorectomy [5, 6]. Guided by our integrative model for sexual health rehabilitation that addresses physical, psychological, and cognitive aspects of sexual dysfunction, we have

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now expanded on this clinical intervention to test its efficacy in young BC survivors suffering from OS-related sexual dysfunction.

Methods

Participants and recruitment

Potential participants were recruited from breast oncology clinics in a large, metropolitan area. Women were eligible if they were under age 50, had a history of BC, currently receiving medication to induce OS (e.g., Lupron), and endorsed ≥ 1 distressing sexual symptom on the Sexual Problem Subscale of the Sexual Function Questionnaire [7]. Exclusion criteria included active cancer therapy in the past 6 months.

Intervention content

As previously described [5, 6], the SHARE intervention consisted of a single, 4-hour group session, followed by a brief booster telephone call 1-month later, intended to help women review progress with their individualized action-plan, problem-solve around continuing issues, and plan for maintenance moving forward. The intervention was comprised of four modules: (1) education about sexual health rehabilitation; (2) experiential exercises in body awareness, including pelvic floor relaxation; (3) structured mindfulness-based cognitive exercises; and (4) individual goal planning, with actionable steps to be reviewed during the post-group telephone booster. Content was specifically adapted to address challenges for young BC survivors. Additionally, take-home materials were provided, including instructions for exercises, and information about personal products and relevant resources. The group session was delivered by a study investigator, a clinical psychologist experienced in treating cancer-related sexual dysfunction. Patient-reported assessment of sexual function and psychological distress were completed in-person immediately prior to the intervention (baseline) and by mail or online 2 months post-intervention. Written informed consent was obtained from all participants at the group session, and all procedures were approved by the institutional review board.

Measures

Participant demographic and medical information was assessed by self-report. Sexual function was assessed with the 19-item Female Sexual Function Index (FSFI) [8] assessing five domains of sexual function: lubrication, desire, satisfaction, orgasm, and pain. Items are scored on a Likert scale for intensity and frequency, and the FSFI Total Score, which averages rating across all items, was used here. The FSFI has been shown to be reliable and valid with both cancer and non-cancer populations [8]. Emotional distress was measured using the 18-item Brief Symptom Inventory (BSI-18) [9] assessing symptoms of anxiety, depression, and somatization. Items are scored on a Likert scale and summed to yield a Global Severity Index (GSI) score. Psychometric properties of the BSI-18 have been well-established both in the general population and with cancer survivors [9]. Participants also completed a satisfaction form about the group session with items rated on a 5-point Likert-scale.

Statistical analyses

Descriptive statistics were calculated for participants' demographic and medical information, FSFI, and BSI-18. Differences in baseline and post-intervention FSFI and BSI-18 scores were examined using paired samples t test. All P values were two-sided with P values ≤ 0.05 considered statistically significant. Magnitude of change was quantified using Cohen's d as a measure of effect size. Effect sizes of 0.20 are considered small, 0.50 considered moderate, and ≥ 0.80 considered large. One participant who attended the intervention did not complete follow-up measures and was not included in primary analyses. We conservatively estimated their follow-up FSFI and BSI-18 scores using the last observation carried forward approach and performed secondary analyses. SPSS software (version 24; SPSS Inc., Chicago, IL, USA) was used for all analyses.

Results

Recruitment and participation

Twenty participants had a mean age at diagnosis of 35.6 (SD = 6.49). Most women were Caucasian (85%), had at least a college degree (95%), and were married or living as married (85%) (see Table 1). Of the 44 women who were screened, 40 met eligibility criteria. Of these 40 women, 37 expressed interest in participating, but 17 were unable to attend one of the scheduled group times. Twenty women enrolled in the study and attended a scheduled group session. One woman did not return the post-intervention assessment, despite reminders, yielding an evaluable sample of 19 women (95% completion rate).

Impact of intervention on sexual function and psychological distress

As displayed in Table 2, participants showed significant improvement in sexual function, as demonstrated by increased scores on the FSFI total score ($P = 0.021$) and its subscales, including desire ($P = 0.010$), lubrication ($P = 0.006$), orgasm ($P = 0.040$), and satisfaction ($P = 0.019$) from baseline to post-

Table 1 Demographic and medical characteristics of participants ($N = 20$)

Participant characteristics	*M*	SD	*n*	%
Demographic characteristics				
Age	38.60	6.58		
Race/ethnicity				
White, non-Hispanic			17	85
Black or African American			1	5
Hispanic/Latino			1	5
Asian or Pacific Islander			1	5
Marital status				
Married			16	80
Living as married			1	5
Single, never married			3	15
Education				
Some college or a 2-year degree			1	5
College graduate			12	60
Postgraduate level training			7	35
Employment				
Working full-time			15	75
Working part-time			2	10
Disabled and unable to work			1	5
Full-time homemaker			1	5
Other			1	5
Medical characteristics				
Time since Diagnosis	3	1.72		
Breast cancer stage				
Stage I			4	20
Stage II			12	60
Stage III			4	20
Type of breast surgery				
Partial mastectomy			9	45
Mastectomy (no reconstruction)			2	10
Mastectomy (reconstruction)			4	20
Bilateral mastectomy with reconstruction			5	25
Received chemotherapy			11	55
Taking aromatase inhibitor			12	60
Taking tamoxifen			9	45
Taking supplemental hormones			2	10
Seen mental health specialist in last year			12	60
Medication for depression, anxiety, pain, or hot flashes			8	40
Time since last OS treatment				
1 month or less			17	85
2–3 months			3	15

OS, ovarian suppression

intervention. Mean scores on the BSI-18 decreased significantly for the Global Severity Index ($P = 0.012$) as well as the anxiety subscale ($P = 0.001$). Magnitude of these significant changes between baseline and post-intervention varied with moderate-to-large effect sizes observed ($d = 0.51$–0.98).

To ensure results were not overly influenced by the participant who did not complete the follow-up assessments, analyses were repeated with imputed values assuming she had no change in FSFI or BSI-18 scores following the intervention (last observation carried forward). These results were highly

Table 2 Change in sexual function and emotional health from baseline to post-intervention ($N = 19$)

Measure	Baseline		Post-intervention		Change		t	P	Cohen's d
	M	SD	M	SD	ΔM	ΔSD			
FSFI total	12.74	7.01	17.98	8.36	5.24	9.01	2.54	*0.021*	0.56
Desire	1.96	0.80	2.62	0.83	0.66	1.00	2.90	*0.010*	0.66
Arousal	2.53	1.73	3.16	1.47	0.63	1.74	1.58	0.131	0.36
Lubrication	1.77	1.42	2.92	1.83	1.15	1.60	3.13	*0.006*	0.72
Orgasm	2.31	1.89	3.37	1.75	1.05	2.08	2.21	*0.040*	0.51
Satisfaction	1.83	1.50	2.95	1.54	1.12	1.89	2.58	*0.019*	0.59
Pain	2.34	2.01	2.97	2.29	0.63	2.40	1.15	0.267	0.26
BSI-18 GSI	51.79	9.82	48.26	8.44	3.53	5.47	2.81	*0.012*	0.64
Somatization	48.26	9.87	48.32	8.12	0.05	6.79	0.03	0.973	0.01
Depression	50.37	8.28	47.32	6.91	3.05	6.92	1.92	0.070	0.44
Anxiety	54.58	9.69	49.95	8.66	3.53	5.47	2.81	*< 0.001*	0.98

FSFI, Female Sexual Function Index; *BSI-18*, Brief Symptom Inventory-18; *GSI*, Global Severity Index

Change scores are expressed in absolute value

Italicized values indicate p value in less than 0.05

similar, with significant pre-post difference on the same 7 scales as reported in Table 1 and with similar effect sizes ($d = .45–.93$).

Participant satisfaction

All 20 participants reported that they were satisfied with the content of the group intervention and said they enjoyed participating in the group session.

Discussion

Results demonstrate that we were able to successfully extend the reach of our SHARE intervention to significantly improve overall sexual function and reduce psychological distress in young BC survivors with OS treatment-related sexual dysfunction. Significant improvements were observed on several important sexual function domain subscales including desire, orgasm, lubrication, and satisfaction. The intervention also significantly reduced anxiety in this group of young BC survivors. Moreover, the magnitude of effect sizes detected from this single-session intervention ranged from moderate to large regarding both sexual function and psychological distress. Effect sizes from this study are larger than the effect sizes that have been previously observed in more intensive behavioral interventions also using the FSFI as a primary outcome measure [10]. Especially, given the practical and logistical needs of younger survivors, many of whom work and/or have children, brevity was emphasized in designing this targeted intervention.

Although the content of the intervention was primarily aimed at improving sexual function, it is notable that the intervention had a significant beneficial impact on reducing distress, particularly, anxiety. This finding is consistent with the observation that improvements in sexual health are correlated with improvements in quality of life. These results underscore our hypothesis that when women receive an integrative intervention that conveys skill-based strategies along with coping tools and a personalized action plan, both sexual health and psychological quality of life can be improved. This study also has other important clinical implications. As the use of OS is in young BC patients is rapidly expanding, concerns about OS-related sexual problems are mounting [4] because so many women prematurely discontinue this potentially life-saving treatment. It is possible that developing brief, effective interventions may encourage uptake and promote adherence to treatment because young women can know that OS-related sexual dysfunction is treatable. This is the first study, to our knowledge, to explore the effect of a compact intervention to address sexual sequelae of OS, including physical and psychological components. The brief strategic nature of this intervention that has now been successfully tested with three different oncology populations contrasts with previous approaches to cancer-related female sexual rehabilitation that utilize intensive methods (e.g., individual counseling, multiple sessions), requiring large amounts of time, money, and participant motivation that can compromise feasibility and potential for large-scale dissemination. Next steps include exploring how this intervention may be developed into a portable platform, such as administration via online format (e.g., webinar). The success of this single-arm study provides compelling initial evidence that a compact, strategic psychosexual intervention can significantly reduce adverse side effects from OS treatment and close a critical gap in care for a growing population of women being treated with OS.

Compliance with ethical standards

The project received IRB approval.

Informed consent Informed consent was obtained from all individual participants included in the study.

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Graziottin A, Basson R. Sexual dysfunction in women with premature menopause. Menopause. 2004;11(6 Pt 2):766–77.
2. Partridge AH. Cancer survivorship and the young breast cancer patient: addressing the important issues. Oncologist. 2013;18(8):e19–20. https://doi.org/10.1634/theoncologist.2013-0300.
3. Frechette D, Paquet L, Verma S, Clemons M, Wheatley-Price P, Gertler SZ, et al. The impact of endocrine therapy on sexual dysfunction in postmenopausal women with early stage breast cancer: encouraging results from a prospective study. Breast Cancer Res Treat. 2013;141(1):111–7. https://doi.org/10.1007/s10549-013-2659-y.
4. Ribi K, Luo W, Bernhard J, Francis PA, Burstein HJ, Ciruelos E, et al. Adjuvant tamoxifen plus ovarian function suppression versus tamoxifen alone in premenopausal women with early breast cancer: patient-reported outcomes in the suppression of ovarian function trial. J Clin Oncol. 2016;34:1601–10. https://doi.org/10.1200/JCO.2015.64.8675.
5. Bober SL, Recklitis CJ, Michaud AL, Wright AA. Improvement in sexual function after ovarian cancer: effects of sexual therapy and rehabilitation after treatment for ovarian cancer. Cancer. 2017;124:176–82. https://doi.org/10.1002/cncr.30976.
6. Bober SL, Recklitis CJ, Bakan J, Garber JE, Patenaude AF. Addressing sexual dysfunction after risk-reducing salpingo-oophorectomy: effects of a brief, psychosexual intervention. J Sex Med. 2015;12(1):189–97. https://doi.org/10.1111/jsm.12713.
7. Syrjala KL, Schroeder TC, Abrams JR, Atkins TZ, Brown WS, Sanders JE, et al. Sexual function measurement and outcomes in cancer survivors and matched controls. J Sex Res. 2000;37(3):213–25. https://doi.org/10.1080/00224490009552042.
8. Baser RE, Li Y, Carter J. Psychometric validation of the Female Sexual Function Index (FSFI) in cancer survivors. Cancer. 2012;118(18):4606–18. https://doi.org/10.1002/cncr.26739.
9. Recklitis CJ, Parsons SK, Shih MC, Mertens A, Robison LL, Zeltzer L. Factor structure of the brief symptom inventory-18 in adult survivors of childhood cancer: results from the childhood cancer survivor study. Psychol Assess. 2006;18(1):22–32. https://doi.org/10.1037/1040-3590.18.1.22.
10. Brotto LA, Yule M, Breckon E. Psychological interventions for the sexual sequelae of cancer: a review of the literature. J Cancer Surviv. 2010;4(4):346–60. https://doi.org/10.1007/s11764-010-0132-z.