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A randomized controlled trial of an online support group addressing psychosexual distress among women treated for gynecologic cancer

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HIGHLIGHTS

- An online support group for psychosexually distressed gynecologic cancer patients may improve sexual functioning.
- This asynchronous online format may benefit from a more personalized approach.
- An online asynchronous group with high quality information may meet the support needs of women who otherwise lack access.

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ABSTRACT

Objective. To assess whether a 12-week, professionally facilitated, asynchronous online support group would reduce sexual distress (primary outcome) and improve sexual function, body image, depression symptoms, relationship satisfaction, and social support (secondary outcomes) in women treated for gynecologic cancer.

Methods. Participants were 398 women recruited from three Canadian provinces and one American cancer center in cohorts of 40. Participants were randomized (50:50 odds) to either the immediate treatment condition (ITC) or the waitlist control condition (WCC). Eligibility included: completed treatment for gynecologic cancer, disease-free for at least 3 months, no more than 5 years post-diagnosis, met criteria for psychosexual distress, willing to discuss sexual concerns, 18 years or older, English speaking, and access to a computer. Participants in the ITC received a 12-week online group along with psychoeducational material each week to stimulate discussion. Two 90-min synchronous sessions were offered in weeks 4 and 8.

Results. Reductions in sexual distress for ITC were not significantly different compared to WCC. Similarly, no treatment effects were observed for body image, depression, relationship satisfaction, or social support. ITC showed statistically significant improvements in sexual functioning compared to WCC, but these gains were not retained at 4-month follow-up.

Conclusion. Treatment effects were modest, although in the expected direction. As this study was underpowered, it offers preliminary evidence that an asynchronous, online psychoeducational support group may confer positive benefits for women's sexual functioning. The efficiency, convenience, and accessibility of online interventions has significant potential to close gaps in women's access to evidence-based sexual health care.

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1. Introduction

The psychosexual problems of gynecologic cancer are well-documented [1]. Ongoing sexual distress (i.e., having sexually-related personal distress associated with one's sexual function) affects about half of all women with gynecologic cancer [2]. Along with distress due to sexual problems following treatment [3], women suffer from poor body image [4], depression [5], and anxiety [6]. Unfortunately, the psychosexual concerns of gynecologic cancer patients are often not addressed [7,8].

Having a larger social support system has been shown to be associated with less depression among gynecologic cancer patients [9] and better quality of life [10]. However, the potential benefits of support groups for gynecologic cancer has received scant attention [11–13]. One online synchronous intervention delivering supportive-expressed group therapy to breast cancer survivors with sexual dysfunction showed that eight sessions led to significant improvements in sexual desire, sexual distress, and vaginal pain [14]. Increasingly, cancer patients have turned to the internet for both information and support. Online support groups have the advantage of convenience and anonymity, making it easier to discuss topics related to one's sexuality. Results from a feasibility/pilot study suggested that an online support group providing psychoeducation and professional facilitation might be beneficial for sexually distressed gynecologic cancer patients [15].

We conducted a multi-site randomized controlled trial where the primary aim was to assess whether a professionally facilitated, information rich, online support group would be beneficial for women who are sexually distressed subsequent to being treated for gynecologic cancer. The primary hypothesis was that women randomized to the immediate treatment condition (ITC) would show a greater reduction in sexual distress compared to women assigned to the waitlist control condition (WCC). Secondary hypotheses were that women randomized to the ITC would show greater improvement in sexual function (which includes desire, arousal, orgasm, and sexual pain), body image, depression symptoms, relationship satisfaction, and social support compared to the WCC. It was also hypothesized that benefits from participating in the intervention would be sustained through to the second follow-up (FU) assessment at 4 months post-intervention, such that women in the ITC would continue to show reduced sexual distress and improvement in sexual function, body image, depression symptoms, relationship satisfaction, and social support.

2. Methods

2.1. Trial design

Study design was a randomized controlled trial where participants were, by necessity, not blind to condition. Participants were recruited through oncology centres in three Canadian provinces including Ontario, British Columbia, and Alberta, as well as New York. Ethics approval was obtained from Women's College Hospital (Toronto), University Health Network (Toronto), Sunnybrook Hospital (Toronto), University of British Columbia (Vancouver), University of Calgary (Calgary), and Memorial Sloan Kettering Cancer Center (New York City). A description of the protocol can be found at: https://www.longdom.org/abstract/protocol-of-a-randomized-controlled-trial-of-an-online-support-group-forsexual-distress-due-to-gynecologic-cancer-50323.html[15]

2.2. Participants

Women were eligible if they met the following criteria: 1) received surgical, radiation or chemotherapy treatment for any gynecologic cancer; 2) not in active treatment; 3) disease free for at least 3 months at time of enrolment; 4) no more than 5 years post-diagnosis; 5) distressed due to psychosexual concerns related to cancer by scoring 11 or higher on the Female Sexual Distress Scale-Revised (FSDS-R) [16]; 6) willing to discuss sexual concerns; 7) age 18 or older; 8) access to a computer and the Internet; 9) could speak, read and write in English; and 10) provided written informed consent. A woman was ineligible if she: 1) was actively suicidal within the previous 3 months; or 2) had a major psychiatric illness. We used the M-3 Checklist [17] to screen for serious mental illness and suicidality. Women were recruited regardless of their computer literacy. Private computer instruction was provided as needed.

The research team recruited 398 women: 274 from Ontario, 71 from British Columbia, 26 from Alberta and 27 from the state of New York. Twelve cohorts of participants were recruited, with a maximum of 40 per cohort. Participants were recruited through medical oncology, radiation and surgical oncology clinics. In addition, cancer registries in Ontario, Alberta and British Columbia were used to identify potential participants.

This study was approved by the research ethics boards at all participating institutions.

2.3. Randomization and masking

Participants in each cohort were randomly assigned to receive the online intervention right away (ITC) or to receive it 4–5 months later (WCC). Odds for being in assigned to either condition were 50:50 with up to 20 women in each condition per cohort. Randomization and allocation was conducted using http://www.randomizer.org. Participants in the ITC received the intervention an average of 11.69 days post-randomization. There was no masking of group assignment to the participants, group facilitators or investigators.

2.4. Procedures

The intervention was a 12-week, asynchronous online psychoeducational support group (i.e., online discussion board) with two scheduled live chat sessions and an additional "run-in" week before the intervention commenced so that participants could get accustomed to using the discussion board. Participants were given access to psychoeducational material on sexuality and gynecologic cancer housed on a separate website with new material added each week on a new topic, covering themes adapted from supportive-expressive groups for cancer patients [18] and Schover's book "Sexuality and Fertility After Cancer." [19] Drawing on the supportive-expressive group therapy model, participants were invited to express the full range of their thoughts and emotions, to offer and receive mutual support, and to try out new strategies for coping. The material addressed concerns of heterosexual, queer, partnered, and non-partnered women. Each week, the facilitators posted a message to introduce the weekly topic and to stimulate conversation. Participants were asked to post at least once a week and were invited to post as frequently as they wanted. Ninety-minute synchronous sessions were offered in weeks 4 and 8, which enabled participants to chat with one another and the facilitators in real time. In week 8, two experts in gynecologic cancer (gynecologic oncologist and radiation oncologist) participated in the chat, providing an opportunity for participants to pose questions to these medical experts. The intervention was facilitated by two mental health professionals with expertise in leading psycho-oncology groups and in sexuality.

The intervention and quantitative assessments were provided in secure online environments. Participants in both the ITC and WCC completed online assessments at baseline and following completion of the ITC intervention (approximately 4 months after the baseline) to allow for a comparison of conditions. In addition, the ITC were assessed online approximately 8 months after the baseline assessment to determine whether any benefits experienced by participants in the ITC persisted. All quantitative data were collected using Fluid Surveys or Survey Monkey.

2.5. Outcomes

The primary outcome was the total score of the Revised Female Sexual Distress Scale (FSDS-R) [16], a 13-item self-report scale of psychosexual distress in women. Secondary outcomes included sexual function (The Sexual Function Questionnaire; SFQ) [20], body image (body image subscale of the Sexual Adjustment and Body Image Scale – Gynecologic Cancer; SABIS-G) [21], anxiety and depression (Hospital Anxiety and Depression Scale; HADS) [22], relationship satisfaction (Relationship Assessment Scale; RAS) [23], and social support (Medical Outcomes Study Social Support Survey; MOS) [24].

2.6. Statistical analysis

Sample size was based on the pilot study's observed effect size (Cohen's *d*) of 0.3 for reduction in sexual distress as measured by the FSDS-R [16]. A sample size of 520 gave an 80 % chance to detect a 0.3 standard deviation difference between the ITC and WCC at the 0.05 significance level (two-tailed). This took into account 15 % loss to follow-up (based on the pilot study[154]) and the effect of clustering due to treatment being delivered in a group format. The total sample size was not met due to lower-than-expected recruitment compared to the pilot study [15].

The efficacy of the intervention was assessed using the primary outcome, sexual distress. Multilevel modeling was used to compare the effect of participating in the intervention against the waitlist while controlling for baseline scores and adjusting for the effect of clustering. The same strategy was used to test the effect of the intervention on the secondary outcomes. We calculated effect size using Morris' Pretest-Posttest-Control method (d_{ppc2}) [25].

To assess whether the benefits from participating in the intervention were sustained through to the second follow-up assessment, for each of the six outcome measures a difference score was calculated between the score on the outcome variable at baseline and the score at the second follow-up for the ITC, and this was adjusted for clustering due to women being in the same support group. Again, multilevel modeling was used, and a 95 % confidence interval was calculated for the primary outcome and secondary outcomes. The analysis for this paper was generated using SAS/STAT software, Version 14.2 for Windows [26].

Data monitoring was provided by the principal investigator (CCC) and co-principal investigator (SEF). This trial was registered with ClinicalTrials.gov; protocol ID is OVA-120243.

2.7. Role of the funding source

The funder of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The first author (CCC) had full access to all the data in the study and had final responsibility for the decision to submit for publication.

3. Results

3.1. Sample characteristics

Participants were recruited between 27/08/2012 and 30/05/2017. There were 781 participants assessed for eligibility and 383 participants were excluded; 196 because they did not meet inclusion criteria, 101 declined, and 86 were excluded for other reasons. This left 398 participants who were randomized to either immediate treatment (200) or the waitlist control conditions (198). Treatment group size for the ITC ranged from 13 to 21 participants with a mean of 16.75 participants per group. At the first follow-up, 159 ITC participants completed the assessment with 33 lost to follow-up and 8 others refused for a range of reasons. The WCC had 168 participants complete the follow-up assessment and 16 were lost to follow-up and 14 discontinued for a range of reasons. The ITC group had a second follow-up assessment with 149 completing the assessment and 42 who were lost to follow-up and 9 refused for a range of reasons. Data from 319 participants were used to assess the main outcome. See Fig. 1.

Clinical and demographic variables are provided in Table 1 and are well balanced between ITC and WCC groups. Computer literacy was high as documented in Table 2. Women were asked whether they were currently receiving mental health services. At the time of recruitment, 70 (17.6 %) women were seeing a mental health professional. There were 28 (7 %) women who were receiving treatment for sexual concerns. Nineteen (4.8 %) were in a support group, none of which were focused on sexual concerns, and 10 (2.5 %) were professionally led.

3.2. Impact of treatment on primary and secondary outcomes

Descriptive statistics for all outcome measures at all assessments are found in Table 3. We analyzed treatment effects for the main outcome, sexual distress, as measured by the Female Sexual Distress Scale-Revised (FSDS-R [16];) and compared women who were in the ITC against women in the WCC while controlling for cohort. We did not find a statistically significant effect of treatment when comparing ITC and WCC on sexual distress (95 % CI −3.88 to 0.39; $p = 0.11$; ES = 0.14). Results were similar when we also adjusted for baseline scores on the FSDS-R.

On secondary outcomes, there was improvement in sexual functioning (95 % CI 0.03 to 0.31; $p = 0.02$; ES = 0.18) when comparing treatment to the waitlist control. However, we did not find statistically significant improvement in body image (95 % CI −0.27 to 3.15; $p = 0.10$; ES = 0.10), depression (95 % CI −0.15 to 0.89; $p = 0.16$; ES = −0.16), relationship satisfaction (95 % CI −0.064 to 0.24; $p = 0.25$; ES = 0.15), or social support (95 % CI −0.21 to 0.08; $p = 0.39$; ES = −0.07), when we controlled for cohort and baseline scores.

We examined whether benefits from participating in the intervention would be sustained through to the second follow-up (FU) assessment at 4 months post-intervention. We found that sexual distress among the intervention group declined significantly when comparing the baseline score to the second FU (95 % CI −5.61 to −2.13; $p < 0.0001$). On the secondary outcomes, we found a significant improvement from baseline to the second FU assessment on body image (95 % CI 0.98 to 3.58; $p = 0.01$), but not on sexual functioning (95 % CI −0.05 to 0.17; $p = 0.28$), depression (95 % CI −0.38 to 0.35; $p = 0.92$), relationship satisfaction (95 % CI −0.14 to 0.09; $p = 0.66$) or social support (95 % CI −0.07 to 0.19; $p = 0.41$).

3.3. Participation in intervention

We tracked participation in the intervention for the ITC participants and found that 171 (90 %) of 190 participants posted in the discussion forum. The number of posts per participant ranged from 0 to 148, with an average of 18.3 posts (SD = 14.2) across the 12-week intervention plus run-in week. The number of days that participants logged onto the discussion forum was 20.2 days (SD = 7.1) out of a maximum 91 days, with a range of 0 to 86 days. We tracked participation in the chat sessions for 10 of the 12 ITC groups and found that 69 (43.7 %) of 158 participants participated in the first live chat session and 60 (38.0 %) participated in the second live chat session. For the final 5 cohorts, we tracked how many of the 66 women assigned to ITC logged onto the website containing the educational material and found that 59 (89.4 %) logged onto the educational website.

4. Discussion

We examined the efficacy of a 12-week, asynchronous online psychoeducational support group for sexual difficulties subsequent to gynecological cancer in a multisite randomized controlled trial. Results were promising for improvements in sexual functioning. Women in the ITC reported reductions in sexual distress, the primary outcome;

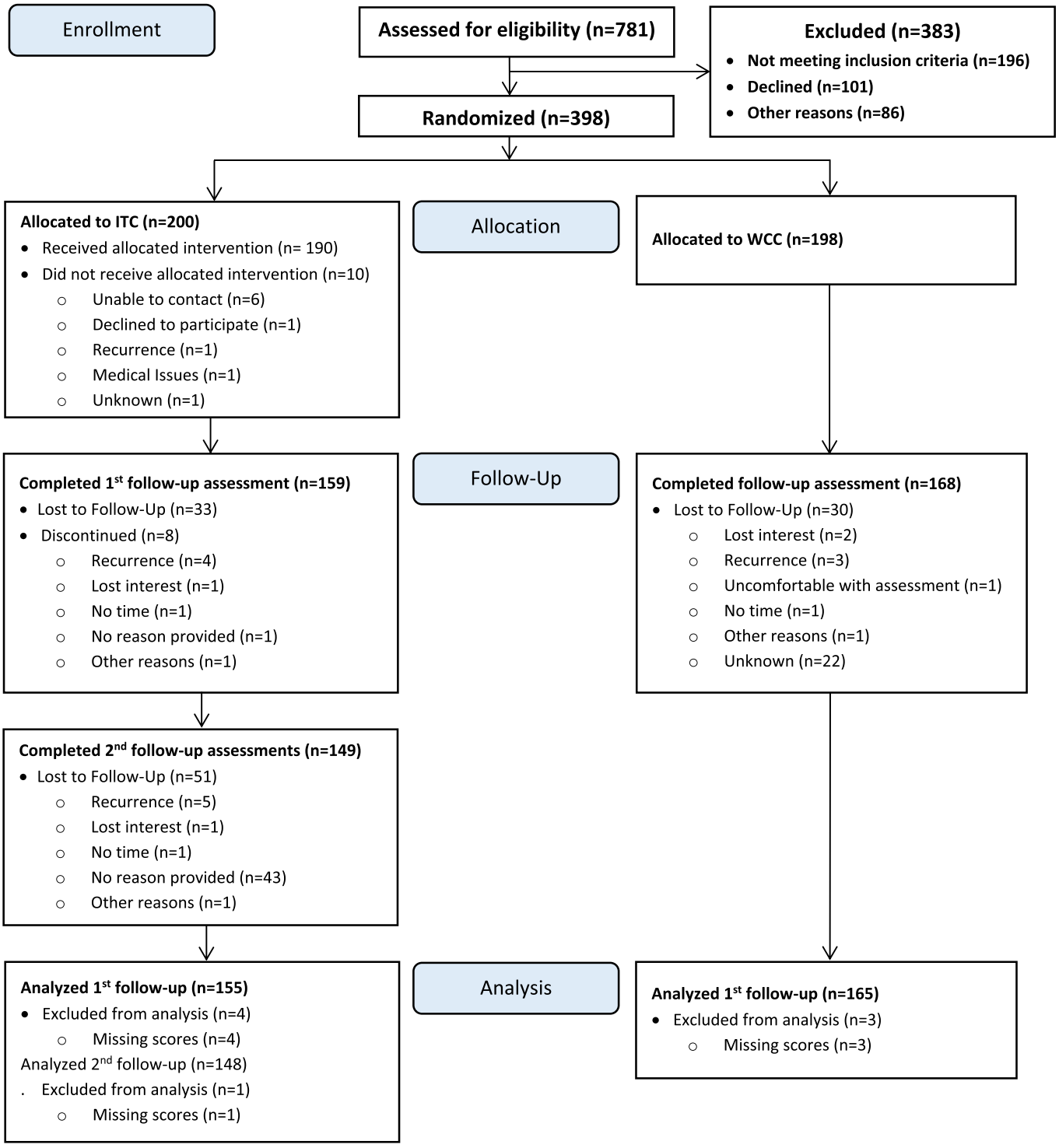

Fig. 1. Consort Diagram – recruitment and flow chart. Note: ITC = immediate treatment condition; WCC = waitlist control condition.

however, these did not reach statistical significance when compared with WCC. Nevertheless, reductions in sexual distress were significantly lower at 4-month follow-up compared to baseline for treated women. Results for the secondary outcomes – sexual functioning, body image, depression, relationship satisfaction, and social support – were mixed. Women in the ITC reported statistically significant improvements in sexual functioning compared to WCC. However, these gains were not retained at 4-month follow-up. Similar to sexual distress, treated women reported improvements in body image that did not reach statistical significance when compared to waitlist control. However, improvements in body image were retained at 4-month follow-up. No treatment effects were observed for depression, relationship satisfaction, or social support.

A supportive-expressive group psychoeducation targeting sexual dysfunction in women outside the context of gynecologic cancer [27] and also among breast cancer survivors with sexual dysfunction [14] has been found to significantly reduce sexual distress and improve sexual response suggesting that supportive-expressive psychoeducation

Table 1
Demographic and Medical Variables.

Variable	ITC ($N = 200$)	WCC ($N = 198$)
Age, years		
Mean (SD)	49.61 (10.31)	49.87 (11.17)
Sexual Orientation, No (%)		
Heterosexual	190 (96.45)	186 (96.37)
LGBTQ	7 (3.55)	7 (3.63)
Race/ethnicity, No (%)		
White	161 (80.50)	162 (81.82)
Other	39 (19.50)	36 (18.18)
Relationship status, No (%)		
Currently in a relationship	150 (75.00)	154 (77.78)
Not in a relationship	50 (25.00)	44 (22.22)
Employment status, No (%)		
Employed	136 (68.34)	137 (69.19)
Unemployed	63 (31.66)	61 (30.81)
Education, No (%)		
College	137 (68.50)	131 (66.16)
Less than college	63 (31.50)	67 (33.84)
Household income, No (%)		
<60 K	33 (19.64)	39 (22.81)
Between 60 K to 99 K	58 (34.52)	55 (32.16)
≥100 K	77 (45.83)	77 (45.03)
Primary site of disease		
Endometrium	84 (42.00)	78 (39.40)
Cervix	63 (31.15)	52 (26.26)
Ovary/Fallopian tube	53 (26.5)	57 (28.79)
Vulva/Vagina	12 (6)	21 (12.12)
Unknown	5 (2.5)	7 (3.53)
Stage of disease		
Stage I	98 (49)	104 (52.52)
Stage II	38 (19)	31 (15.66)
Stage III	30 (15)	38 (19.19)
Stage IV	3 (1.50)	2 (1.01)
Missing	31 (15.5)	23 (11.61)
Treatment		
Surgery	170 (85.00)	176 (88.89)
Chemotherapy	103 (51.50)	95 (47.00)
Pelvic radiation	80 (40.00)	60 (30.30)
Brachytherapy	57 (28.50)	44 (22.22)

Note: ITC = immediate treatment condition; WCC – waitlist control condition; N = sample size; SD = standard deviation.

may be an important therapeutic approach to address women's sexual dysfunction. The less pronounced effects in the current study as compared to Brotto et al. [27] may pertain to the asynchronous design of the present study. An online asynchronous study of psychoeducation, with elements of mindfulness and cognitive therapy, for survivors of gynecologic cancer showed significant improvements in sexual distress and sexual function [28] suggesting that perhaps the attenuated effect in the present study may have less to do with the treatment's asynchronous nature, and more to do with the therapeutic modality. A recent systematic review of online treatments for sexual dysfunction in women found that treatments delivering more personalized support tended to have higher efficacy rates [29] suggesting that the lack of personalized support in the present treatment may have limited the improvements in distress and sexual function participants experienced. In the present treatment, participation in more personalized support in the form of live chats with experts was relatively low. Improving accessibility of these personalized supports may improve efficacy in future.

Table 2
Computer Literacy of Entire Cohort.

Variable	N (%)
Uses a computer or tablet every day	373 (93.7)
Can access the internet at home	396 (99.5)
Comfort level using a computer or tablet	
Proficient	299 (75.1)
Average	95 (23.9)
Low	3 (0.8)
Comfort level navigating the web	
Proficient	309 (77.6)
Average	85 (21.4)
Low	4 (1)

4.1. Clinical implications

There is a paucity of psychological resources for sexual difficulties following treatment for gynecological cancer [30], owing to accessibility and availability of sexuality-related expertise, and discomfort discussing sexuality for both physician and patient. A recent systematic review identified information needs as one of three major areas of sexual health-related care for cancer survivors, with women survivors expressing higher needs [30]. Clinical guidelines also recommend that a member of the cancer healthcare team initiate conversations about sexual health, and that psychosocial treatments, such as this one, be offered to cancer survivors [31].These data emphasize the continuing gap in sexuality-related care post-cancer treatment for women, despite calls for sexual health impacts to be routinely addressed when discussing possible side-effects of cancer treatment.

Our data suggest that an asynchronous, online psychoeducational support group may confer small and positive benefits for women's sexual functioning, body image, and sexual distress. The asynchronous, online platform is a highly accessible mode of engaging with post-treatment psychoeducation and support, both in terms of geography – there is no need to travel to access care – and in terms of time – participation can be any time of day. Resources for professional moderation are no greater than those needed for in-person supportive group psychotherapy. However, group size can be double or triple what is typically possible for in-person formats. As such, access to a professionally-moderated online support network coupled with evidence-based information about sexual health, could serve as a highly accessible, evidence-based, and cost-effective accompaniment to a sexuality recovery protocol following cancer treatment for women. Future adaptations of this psychoeducational intervention might include components of cognitive behavioral or mindfulness skills in order to boost its effects on sexual distress given evidence for these approaches when delivered online to women with sexual concerns [29]. Moreover, given the limitations on recruitment and our sample size, future iterations of this intervention might benefit from being recommended directly by the cancer care team, which may result in greater participation and response to the program.

4.2. Strengths and limitations

The asynchronous format of the group is a significant strength to this intervention, providing a highly-accessible tool and support system for post cancer treatment sexual health care but it may also be a limitation to the treatment's efficacy. In terms of access to internet resources, the asynchronous format is highly desirable because interacting with psychoeducational material, or reading or posting to the discussion boards, does not require the high-speed connectivity necessary to sustain live streaming video-based interactions typical of individual or live group treatment. Women in settings where access to broadband internet is limited, e.g., rural settings, global south, could gain access to information and support. Future studies could examine the feasibility and efficacy of smartphone-adapted treatments.

A limitation to this study is that only the ITC were given a second follow-up assessment four months after the first follow-up. Thus, we are limited in our ability to interpret any change or lack of change when comparing the first and second follow-up assessments in the ITC. Although there was a significant improvement in sexual functioning for the ITC compared to WCC at the first follow-up, the ITC did not show further improvement at the second follow-up. Whether the difference between the ITC and WCC would have been sustained

Table 3
Mean, Standard Deviation, and Standard Error for All Outcome Variables at Each Assessment per Condition.

	Baseline				First Follow-up				Second Follow-up			
Variable	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
Psychosexual Distress												
ITC	199	25.28	10.42	0.74	155	23.84	10.59	0.85	148	21.14	10.23	0.84
WCC	197	25.20	11.24	0.80	165	25.32	11.24	0.88	–	–	–	–
Sexual Functioning												
ITC	196	1.78	0.83	0.06	139	2.01	0.96	0.08	139	1.87	0.99	0.08
WCC	186	1.87	0.84	0.06	147	1.95	0.84	0.07	–	–	–	–
Body Image												
ITC	195	25.13	11.28	0.81	141	26.41	10.98	0.93	143	27.78	11.44	0.96
WCC	194	26.70	10.85	0.78	150	26.91	10.97	0.90	–	–	–	–
Depression												
ITC	196	6.38	2.84	0.20	141	6.73	2.74	0.23	143	6.31	2.63	0.22
WCC	194	6.07	2.62	0.19	152	5.99	2.74	0.22	–	–	–	–
Relationship Satisfaction												
ITC	143	4.04	0.95	0.08	114	4.00	0.91	0.08	105	4.15	0.83	0.08
WCC	150	4.05	0.83	0.07	130	3.88	0.86	0.08	–	–	–	–
Social Support												
ITC	195	3.78	0.89	0.06	140	3.76	0.89	0.08	142	3.88	0.84	0.07
WCC	194	3.78	0.85	0.06	150	3.82	0.82	0.07	–	–	–	–

Note. N = sample size; SD = standard deviation; SE = standard error; ITC = immediate treatment condition; WCC = waitlist control condition. Lower scores on psychosexual distress and depression are in the desired direction. Whereas, for sexual functioning, body image, relationship satisfaction and social support higher scores are better.

at the second follow-up is not known. Furthermore, we cannot know whether the improvement in the ITC on body image and sexual distress was due to the passage of time or due to the intervention.

Women's ability to participate in any internet-based intervention is, if course, limited by all affordances associated with access to computers, including availability of a computer in the home, speaking English, access to privacy to engage with treatment, to availability of internet access in the geographic region. These factors intersect to limit the representativeness of our data in terms of socioeconomic status, race, and indigeneity. Another limitation is that recruitment proved to be challenging possibly because of women's discomfort with the subject matter. Based on our feasibility study [15], we estimated requiring a sample size of 520 participants in order to show a treatment effect. Thus, this study was compromised by being underpowered. A further limitation is that our online program did not track the extent to which the participants accessed the psychoeducational material. Thus, we cannot know to what extent this influenced the treatment effect. Similarly, rates of participation in the live chat sessions were low and may have impacted treatment effects.

5. Conclusion

There is significant interest in developing online interventions for sexual difficulties [29], particularly in the wake of the global COVID-19 pandemic. The efficiency, convenience, and accessibility of online interventions has significant potential to close gaps in women's access to evidence-based sexual health care. Compared with contemporary in-person treatments for sexual difficulties, our treatment effects were modest, although in the expected direction and are informative with respect to the expected treatment effects for an asynchronous, psychoeducationally-focused intervention for treatment of sexual difficulties following gynecological cancer. By incorporating greater access to personalized support within a predominantly asynchronous framework, our online intervention could demonstrate greater efficacy in terms of reductions in sexual distress and improvements in sexual well-being. Given that this study was underpowered, further research is needed to support these conclusions.

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CRediT authorship contribution statement

Catherine C. Classen: Writing – review & editing, Writing – original draft, Supervision, Methodology, Funding acquisition, Data curation. **Meredith L. Chivers:** Writing – review & editing, Writing – original draft, Supervision, Investigation, Funding acquisition. **Lori A. Brotto:** Writing – review & editing, Writing – original draft, Supervision, Investigation, Funding acquisition. **Lisa Barbera:** Funding acquisition, Investigation, Writing – review & editing. **Jeanne Carter:** Writing – review & editing, Supervision, Investigation, Funding acquisition. **John Koval:** Writing – review & editing, Writing – original draft, Software, Funding acquisition, Formal analysis, Conceptualization. **John W. Robinson:** Writing – review & editing, Funding acquisition. **Sarah E. Ferguson:** Writing – review & editing, Supervision, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization.

Declaration of competing interest

Sprout – MSK received funding for a feasibility study with Flibanserin in Breast Cancer pts. and I served as a consultant on an advisory board for the development of future RTC with Flibanserin in cancer pts./ survivorship.

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