Nurse-led sexual rehabilitation to rebuild sexuality and intimacy after treatment for gynaecological cancer: a randomised controlled trial (abridged secondary publication)

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KEY MESSAGES

1. A nurse-led sexual rehabilitation programme is effective in improving sexual function in terms of reducing vaginal problems during sexual intercourse and enhancing partners' sexual interest, compared with traditional care, among Hong Kong Chinese women treated for gynaecological cancer.
2. Qualitative comments from participants indicated that the interventions provided informational and psychological support, which facilitated rebuilding sexuality and intimacy.
3. Sexual rehabilitation interventions delivered by trained nurses should be included in routine clinical practice for patients with gynaecological cancer in Hong Kong.

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Introduction

Gynaecological cancer (GC) is the second most common female cancer in Hong Kong. The incidences of uterine and ovarian cancers are expected to increase. Because the GC survival rate increases with treatment improvements, quality of life (intimacy and sexuality) is essential for women undergoing treatment for GC.[1]

Sexual dysfunction, a common problem among women undergoing treatment for GC, may manifest as vaginal dryness, dyspareunia, shortened vagina, difficulty in reaching orgasm, and diminished sexual desire.[1] Affected women refrain from sexual activity because of their fear of painful sexual intercourse and uncertainty about their illness; this can lead to distress and disruptions to intimacy and relationship quality.[2] Therefore, rebuilding sexuality is pivotal for these women to maintain intimate relationships with their partners.

Sexual rehabilitation is characterised by comprehensive assessment and appropriate interventions from a holistic perspective.[3] In Hong Kong, women undergoing treatment for GC do not receive support in areas of sexuality and intimacy. We implemented a nurse-led sexual rehabilitation programme to help Hong Kong Chinese women with GC and their partners to resume a satisfying intimate relationship or adapt to permanent sexual dysfunction. We hypothesised that the intervention would improve sexual function and marital relationships while reducing the level of sexual distress. We evaluated the effects of the programme on sexual function, sexual distress, and marital relationships.

Methods

Participants were recruited from gynaecological oncology clinics or wards at three regional hospitals in Hong Kong between July 2019 and July 2021. Inclusion criteria were women aged >18 years with non-terminal primary GC (uterine, ovarian, or cervical cancer) diagnosed in the preceding 3 months who had a regular sexual partner and could speak Cantonese and read Chinese. Women with known pre-existing psychotic illness were excluded.

Women with GC were randomly assigned to the intervention group or control group. Women in the intervention group completed a nurse-led sexual rehabilitation programme, as described in a previous study.[3] Briefly, the programme was delivered individually, with or without partner involvement, by a trained research nurse at four sessions: before start of treatment and 1 month, 2 months, and 6 months after treatment completion. Each session lasted 45 to 60 minutes. The programme's key components were information provision, cognitive behavioural therapy, and counselling using motivational interviewing techniques. Participants in the control group received four sessions of attention from the research nurse. The nurse delivered general advice to participants over the phone during follow-ups but did not provide any intervention.

Participants were asked to complete a set of questionnaires that included the Chinese versions of the Sexual Function-Vaginal Changes Questionnaire (SVQ), Female Sexual Distress Scale-Revised (FSDS-R), and ENRICH Marital Satisfaction Scale (EMS), as well as the sociodemographic survey at baseline (T0). Follow-up telephone surveys were conducted 1 month after completion of cancer treatment (T1), immediately after completion of the programme (T2), and 12 months after treatment (T3). Additionally, intervention participants completed semi-structured interviews with another research nurse immediately after the last session of the programme to record their experiences and feelings regarding the programme.

The homogeneity of the intervention and control groups was tested using the independent *t*-test, Chi squared test, or Fisher's exact test, as appropriate. Generalised estimating equation models were used to compare changes in sexual function, sexual distress, and marital satisfaction from T0 to T1, T2, and T3 between the two study arms with adjustment for potential confounders (age, number of children, type of GC, and stage of cancer). All statistical tests were two-sided, and the significance level was set at P<0.05. Qualitative data were assessed via content analysis by two researchers who were not involved in data collection. The recorded tapes were transcribed verbatim, and the transcripts were analysed to identify themes and categories, which were then translated into English. The quantitative and qualitative findings were compared and contrasted.

TABLE 1. Baseline characteristics and outcomes of participants (n=150)

Characteristic	Control (n=72)*	Intervention (n=78)*	P value
Age, y	52.5±7.1	45.7±7.7	<0.001
Educational level			0.661
Secondary or below	61 (84.7)	64 (82.1)	
Tertiary or above	11 (15.3)	14 (17.9)	
Monthly household income, HK$			0.662
<20 000	41 (56.9)	38 (49.4)	
20 000-29 999	17 (23.6)	20 (26.0)	
≥30 000	14 (19.4)	19 (24.7)	
No. of children			0.018
0	13 (18.1)	25 (32.1)	
1	21 (29.2)	29 (37.2)	
≥2	38 (52.8)	24 (30.8)	
Type of gynaecological cancer			0.012
Corpus uteri	44 (61.1)	29 (37.2)	
Cervical	22 (30.6)	36 (46.2)	
Ovarian and other	6 (8.3)	13 (16.7)	
Stage of cancer			0.038
I	40 (55.6)	50 (64.1)	
II	17 (23.6)	13 (16.7)	
III	13 (18.1)	6 (7.7)	
Unknown	2 (2.8)	9 (11.5)	
Type of treatment			0.735
Surgery only	36 (50.0)	43 (55.1)	
Chemotherapy only	15 (20.8)	16 (20.5)	
Surgery + chemotherapy	9 (12.5)	4 (5.1)	
Surgery + radiation	6 (8.3)	7 (9.0)	
Surgery + chemotherapy	5 (6.9)	7 (9.0)	
Unknown	1 (1.4)	1 (1.3)	
Sexual Function-Vaginal Changes Questionnaire score			
Intimacy	3.87±2.10	5.01±2.28	0.002
Global sexual satisfaction	8.25±1.90	8.32±1.69	0.810
Sexual interest	1.68±0.96	2.10±1.09	0.013
Vaginal changes	13.86±1.68	12.53±2.23	0.084
Sexual function	10.71±1.11	10.87±1.13	0.180
Female Sexual Distress Scale-Revised score	3.44±5.42	5.24±7.16	0.770
ENRICH Marital Satisfaction Scale score	33.71±5.87	35.58±5.14	0.046

* Data are presented as mean ± standard deviation or No. (%) of participants

Results

In total, 150 participants (mean age, 49.0 years) were randomly allocated to the intervention group (n=78) or control group (n=72). The baseline characteristics of the two groups were comparable, except for age, number of children, type of GC, and stage of cancer (Table 1). The two groups were comparable in terms of SVQ global sexual satisfaction, vaginal changes, sexual function subscale scores, and the FSDS-R score. Compared with the control group, the intervention group had significantly higher SVQ intimacy and sexual interest subscale scores, as well as a higher EMS score (Table 1).

Generalised estimating equation analyses revealed a significant group × time interaction in the SVQ vaginal changes subscale score at T3 (B=2.44, 95% confidence interval=0.09-4.78, P=0.041, Table 2), indicating that the intervention group experienced significantly fewer vaginal problems and related concerns during sexual intercourse, compared with the control group. No significant group × time interactions in the subscale scores of intimacy, global sexual satisfaction, sexual interest, and sexual function were observed between the two groups. Notably, women in the intervention group were more likely to perceive greater sexual interest from their partners at T3 (P=0.001), compared with women in the control group. There were no significant group × time interactions in the FSDS-R score for sexual distress or EMS score for marital satisfaction at T1, T2, and T3.

TABLE 2. Generalised estimating equation analyses of sexual function, sexual distress, and marital satisfaction across study time points between intervention and control groups

Outcome	Crude model		Adjusted model	
	B (95% confidence interval)	P value	B (95% confidence interval)	P value
Sexual Function-Vaginal Changes Questionnaire				
Intimacy				
Group	1.14 (0.44 to 1.84)	0.001	0.65 (-0.15 to 1.45)	0.111
T1	0.31 (-0.08 to 0.70)	0.120	0.29 (-0.10 to 0.67)	0.149
T2	0.51 (0.10 to 0.92)	0.015	0.49 (0.08 to 0.90)	0.020
T3	0.62 (0.19 to 1.05)	0.005	0.60 (0.17 to 1.03)	0.007
Group × T1	0.55 (-0.11 to 1.21)	0.103	0.56 (-0.10 to 1.22)	0.098
Group × T2	0.31 (-0.35 to 0.97)	0.353	0.32 (-0.34 to 0.98)	0.342
Group × T3	0.41 (-0.26 to 1.07)	0.234	0.41 (-0.26 to 1.07)	0.235
Global sexual satisfaction				
Group	0.07 (-0.50 to 0.64)	0.809	0.32 (-0.30 to 0.95)	0.307
T1	0.51 (0.07 to 0.95)	0.023	0.51 (0.07 to 0.94)	0.024
T2	0.53 (0.10 to 0.95)	0.015	0.52 (0.10 to 0.95)	0.016
T3	0.44 (-0.03 to 0.91)	0.067	0.43 (-0.04 to 0.90)	0.073
Group × T1	-0.07 (-0.70 to 0.56)	0.824	-0.07 (-0.69 to 0.56)	0.840
Group × T2	-0.63 (-1.30 to 0.040	0.067	-0.62 (-1.29 to 0.05)	0.070
Group × T3	-0.46 (-1.16 to 0.24)	0.195	-0.45 (-1.15 to 0.25)	0.207
Sexual interest				
Group	0.42 (0.10 to 0.75)	0.011	0.16 (-0.14 to 0.46)	0.296
T1	0.06 (-0.17 to 0.29)	0.611	0.04 (-0.19 to 0.27)	0.731
T2	0.12 (-0.10 to 0.34)	0.286	0.10 (-0.12 to 0.32)	0.367
T3	0.09 (-0.14 to 0.32)	0.431	0.07 (-0.16 to 0.29)	0.549
Group × T1	0.01 (-0.38 to 0.40)	0.966	0.02 (-0.37 to 0.41)	0.927
Group × T2	0.04 (-0.30 to 0.37)	0.837	0.04 (-0.29 to 0.38)	0.805
Group × T3	0.07 (-0.29 to 0.42)	0.712	0.07 (-0.28 to 0.42)	0.688
Vaginal changes				
Group	-1.64 (-3.51 to 0.23)	0.085	-2.50 (-4.63 to -0.37)	0.021
T1	1.68 (-0.46 to 3.82)	0.123	1.52 (-0.50 to 3.53)	0.140
T2	-1.02 (-3.12 to 1.08)	0.341	-1.29 (-3.43 to 0.86)	0.238
T3	-1.59 (-3.48 to 0.30)	0.099	-1.83 (-3.77 to 0.12)	0.065
Group × T1	-0.33 (-3.20 to 2.53)	0.820	0.08 (-2.72 to 2.87)	0.957
Group × T2	0.84 (-1.64 to 3.32)	0.505	1.30 (-1.21 to 3.80)	0.310
Group × T3	2.08 (-0.19 to 4.36)	0.073	2.44 (0.09 to 4.78)	0.041
Sexual function				
Group	-0.10 (-1.37 to 1.17)	0.877	0.20 (-1.24 to 1.64)	0.787
T1	-1.11 (-3.19 to 0.97)	0.295	-1.10 (-3.17 to 0.97)	0.299
T2	-1.23 (-2.76 to 0.29)	0.114	-1.22 (-2.77 to 0.33)	0.122
T3	-1.13 (-2.57 to 0.31)	0.125	-1.13 (-2.59 to 0.35)	0.134
Group × T1	-0.34 (-2.73 to 2.06)	0.782	-0.37 (-2.73 to 2.00)	0.761
Group × T2	-0.19 (-1.85 to 1.47)	0.818	-0.18 (-1.85 to 1.49)	0.831
Group × T3	-0.09 (-1.61 to 1.43)	0.905	-0.05 (-1.58 to 1.48)	0.948
Female Sexual Distress Scale-Revised				
Group	0.35 (-0.09 to 0.79)	0.123	0.19 (-0.32 to 0.69)	0.464
T1	0.09 (-0.25 to 0.43)	0.616	0.09 (-0.25 to 0.43)	0.616
T2	0.35 (0.01 to 0.68)	0.042	0.35 (0.01 to 0.68)	0.042
T3	0.46 (0.06 to 0.86)	0.023	0.46 (0.06 to 0.86)	0.023
Group × T1	-0.02 (-0.49 to 0.45)	0.930	-0.03 (-0.50 to 0.44)	0.913
Group × T2	0.02 (-0.51 to 0.56)	0.932	0.02 (-0.52 to 0.55)	0.956
Group × T3	0.19 (-0.39 to 0.78)	0.521	0.18 (-0.41 to 0.76)	0.550
ENRICH Marital Satisfaction Scale				
Group	1.85 (0.04 to 3.66)	0.045	2.21 (0.06 to 4.36)	0.044
T1	0.24 (-0.74 to 1.220	0.629	0.21 (-0.77 to 1.20)	0.670
T2	0.96 (0.00 to 1.92)	0.051	0.93 (-0.04 to 1.89)	0.059
T3	0.51 (-0.40 to 1.42)	0.273	0.48 (-0.44 to 1.39)	0.309
Group × T1	0.22 (-1.06 to 1.49)	0.738	0.22 (-1.05 to 1.50)	0.731
Group × T2	-0.85 (-2.29 to 0.60)	0.251	-0.84 (-2.28 to 0.61)	0.257
Group × T3	-0.62 (-2.20 to 0.95)	0.438	-0.60 (-2.18 to 0.97)	0.453

Of the 66 women who completed the intervention, 42 attended the semi-structured interviews. The mean interview duration was approximately 30 minutes. Content analysis revealed two themes: effective features of the programme and positive experiences in rebuilding sexuality and intimacy (Table 3). Most participants considered the intervention to be useful; they greatly appreciated the informational and psychological support provided by the nurse intervener. Most participants considered that the programme format and delivery were appropriate. Some participants shared positive experiences in improving sexual function, sexual distress, and intimate relationships.

Discussion

Women in the intervention group reported significantly fewer vaginal problems (eg, vaginal dryness and painful sensation during sexual intercourse) and related concerns at 12 months post-treatment, compared with women in the control group. Similarly, a study showed that a nurse-led sexual rehabilitation intervention had a positive effect on overall sexual function in Chinese women who received treatment for cervical cancer.[4] Most participants resumed sexual activity within 1 to >3 years of treatment. These findings suggest that the beneficial effects of sexual rehabilitation

TABLE 3. A summary of themes identified from qualitative content analysis

Theme and code	Sample quote
Effective features of the programme	
Informational support	
Information needs	*I was lost. I didn't know what I could or could not do, what I could or could not eat. I learned more by talking to the nurse intervener. Now I know what is good for me, for example, exercise. And I know what I can't eat. I think this programme is very good and important. I was lucky to be able to ask her [the nurse intervener]. I feel relieved now.*
Credible and personalised information	*During follow-up with the nurse [intervener], she can explain things to me because she has taken care of many patients. She can help me in many ways. There is a lot of information online, but some may not be credible. In this programme, I can ask a professional directly.*
Psychological support	
Uncertainty	*There are many uncertainties and concerns that can cause patients to worry. This programme can support them. It's very helpful.*
Someone to share feelings with	*I am suffering from this disease. I don't want my friends and family to worry about me. I could talk about this with someone [the nurse intervener]. It's like counselling and making a new friend. I feel more at ease.*
Relief from negative emotions	*Whenever I met the nurse [intervener], it made me feel good and relaxed. I realised that it's not really a big deal. I feel as if someone supports me.*
Appropriate format and delivery	
Format and schedule	*If possible, I wish I could share more with the nurse [intervener] in the future. Sometimes I want to share my true feelings, but I may not be able to share them with others. They may not understand, but the nurse [intervener] does.*
Importance of nurse intervener	*When it comes to sexual life, you simply don't want to share with someone you know. But if there is a health professional, I am more at ease. It would be embarrassing to share it with a male attending doctor... but that's not the case for female nurses. She [the nurse intervener] understands my situation and struggle from a woman's perspective.*
Positive experiences in rebuilding sexuality and intimacy	
Sexual function	
Sexual difficulties	*For example, vaginal dryness and other sexual difficulties that the nurse [intervener] mentioned. When I had sexual intercourse, I encountered these [difficulties].*
Coping strategies	*Yes, it is a bit dry. Then I tried the gel that the nurse intervener recommended. It works.*
Sexual distress	
Fear of resuming sexual activity	*Some women, like me, were hesitant to resume sexual activity due to fear of pain or fear of infection.*
Clearing up misconceptions	*The nurse intervener explained that the pain was caused by [vaginal] contraction. She also told me how to solve this problem. I know there is something that can help relieve the pain. So I don't think it's a big deal anymore.*
Intimate relationships	
Sexual expression	*Sometimes, we hug and kiss each other. We say "I love you" to each other more. Things like that. We are happy [with our relationship] even without physical intimacy.*
Communication	*After hearing from the nurse intervener, I learned how to communicate better with my partner. Before this programme, we didn't know how to communicate well.*

interventions may require a long interval to become apparent. Additionally, partners play an important role in the abilities of patients with GC to adjust to sexual changes. Compared with control participants, intervention participants perceived greater sexual interest from their partners at 12 months post-treatment; however, only 20 (30.3%) of 66 intervention participants' partners attended the sessions. Future research should include participants' partners and a longer follow-up.

This study did not demonstrate a significant intervention effect on sexual distress. However, sexual distress was extremely low in both groups of participants at all time points, indicating that the participants did not worry about sexual relationships or function. Additionally, nearly half of participants were sexually inactive after treatment. This low level of sexual distress and high prevalence of sexual inactivity might be attributed to Chinese culture, which emphasises abstinence from sexual activity while recovering from illness, and the Confucian perspective that sexuality primarily serves a reproductive function.[5]

This study did not show a significant intervention effect on marital satisfaction. At baseline, both groups of participants regarded their marital relationships as somewhat satisfactory to mostly satisfactory. The inclusion criterion of having a regular sexual partner might have introduced recruitment bias, such that only women with satisfying sexual relationships were recruited.

The qualitative findings complemented the quantitative findings. First, the significant improvement in vaginal problems was consistent with the qualitative finding that participants reported relief from vaginal dryness when using the vaginal lubricant recommended by the nurse intervener. Second, although quantitative analysis did not show significant improvements in sexual distress and marital relationships, qualitative analysis revealed that some women had lower sexual distress and better intimate relationships with their partners because of support they received from the nurse intervener. Third, the qualitative findings suggested that in addition to sexual concerns, the intervention can help to address women's informational and psychological needs.

Limitations of this study included over-representation of patients with early-stage GC, the small number of partners who attended intervention sessions with the participants, the lack of qualitative data regarding partners' opinions, the small proportion of participants who reported resuming sexual activity within 6 months post-treatment, and the unknown cost-effectiveness of the programme.

Conclusion

Our findings suggest that sexual rehabilitation interventions delivered by trained nurses should be included in routine clinical practice for patients with gynaecological cancer in Hong Kong.

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