Supportive Care in Cancer (2020) 28:5813–5819
https://doi.org/10.1007/s00520-020-05423-y

ORIGINAL ARTICLE

Attachment style and body image as mediators between marital adjustment and sexual satisfaction in women with cervical cancer

Maria do Rosário Ramos Nunes Bacalhau[1,2] · Susana Pedras[3] · Maria da Graça Pereira Alves[1]

Received: 22 November 2019 / Accepted: 17 March 2020 / Published online: 1 April 2020

Abstract

Purpose The majority of cervical cancer survivors face persisting sexual debilitating problems over time. The impairment in sexual function and satisfaction are not limited to physical dimensions. The goals of this study were to assess if marital adjustment and body image mediated the relationship between attachment style, sexual functioning, and sexual satisfaction.

Methods This study used a cross-sectional design. The sample included 113 sexually active women that completed the EORTC QLQ C30 and EORTC QLQ CX24, the Index of Sexual Satisfaction, the Experiences in Close Relationships Scale, and the Revised Dyadic Adjustment Scale.

Results Using structural equation modeling to describe the relationship between variables, an excellent fitted model was found: $X^2_{(5)} = 6.309$ ($p = 0.277$); $X^2/df = 1262$; GFI = 0.982; CFI = 0.986; SRMR = 0.0475; RMSEA = 0.048; P (RMSEA< 0.05) = 0.429. Sexual/vaginal functioning and avoidance had a direct effect on sexual satisfaction. Marital adjustment was a partial mediator in the relation between avoidance and sexual satisfaction. Avoidance and anxious attachment had an indirect effect on sexual satisfaction mediated by marital adjustment. Body image was a partial mediator in the relationship between marital adjustment and sexual satisfaction.

Conclusions The results showed that vaginal/sexual functioning, attachment style, marital adjustment, and body image were important predictors of sexual satisfaction. Psychoeducational programs to help patients deal with the impairment of sexual/vaginal functioning, as well as emotional support programs for couples to strengthen their marital relationship, need to be implemented, i.e., the couple's intimacy and women's body image, that have a clear impact on sexual satisfaction.

Keywords Oncology · Cancer · Cervical · Sexual · Satisfaction · Attachment · Marital satisfaction · Body image

Introduction

Cervical cancer has represented a major public health problem worldwide. Each year there are about 500,000 new cases and over 270,000 deaths due to this disease [1]. In Portugal, it is the fourth most common oncological disease in women, with an incidence of 14.8 per 100,000 inhabitants. Compared with other types of gynecological cancer, cervical cancer affects younger women; the average age at diagnosis is approximately fifty. After successful treatment, women with cervical cancer have an average expectation of additional life of 25–30 years; therefore, they will have to live with any problems caused by the diagnosis and treatments [2]. Adverse effects of treatment, whatever the staging of cervical cancer, are plentiful and often remain throughout life [3].

The majority of gynecologic cancer survivors face persisting sexual debilitating problems over time [4]. All of the treatment modalities used to effectively treat cancer, have the potential to significantly impair sexual function, being an unsolved problem that causes distress in cancer survivors [5], with repercussions on the quality of life, affecting up to 50% of patients whose impairment is more durable after treatment for gynecological cancer [6].

Changes in female sexuality in women with gynecological cancer, at the anatomical and physical level, are well

✉ Susana Pedras
susanapedras@gmail.com

[1] Escola de Psicologia, Universidade do Minho, 4710-057 Braga, Portugal

[2] Instituto Português de Oncologia de Lisboa, R. Prof. Lima Basto, 1099-023 Lisbon, Portugal

[3] Centro de Investigação em Psicologia e Desenvolvimento, Instituto de Psicologia e Ciências da Educação, Universidade Lusíada-Norte, Rua Dr. Lopo de Carvalho, 4369-006 Porto, Portugal

established, including anatomical changes such as vaginal shortening, vaginal elasticity; and physical changes, such as dyspareunia, infertility, and post-coital vaginal bleeding [7]; and other changes related to sexual response, arousal, and excitement, including changes in desire, orgasm and arousal, and vaginal lubrication, as well as the decrease in frequency of sex and sexual activities [8]. Women's experience of sexuality is not limited to its physical dimensions and is influenced by the social construction of sexuality and illness [8]. According to research, the effects of gynecologic cancer and its treatment are not limited to physical dimensions. The relational experience can be affected producing an impact on the couple's relationship [9]. Relationship context and support from partners has been found to be the major factor that contributes to recovery following cancer [10]. Furthermore, marital therapy has been found to promote communication, intimacy, and relationship satisfaction, resulting in an increasing sexual satisfaction [11].

Attachment style has been described as a stable pattern whereby the person relates to a bonding figure that provides physical and psychological protection [12]. Threats such as illness, pain, or stressors (like divorce), will activate attachment behavior, such as seeking proximity to the caregiver (partner) in order to reestablish and maintain the bond [13]. Different studies have examined the role of attachment in health outcomes. Porter and collaborators [14] found, among lung patients, that those with high anxiety or avoidance attachment reported higher levels of anxiety and poorer social well-being, and that avoidance attachment was also associated with higher levels of depression and poorer marital quality and functional well-being. Granot, Zisman-Ilani, Ram, Goldstick, and Yovell [15] found that women with dyspareunia presented a greater incidence of anxiety and/or avoidance as well as higher somatization levels, when compared with healthy women. Also, higher levels of avoidance predict dyspareunia. Those findings suggest that women with an insecure attachment style are more susceptible to report pain during intercourse. In addition, the literature revealed that attachment-related anxiety was correlated with negative emotions among patients with cancer that may influence perceptions of physical well-being [16]. Attachment-related anxiety in close relationships is associated with lower physical quality of life among gynecological cancer survivor [17].

When marital adjustment was assessed by the Dyadic Adjustment Scale, the results in patients with gynecological cancer, although consistent with the normative values for non-clinical married women, in women with gynecological cancer, the results were at the lower end of the range [18]. Regarding the stability of romantic relationships after diagnosis, there seems to be a significant increased risk for divorce among survivors of cervical cancer, probably due to the relatively young age at diagnosis in combination with the impact on women's fertility as a result of the treatments for this type of cancer. Younger age and nulliparity are known factors for increasing the risk of divorce, and in cervical cancer patients, the risk estimate of divorce reaches statistical significance [19]. In addition, the treatment of cervical cancer can also affect body image and sexual life, which may lead to marital disharmony and may contribute to a higher risk of divorce [20]. Despite the fact that gynecological cancer patients have to deal with a large number of physical changes, they do not necessarily report poorer sexual satisfaction or sexual desire [20], supporting those findings of earlier qualitative studies in which sexual satisfaction after cancer treatment was associated with intimacy rather than intercourse [10]. Carter and collaborators' [21] findings suggest that body image and relationship quality may place women with gynecological cancer at higher risk for sexual difficulties. Women with a poorer body image or greater fear of sex may be at a higher risk of sexual dysfunction since, in the case of a cervical abnormality, women's self-perceived femininity may be diminished as a consequence of a reproductive disorder related to treatments [22].

Sexual satisfaction is very complex and is associated with the intimate relationship as well as with factors related to social support and family relationships, being a key factor in individuals' sexual health and overall wellbeing [23]. Individuals with a satisfactory relationship and those with greater sexual communication and assertiveness reported greater sexual satisfaction [24]. Satisfaction with the relationship is not associated with demographic variables or clinical characteristics of survivors [25]. According to Sekse, Hufthammer, and Vika [26] almost two-thirds of survivors of cervical cancer were sexually active; however, more than a half reported not being satisfied or being less satisfied with their sexual activity.

The adult attachment theory has been shown to explain health-related behavior and outcomes [13] in cancer patients. The theoretical framework for investigating relationship processes and health [27] is a prototypical dyadic relationship in which relationship orientations (attachment style) can shape dyadic processes. Dyadic processes include *relationship behaviors* (e.g., support seeking, caregiving) and *relationship mediators and outcomes* (e.g., partner responsiveness, relationship satisfaction, commitment), which can mutually influence each other. In this paper, the focus is on how attachment and dyadic processes contribute to health-related processes and outcomes, in the patient's perspective. According to the model, attachment style is a predictor of sexual satisfaction and marital adjustment, which may act as a buffer in the relationship between attachment style and sexual satisfaction. However, in women with cervical cancer, no study, to our knowledge, has addressed the relationship between attachment style and sexual satisfaction having marital adjustment and body image as mediators, after treatment. Therefore, the goals of this study were to assess if marital adjustment and

body image mediated the relationship between attachment style, sexual functioning, and sexual satisfaction. We hypothesize that body image will mediate the relationship between sexual functioning and sexual satisfaction and that marital satisfaction will be a mediator in the relationship between attachment style and sexual satisfaction.

Materials and methods

Study design and patient population

Following approval from the ethical committee of the major cancer hospital in southern Portugal, a cross-sectional study was performed. Eligible participants were identified and invited by their physician, and those who accepted to participate signed the informed consent after having been provided oral and written information regarding the purpose and procedures of the study. Eligibility criteria included histological diagnosis of cervical carcinoma, age ≥ 18 years, absence of psychiatric disorder, having completed treatment, and being in gynecological follow-up appointments. All women were asked to answer the questionnaires before or after their follow-up appointment. A group of 150 patients were invited to participate, and from these, 6.7% ($N = 10$) declined to participate, because they did not have time to answer the questionnaires. From the remaining group, 18% ($N = 27$) were excluded from the analysis since they were not sexually active. The sample included 113 women diagnosed with cervical cancer. No differences in sociodemographic and clinical characteristics were found.

Measures

Sexual satisfaction The Index of Sexual Satisfaction (ISS) is a one-dimensional scale to assess sexual satisfaction in the context of the couple relationship containing 25 items [28]. The scores range from 0 to 100, with lower scores indicating greater degree of sexual satisfaction. In the present study, the Cronbach's alpha was 0.92.

Attachment style in romantic relationships Adult attachment was measured with the short form of the Experiences in Close Relationships Scale (ECR), a twelve-item scale that includes six items measuring avoidance and six items measuring anxiety [29]. High scores in each subscale indicate more anxious or avoidant attachment style, respectively. In the present study, Cronbach's alpha was 0.77, for both scales.

Marital adjustment Marital adjustment was measured with the Revised Dyadic Adjustment Scale (RDAS) [30]. The RDAS is a standardized 14–item self-report measure of marital functioning and relationship quality. The instrument includes three subscales (consensus, satisfaction, and cohesion), and a global score of dyadic adjustment. Lower scores indicate higher marital distress. The Portuguese version in cancer patients showed a Cronbach's alpha, for the overall scale, of 0.85.

Body image, symptoms experience, and sexual and vaginal functioning The EORTC Cervical Cancer Module (QLQ-CX24) [31] assesses the impact of cervical cancer treatment. This scale includes 24 items consisting of three multi-item scales (symptoms experience, body image, and sexual and/or vaginal functioning) and six single-item scales. A high score indicates more symptoms, worse body image, and sexual/vaginal functioning, respectively. In the present study, only the three multi-item scales were used, and Cronbach's alphas were: 0.72, 0.86, and 0.87, respectively, for symptoms experience, body image, and sexual and/or vaginal functioning.

The demographic and clinical questionnaire gathered information on women's age, educational level, marital status, time since diagnosis, time post treatment, stage of disease, and type of treatment.

Statistical analysis

Patient demographics and clinical data were summarized using descriptive statistics. Pearson correlation coefficient was used to test correlations between variables. To explore the relationships between attachment, sexual functioning, marital adjustment, body image, and sexual satisfaction, a path analysis was tested. Initially, the model included demographic characteristics such as age, stage of disease, type of treatment, duration of diagnosis, and time post treatment, as well as symptom experience scale, to control for these covariables. Since none was statistically significant in the model, they were removed according to a stepwise approach. The model was assessed using goodness of fit indices: non-significant chi-square, goodness-of-fit statistic (GFI), comparative fit index (CFI), standardized root mean square residual (SRMR), and root mean square error approximation (RMSEA). Adequate fit was defined as chi-square p value over 0.05, relative chi-square below 2, GFI and CFI over 0.95, SRMR below 0.08, and RMSEA below 0.07 [32]. Standardized beta coefficients (β) were derived for each explanatory variable in order to allow the relative importance of each measure. All standard statistical analyses were done using the IBM SPSS Statistics 25, while path analyses were performed in IBM SPSS Amos 25, and p values < 0.05 were considered statistically significant.

Results

All the 113 participants had a cervical cancer diagnosis and were sexually active with their partner. Aged range between 23 and 67 years old (M = 48.04; SD = 10.41). Patients'

education was, on average, 9.8 years (SD = 3.94). In terms of disease progression, 47.8% were at the first stage (FIGO 0 and I). The sample characteristics are shown in Table 1.

Relationships among all variables

Descriptive statistics and correlations between variables are shown in Table 2.

In order to explore the relationships among the different variables, the significant correlations were considered (see Table 2). The multivariate linear regression final model showed a good global adjustment: $X^2_{(5)} = 6.309$ ($p = 0.277$); $X^2/df = 1.262$; GFI = 0.982; CFI = 0.986; SRMR = 0.0475; RMSEA = 0.048; P (RMSEA< 0.05) = 0.429 (Fig. 1). The indirect effects are summarized in Table 3.

The final model showed that sexual and vaginal functioning ($\beta = 0.183$; $p < 0.05$) had a direct effect on sexual satisfaction. Avoidance attachment had a direct effect on sexual satisfaction ($\beta = 0.243$; $p < 0.01$) and an indirect effect mediated by marital adjustment ($\beta = 0.092$; $p < 0.01$). Thus, marital adjustment was a partial mediator in the relation between avoidance and sexual satisfaction. Anxious attachment had an indirect effect on sexual satisfaction mediated by marital adjustment ($\beta = 0.123$; $p < 0.01$). Anxious attachment had an indirect effect on body image mediated by marital adjustment ($\beta = 0.144$; $p < 0.01$). Otherwise, marital adjustment had a direct effect on sexual satisfaction ($\beta = -0.219$; $p < 0.01$) and an indirect effect mediated by body image ($\beta = -0.069$; $p < 0.05$). Thus, body image was a partial mediator in the relationship between marital adjustment and sexual satisfaction.

Table 1 Sociodemographic and clinical characteristics ($N = 113$)

Continuous variables	N	%	Mean (SD)	Range
Patient age			48.04(10.41)	23–67
Partner's age			48.52(12.15)	22–80
Patient's formal education (yr)			9.79(3.94)	0–17
Time since diagnosis (month)			23.61(15.19)	0–80
Time post treatment (month)			19.37(15.45)	0–75
Categorical variables				
Marital status				
Single	5	4.4		
Married	103	91.2		
Widowed	2	1.8		
Divorced	3	2.7		
Stage (FIGO)				
In situ	32	28.3		
I	22	19.5		
II	54	47.8		
III	4	3.5		
IV	1	0.9		
Treatment				
Surgery	59	52.2		
Surgery and radiation	15	13.3		
Surgery and chemoradiation	8	7.1		
Radiation	3	2.7		
Chemoradiation	28	24.3		

Discussion

The goal of this study was to assess the mediating roles of body image and marital adjustment in women's satisfaction with their sexuality after ending cervical cancer treatments. The results showed that the final path analysis model is consistent with the theoretical framework for investigating relationship processes and health by Pietromonaco et al. [27], in which, attachment style is a predictor of sexual satisfaction, and marital adjustment is a buffer in the relationship between attachment style and sexual satisfaction. In fact, avoidance attachment style predicts sexual satisfaction, and marital adjustment mediated the relationship between attachment style (both, anxious and avoidance attachment style) and sexual satisfaction.

The positive correlation between attachment style and sexual and vaginal functioning was expected since physical discomfort tends to promote avoidance or anxious behaviors. In fact, women suffering from genital pain indicate that it negatively affects their ability to feel close and show affection to their partners [33].

As in the relational processes and health model, the physiological variables were predictors of health and disease outcomes; however, our results showed that the relationship between sexual and vaginal functioning (physiological variables) and sexual satisfaction (health and disease outcomes) were not mediated by dyadic process. The direct effect of sexual and vaginal functioning on sexual satisfaction may be due to the major constraints that cervical cancer patients had to face, which may increase difficulties or even prevent sexual intercourse.

Several studies disclosed that disruptions to sexual well-being were related to the effects of cancer treatment, including anatomical changes, such as vaginal shortening, reduced vaginal elasticity, pelvic nerve damage, and vaginal stenosis, and physical changes, such as decreased bodily function, dyspareunia, and post-coital vaginal bleeding [7]. Another study disclosed that in ovarian cancer patients, the more physical symptoms a woman experienced, the less sexual desire and satisfaction she reports, and more symptoms were associated with lower sexual functioning or satisfaction, greater discomfort, and lower sexual activity [34]. When comparing cervical cancer survivors to the general population, cervical cancer survivors presented more severe symptoms, poorer body image, lower sexual and/or vaginal functioning, and more

Table 2 Description of study variables and their correlations ($N = 113$)

	Mean (SD)	Min. score	Max. score	1	2	3	4	5	6
1. ISS	28.38(19.22)	0	78	-	− 0.402**	0.297**	0.347**	0.352**	0.255**
2. RDAS	52.73(10.47)	6	69		-	− 0.514**	− 0.441**	− 0.297**	− 0.148
3. ECR – anxiety	2.56(2.09)	0.86	11.14			-	0.268**	0.254**	0.135
4. ECR – avoidance	2.10(1.35)	1.0	7.0				-	0.199*	0.111
5. QLQ-CX24 – body image	19.08(25.91)	0	100					-	0.181
6.QLQ-CX24 – sexual/vaginal functioning	27.37(26.57)	0	100						-

ISS, the Index of Sexual Satisfaction; *ECR*, Experiences in Close Relationships Scale; RDAS, Revised Dyadic Adjustment Scale; *EORTC Cervical Cancer Module (QLQ-CX24),* body image and sexual functioning scales; Pearson's correlation coefficient

*$p < .05$

**$p < 0.01$

sexual concerns. In addition, higher levels of sexual distress were related to higher levels of vaginal sexual symptoms, relationship dissatisfaction, sexual intercourse pain, and body image concerns [35].

A good marital adjustment has a positive effect on sexual satisfaction, and a satisfactory marital adjustment is a predictor of a higher sexual satisfaction that is also related to a good relationship, sexual communication, and assertiveness [24]. In the present study, women with a better marital adjustment and a positive body image showed higher sexual satisfaction. Women with a better perception of body image showed better sexual satisfaction. In fact, gynecological cancer patients have reported that sexuality and body image after diagnosis and treatment had a negative impact on their intimate relationships [36]. Moreover, the negative impact of an altered body image that affects sexual life may lead to marital dissatisfaction in women with breast cancer, whereas body image predicted sexual interest and satisfaction [37].

According to the results, higher avoidance attachment behavior was associated with lower sexual satisfaction in cervical cancer patients; however, when marital adjustment was higher so was sexual satisfaction, and the quality of the relationship mediated the relationship between the attachment style and sexual satisfaction. According to attachment theoretical models, individuals who are high in attachment avoidance are overly self-reliant, tend not to self-disclosure, and prefer to maintain relational distance from others ; whereas individuals who are low in avoidance are comfortable being close to and depend on others, as well as allowing others to depend on them [38], and this relational bond may downplay distress [16], and in secure relationships, women may feel more satisfaction with intimacy. In fact, the relationship context contributes to recovery following cancer [10]. High attachment anxiety behavior is associated to partners' availability, responsiveness, and attentiveness, and those with low attachment anxiety report more trust that their partners will be available to them and responsive [38]. In addition, high attachment anxiety behavior is related to patients' beliefs that enough care from significant others are unlikely and that one is unworthy of care [39]. In the present study, marital adjustment was a

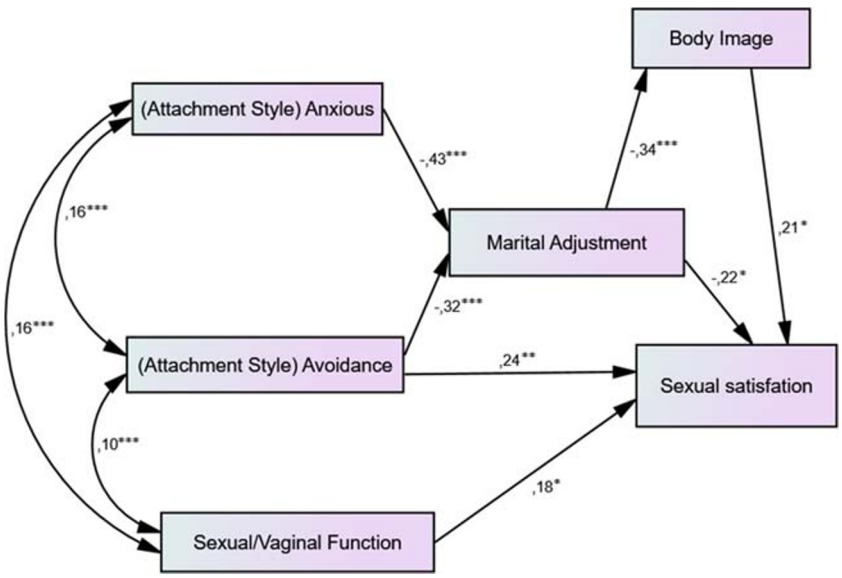

Fig. 1 Path analysis with standardized direct effects and correlations. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$, Fit indices: $X^2_{(5)} = 6.309$ ($p = .277$); $X^2/df = 1262$; GFI = .982; CFI = 0.986; SRMR = 0.0475; RMSEA = 0.048; P (RMSEA < 0.05) = 0.429

Table 3 Standardized indirect effects for the mediation (N = 113)

Predictors	Mediator	Outcome	Indirect Effect	95% CI	
				Lower	Upper
Anxious attachment	Marital adjustment	Sexual satisfaction	0.123	0.031	0.239
Avoidance attachment	Marital adjustment	Sexual satisfaction	0.092	0.021	0.186
Marital adjustment	Body image	Sexual satisfaction	− 0.069	− 0.170	− 0.017

*$p < 0.05$

**$p < 0.01$

$CI_{95\%}$ = bias-corrected bootstrap confidence interval at 95% (1000 samples)

mediator between anxious attachment and sexual satisfaction, indicating that when women feel they have a good marital relationship, they rate their sexual satisfaction better. Dyadic process (marital satisfaction) has an important mediator role, and, in the present study, marital satisfaction fully mediated the bonds between anxious attachment style (relationships orientation variables) and body image. Research on interpersonal relationships suggests that feeling close to one's partner may also shape a person's view of the self [40], and in this study, results revealed that when women had a perception of a good marital relationship, they also presented a more positive image of their body, even when they have an anxious attachment style. Body image did not prove to be a mediator between sexual/vaginal functioning and sexual satisfaction as we hypothesized.

The impairment in sexual functioning had a direct effect and was a predictor of sexual satisfaction. However, the mediator role of body image on the relationship between marital adjustment and sexual satisfaction revealed that marital adjustment predicted a better perception of body image (a high scores indicate worse body image) that in turn predicted better sexual satisfaction (a higher score indicates less sexual satisfaction). These findings emphasize the importance of body image on sexual satisfaction.

Conclusions

The results revealed that vaginal and/or sexual functionality, attachment style, marital adjustment, and body image were important predictors of sexual satisfaction. Therefore, intervention should focus on marital adjustment and body image in women with cervical cancer, particularly those with anxiety and avoidant attachment styles, in order to increase sexual satisfaction. In terms of the theoretical framework for investigating dyadic relationship processes and health, the results corroborate the mediator role of marital adjustment in the relationship between attachment style and sexual satisfaction but not between sexual functioning and sexual satisfaction. This study revealed the importance of the role of body image in pathologies that are not visible to others, such as cervical cancer.

Clinical implications

Taking the results into consideration, it is important to develop psychoeducational programs to help patients deal with the impairment of sexual and vaginal functioning, as well as emotional support programs for couples to strengthen their marital relationship, i.e., the couple's intimacy and the women's body image that have a clear impact on sexual satisfaction.

Limitations and future implications

This study has limitations that need to be acknowledged such as the number of women in FIGO stage and the cross sectional nature of the design. A longitudinal design may provide more information about sexual satisfaction before and after treatment. Future studies should address satisfaction with the communication between the couples and include partners' perspective regarding sexual satisfaction.

Compliance with ethical standards

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

The study was approved by the Administration Council of the Portuguese Institute of Oncology Francisco Gentil (Lisbon) after positive agreement of the Research Council and Ethical Committee (number UIC/939).

References

1. Jemal A, Siegel R, Ward E, Murray T, Xu J, Thun MJ (2007) Cancer statistics, 2007. CA Cancer J Clin 57:43–66
2. Vistad I, Fosså SD, Dahl AA (2006) A critical review of patient-rated quality of life studies of long-term survivors of cervical cancer. Gynecol Oncol 102:563–572
3. Mirabeau-Beale KL, Viswanathan AN (2014) Quality of life (QOL) in women treated for gynecologic malignancies with radiation therapy: a literature review of patient-reported outcomes. Gynecol Oncol 134:403–409

4. Ratner ES, Foran KA, Schwartz PE, Minkin MJ (2010) Sexuality and intimacy after gynecological cancer. Maturitas 66:23–26
5. Bober SL, Varela VS (2012) Sexuality in adult cancer survivors: challenges and intervention. J Clin Oncol 30:3712–3719
6. Carpenter KM, Andersen BL, Fowler JM, Maxwell GL (2009) Sexual self-schema as a moderator of sexual and psychological outcomes for gynecologic cancer survivors. Arch Sex Behav 38: 828–841
7. Pieterse QD, Kenter GG, Maas CP, de Kroon CD, Creutzberg CL, Trimbos JB, Ter Kuile MM (2013) Self-reported sexual, bowel and bladder function in cervical cancer patients following different treatment modalities: longitudinal prospective cohort study. Int J Gynecol Cancer 23:1717–1725
8. Gilbert E, Ussher JM, Perz J (2011) Sexuality after gynecological cancer: a review of the material, intrapsychic, and discursive aspects of treatment on women sexual wellbeing. Maturitas 70:42–57
9. Burns M, Costello J, Ryan-Woolley B, Davidson S (2007) Assessing the impact of late treatment effects in cervical cancer: an exploratory study of women's sexuality. Eur J Cancer Care 16: 364–372
10. Juraskova I, Butow P, Robertson R, Sharpe L, McLeod C, Hacker N (2003) Post - treatment sexual adjustment cervical and endometrial cancer following: a qualitative insight. Psychooncology 12:267–279
11. Botlani S, Shahsiah M, Padash Z, Ahmad A, Bahrami F (2012) The effect of attachment-based therapy on couples' attachment style, sexual intimacy and sexual satisfaction. IJCRB 3:375–390
12. Berman WH, Sperling MB (1994) The structure and function of adult attachment. In: Sperling MB, Berman WH (eds) Attachment in adults – clinical and developmental perspectives. Guildford Press, Nova Iorque, pp 3–28
13. Mikulincer M, Shaver PR (2007) Attachment in adulthood: structure, dynamics, and change. Guilford Press, New York
14. Porter LS, Keefe FJ, Davis D, Rumble M, Scipio C, Garst J (2012) Attachment styles in patients with lung cancer and their spouses: associations with patient and spouse adjustment. Support Care Cancer 20:2459–2466
15. Granot M, Zisman-Ilani Y, Ram E, Goldstick O, Yovell Y (2011) Characteristics of attachment style in women with dyspareunia. J Sex Marital Ther 37:1–16
16. Cicero V, Lo Coco G, Gullo S, Lo Verso G (2009) The role of attachment dimensions and perceived social support in predicting adjustment to cancer. Psychooncology 18:1045–1052
17. Hsieh CC, Chen CA, Hsiao FH, Shun SC (2014) The correlations of sexual activity sleep problems, emotional distress, attachment styles with quality of life: comparison between gynecological cancer survivors and noncancer women. J Clin Nurs 23:985–994
18. Hodgkinson K, Butow P, Fuchs A, Hunt GE, Stenlake A, Hobbs KM, Brand A, Wain G (2007) Long-term survival from gynecologic cancer: psychosocial outcomes, supportive care needs and positive outcomes. Gynecol Oncol 104:381–389
19. Carlsen K, Dalton SO, Frederiksen K, Diderichsen F, Johanse C (2007) Are cancer survivors at an increased risk for divorce? A Danish cohort study. Eur J Cancer 43:2093–2099
20. Juraskova I, Butow P, Bonner C, Robertson R, Sharp L (2013) Sexual adjustment following early stage cervical and endometrial cancer: prospective controlled multi-centre study. Psychooncology 22:153–159
21. Carter J, Huang H, Chase DM, Walker JL, Cella D, Wenzel L (2012) Sexual function of endometrial cancer patients enrolled on the gynecologic oncology group LAP2 study. IJGC 22:1624
22. Herzog TJ, Wright JD (2007) The impact of cervical cancer on quality of life: the components and means for management. Gynecol Oncol 107:572–577
23. Sánchez-Fuentes M, Santos-Iglesias P, Sierra JC (2014) A systematic review of sexual satisfaction. IJCHP 14:67–75
24. Henderson AW, Lehavot K, Simoni JM (2009) Ecological models of sexual satisfaction among lesbian/bisexual and heterosexual women. Arch Sex Behav 38:50–65
25. Stafford L, Judd F (2010) Partners of long-term gynaecologic cancer survivors: psychiatric morbidity, psychosexual outcomes and supportive care needs. Gynecol Oncol 118:268–273
26. Sekse RJT, Hufthammer KO, Vika ME (2016) Sexual activity and functioning in women treated for gynaecological cancers. J Clin Nurs 26:400–410
27. Pietromonaco PR, Uchino B, Dunkel Schetter C (2013) Close relationship processes and health: implications of attachment theory for health and disease. Health Psychol 32:499
28. Hudson W (1998) Index of sexual satisfaction. In: Davis C, Yarber W, Bauserman R, Schreer G, Davis S (eds) Handbook of sexuality-related measures. Sage Publications, Thousand Oaks, pp 512–513
29. Wei M, Russell DW, Mallinckrodt B, Vogel DL (2007) The experiences in close relationship scale (ECR)-short form: reliability, validity, and factor structure. J Pers Assess 88:187–204
30. Busby DM, Christensen C, Crane DR, Larson JH (1995) A revision of the dyadic adjustment scale for use with distressed and nondistressed couples: construct hierarchy and multidimensional scales. JMFT 21:289–308
31. Greimel ER, Kuljanic Vlasic K, Waldenstrom AC, Duric VM, Jensen PT, Singer S, Chie W, Nordin A, Bjelic Radisic V, Wydra D (2006) The European Organization for Research and Treatment of Cancer (EORTC) quality-of-life questionnaire cervical cancer module. Cancer 107:1812–1822
32. Hooper D, Coughlan J, Mullen M (2008) Structural equation modelling: guidelines for determining model fit. EJBRM 6:53–60
33. Ponte M, Klemperer E, Sahay A, Chren MM (2009) Effects of vulvodynia on quality of life. J Am Acad Dermatol 60:70–76
34. Carmack Taylor CL, Basen-Engquist K, Shinn EH, Bodurka DC (2004) Predictors of sexual functioning in ovarian cancer patients. J Clin Oncol 22:881–889
35. Bakker RM, Kenter GG, Creutzberg CL, Stiggelbout AM, Derks M, Mingelen W, Kroon CD, Vermmer WM, Ter Kuile MM (2016) Sexual distress and associated factors among cervical cancer survivors: a cross-sectional multicenter observational study. Psychooncology 26:1470–1477
36. Sacerdoti RC, Lagana L, Koopman C (2010) Altered sexuality and body image after gynecological cancer treatment: how can psychologists help? Prof Psychol Res Pract 41:533–540
37. Ganz PA, Desmond KA, Belin TR, Meyerowitz BE, Rowland JH (1999) Predictors of sexual health in women after a breast cancer diagnosis. J Clin Oncol 17:2371–2371
38. Beck LA, Pietromonaco PR, DeVito CC, Powers SI, Boyle AM (2014) Congruence between spouses' perceptions and observers' ratings of responsiveness the role of attachment avoidance. Personal Soc Psychol Bull 40:164–174
39. Mikulincer M, Shaver PR (2005) Attachment theory and emotions in close relationships: exploring the attachment-related dynamics of emotional reactions to relational events. Pers Relat 12:149–168
40. Drigotas SM, Rusbult CE, Verette J (1999) Level of commitment, mutuality of commitment, and couple well-being. Pers Relat 6:389–409