

## Sexual Function in Cervical Cancer Survivors after Concurrent Chemoradiotherapy

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### Abstract

**Background:** This study evaluated sexual function in cervical cancer survivors after concurrent chemoradiotherapy.

**Methods:** Study participants comprised survivors of locally advanced cervical cancer (stages IIB-IVA) who completed concurrent chemoradiotherapy along with intracavitary brachytherapy at least two years prior at Dr S.N. Medical College, Jodhpur, Rajasthan, India. We used the Female Sexual Function Index questionnaire to assess sexual function. The cut-off score of the Female Sexual Function Index that identified female sexual arousal disorder was 26.55. A score less than 26.55 indicated the presence of female sexual arousal disorder.

**Results:** A total of 48 locally advanced cervical cancer survivors enrolled in the study. Survivors had a mean age of 46.5 years. All received chemoradiotherapy along with intracavitary brachytherapy. The average time for treatment was 53.5 days. Patients had an average score for sexual desire of 2, 2.3 for arousal, 2.3 for sexual satisfaction, and 2.1 for pain during intercourse. The overall average score was 11.84 (range: 3.2-19.5) with a cut-off of 26.55. All survivors suffered from female sexual arousal disorder.

**Conclusion:** Cervical cancer survivors had decreased sexual function which indicated female sexual arousal disorder. Patient education and active treatment of complications related to cancer treatments is a must for improvement of sexual function among survivors. Long-term complications should be considered in terms of treatment planning and follow-up treatment to improve the quality of life of cancer survivors.

**Keywords:** Cervical cancer, Sexual arousal disorder, Radiotherapy

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### Introduction

Cervical cancer is the most common cancer cause of death

among women in developing countries.<sup>1</sup> Annually in India, 122,844 women receive a diagnosis of

cervical cancer and 67477 die from the disease.<sup>2</sup> It is the second most common cancer in women aged 15-44 years.<sup>2</sup> Most cases (85%) present in advanced and late stages; more than half (63%–89%) have regional disease at the time of presentation.<sup>3</sup>

Treatment of choice for most patients with locally advanced disease is radiation therapy using a combination of external beam irradiation and brachytherapy. Surgery is effective in earlier stages of cervical carcinoma. However in India, the presentation of the cervical cancer patient is usually late, which makes surgical intervention not feasible. Hence radiotherapy remains the main modality of treatment with or without concurrent chemotherapy.<sup>4</sup> Complications of radiotherapy include small bowel complications (obstruction, bleeding, stricture, fistulae, perforation), urinary complications (hematuria, ureteral stenosis, vesicovaginal fistula), vaginal atrophy, shortening, vaginal stenosis, and reduced mucosal secretion.<sup>5,6</sup>

Sexual relations are an important determinant of human quality of life. Cervical cancer survivors suffer from pain and psychological distress that often affects their sexual relationships. According to research, cervical cancer survivors incur sexual problems associated with radiotherapy. In general, there is a significant decline in sexual function among cervical cancer survivors after treatments.<sup>7</sup> Research studies have focused on the quality of life of cervical cancer survivors, with regard to the quality of their sexual relations.<sup>8-10</sup>

## Materials and Methods

The patients enrolled in this study were previously treated for cervical cancer in the Radiotherapy Department at Dr S.N.Medical College, Jodhpur, India. We included all patients who satisfied the following criteria: older than 18 years of age; diagnosis of stages IIB-IVA cervical cancer; cervical cancer treatments in the form of concurrent chemoradiotherapy that finished at least two years prior to study entry; and able and willing to sign the informed consent form. Excluded patients were those whose tumor had recurred, or who had mental illness or cognitive

**Table 1.** Demographics and clinical features of the participants.

Group	N (%)
<b>Age (years)</b>	
31-40	7
41-50	26
51-60	14
>60	1
<b>Education</b>	
Illiterate	6
Primary (1-8)	30
High school (9-12)	11
College	1
<b>Occupation</b>	
House-wife	20
Farmer	19
Worker	8
Self-employed	1
<b>Stage, cervical cancer</b>	
IIB	6
IIIA	15
IIIB	16
IVA	11
<b>Completed treatment (days)</b>	
≤56	38
>56	10

impairment.

All participants voluntarily enrolled. Participants were assured of data anonymity and could quit the study at any time. All patients completed filled out a self-reported questionnaire – the Female Sexual Function Index (FSFI). We replaced participants' names with numbers in the questionnaires. All data were secured and accessed only by the researchers.

### Female Sexual Function Index (FSFI)

The FSFI is a self-reported measurement of sexual function.<sup>11</sup> This questionnaire contains 19 items that cover 6 domains of sexual function - sexual desire (2 items), sexual arousal (4 items), lubrication (4 items), orgasm (3 items), sexual satisfaction (3 items), and pain of intercourse (3 items).

The FSFI can differentiate patients with female sexual arousal disorder (FSAD) from control patients with normal sexual function in each of the 6 domains, as well as the full scale score. The cut-off score of the FSFI to identify FSAD is 26.55. A score less than 26.55 is considered

**Table 2.** Female Sexual Function Index (FSFI) results.

	Items	Score-range	Minimum	Maximum	Average (SD)
Desire	2	1-5	1.2	3	2
Arousal	4	0-5	0	4.2	2.3
Lubrication	4	0-5	0	3.6	1.7
Orgasm	3	0-5	0	3.2	1.5
Satisfaction	3	0(or 1)-5	1.2	2.8	2.3
Pain	3	0-5	0	4	2.1
Total FSFI	19	2-36	3.2	19.5	11.84

indicative of FSAD.

## Results

### *Patient demographics*

Patients had a mean age of 46.5 years (range: 36 to 64 years; Table 1). Farmers or homemakers comprised approximately 80% of participants. The highest educational level of 72.2% of the participants was below high school. All patients had concurrent chemoradiotherapy along with intracavitary brachytherapy; 79% completed their treatment within 56 days. The average time for treatment completion was 53.5 days.

### *Assessment of sexual function*

We used the FSFI to evaluate sexual function of patients with cervical cancer. Patients had the following average scores: 2 (sexual desire), 2.3 (arousal and sexual satisfaction), 1.7 (lubrication), 1.5 (orgasm), and 2.1 (pain during intercourse). Participants had an overall average score of 11.84 (range:3.2-19.5) which suggested FSAD in all participants when we considered the FSFI of <26.55 as diagnostic for FSAD (Table 2).

## Discussion

Our data showed severe sexual dysfunction in patients treated with radiotherapy for cervical cancer. These findings agreed with previous prospective studies that compared women treated with surgery alone or radiation therapy alone.<sup>12-14</sup> Jensen et al. found that women treated with radiation therapy had more severe sexual dysfunction at the 2-year follow-up - 85% reported no interest in sex, 55% had dyspareunia, and 50% had vaginal shortening.<sup>13</sup> These problems were

significant when compared both with their own pre-morbid sexual function and with age-matched controls.

Frumovitz et al. suggested that cervical cancer survivors treated primarily with radical hysterectomy and lymph node dissection had less sexual dysfunction than patients treated with radiotherapy.<sup>7</sup> Irradiated women had more difficulty with sexual arousal, attaining vaginal lubrication, reaching orgasm, and achieving sexual satisfaction. Also, irradiated women reported significantly more pain with intercourse compared to radical hysterectomy or control group women. The total scores of irradiated patients revealed significantly worse overall sexual functioning compared to the scores from surgery patients or controls. No statistical difference existed between the surgery patients or controls in any of the sexual functioning subscales or the overall score. These studies were undertaken in patients treated with radiotherapy alone, whereas all patients in present study received concurrent chemoradiotherapy. Hence, irradiated women had more profound sexual dysfunction.<sup>7</sup>

The chronic fibrotic changes in pelvic tissue after radiotherapy create persistent or even worsening vaginal atrophy at least up to two years post-treatment.<sup>12-14</sup> It is not surprising to find continued adverse sexual functioning in these women who have received irradiation five or more years prior. Therefore, we strongly recommend either the use of a vaginal dilator or the frequent engagement in sexual intercourse after completion of radiotherapy for cervical cancer in an effort to maintain the length, width, and elasticity of the vaginal canal.

Traditionally, oncologists have focused their

efforts on maximizing overall patient survival. Although many oncologists acknowledge that quality of life after cancer therapy is an important aspect of patient care, it is often not the main consideration when recommending cancer treatment. Future research is needed to improve treatment protocols which can improve quality of life and sexual function.

### Conflict of Interest:

No conflict of interest is declared.

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