

The sexuality of women with cervical cancer undergoing definitive radiotherapy in Ghana



K.A. Kyei ^{a, b}, J. Daniels ^{b, *}, R. Broni ^b, S. Anim-Sampong ^a, D. Kitson-Mills ^{a, b},
K.A. Amoabeng ^b, J.N. Odey Tackie ^b, T. Obeng-Mensah ^b, P.A. Anoa Scott ^b, A.-B. Owusu ^c

^a Dept. of Radiography, University of Ghana, P. O. Box KB 143, Korle Bu, Accra, Ghana

^b National Centre for Radiotherapy, Oncology and Nuclear Medicine, Korle Bu Teaching Hospital, P.O. Box KB 369, Korle-Bu, Accra, Ghana

^c University of Ghana Medical Centre, Legon, Ghana

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ABSTRACT

Introduction: The purpose of this study was to assess the sexuality of cervical cancer patients undergoing radiotherapy at a major cancer treatment center in Ghana. This is an area of interest as globally; cervical cancer kills approximately 342,000 people per annum with an estimated number of 604,000 new cases in 2020. Acknowledging the World Health Organization's definition of sexual health as a state of physical, mental and social well-being in relation to sexuality, this paper sheds light on how these dimensions affect the quality of life of cervical cancer patients.

Methods: This was a longitudinal study, which assessed the impact of radiotherapy on the sexuality of both premenopausal and postmenopausal cervical cancer patients presenting for primary treatment with chemoradiation from April to July, 2021 at a major cancer treatment centre in Ghana. The Female Sexual Function Index and Body Image Scale questionnaires were respectively used to evaluate the sexual functions scores among the cervical cancer patients, and to assess the impact of the treatment on their body image. MATLAB software was used for data analysis.

Results: Most of the cervical cancer patients sampled were postmenopausal (57 %). About 79 % premenopausal and 96 % postmenopausal cervical cancer patients were sexually inactive during radiotherapy (day 15). Also, 48 % premenopausal and 24 % postmenopausal patients were very dissatisfied with their bodies at the onset of treatment. The frequency of orgasm in cervical cancer patients declined after treatment causing a deterioration in their sexual function. The patients' sexuality was influenced by age and menopausal status. The decreased sexual desire of the patients resulted in emotional distancing from their partners, which invariably induced changes in their partners' level of sexual interest. This study established significant differences between premenopausal and postmenopausal cervical cancer patients who were generally very dissatisfied with their sexual relationships with their partners on day 1 ($p = 0.02$) and on day 15 ($p = 0.00$) of treatment.

Conclusion: The majority of patients who presented for treatment for cervical cancer in this study were postmenopausal. Their interest in sexual activity was more influenced by their menopausal status than their antineoplastic treatment. This study indicates that cervical cancer patients are more likely to develop sexual health problems which could substantially worsen over the course of their treatment and beyond.

Implication for practice: The study will contribute within the oncology team by assisting personnel in putting in place measures that will guide the treatment of cervical cancer patients and improve quality of care.

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* Corresponding author. National Centre for Radiotherapy, Oncology and Nuclear Medicine, Korle Bu Teaching Hospital, P. O. Box KB 369, Korle Bu, Accra, Ghana.

E-mail address: josefdaniels@gmail.com (J. Daniels).

Introduction

Worldwide cervical cancer is the fourth most common cancer diagnosis and the fourth leading cause of cancer mortality in females.¹ In Ghana 2797 patients were diagnosed with cervical

cancer in 2020.² Cervical cancer is the second leading cause of cancer mortality among women in Ghana with 1699 deaths (10.8 %) recorded in 2020 alone. The World Health Organization (WHO) defines sexual health as “a state of physical, mental and social well-being in relation to sexuality and intimacy which are important aspects of quality of life (QoL)”.³ Current evidence shows that several types of cancer including carcinoma of the cervix can dramatically affect sexuality, sexual functioning, relationships, and the sense of self, all of which negatively affect patients' QoL.^{4,5} A study by Tramacere,⁶ showed an increase in the number of long-term cervical cancer survivors. The same study also reported sexual health as an important determinant of QoL in this patient group.

The clinical management of cervical cancer is based on several factors including clinical/pathological staging, patient's age, comorbidities as well as performance status (ECOG or Karnofsky scores). Chemoradiation is often associated with vaginal toxicity and sexual dysfunction, which impact negatively on the QoL of cervical cancer survivors.^{7–10} Literature pertaining to the QoL of cervical cancer patients in Ghana does not comprehensively address patients' sexuality and sexual health during treatment.¹¹ As a result, the impact of radiotherapy for cervical cancer on patients' sexual health and sexuality is unknown for the Ghanaian population.¹² The lack of evidence led to this study which aims to objectively assess the impact of radiotherapy on the sexual health and sexuality of Ghanaian cervical cancer patients treated at a large radiotherapy centre in Ghana.

Methodology

In accordance with the Helsinki declaration, the Ethical and Protocol Review Committee of the University of Ghana School of Biomedical and Allied Health Sciences provided ethical approval for this study which was conducted at a major radiation treatment center in Accra, Ghana (SBAHS/AA/RAD/10669932/2020–2021). Written informed consent was obtained from the patients within 48 h after the aim of the study and their role in the study had been thoroughly explained to them in languages of their understanding. Patients' confidentiality, privacy, and anonymity were ensured in accordance with ethical requirements by fully anonymizing the data and removing all traces of patient-identifying information.

The study population consisted of cervical cancer patients who received treatment with curative intent at our centre during the study period. Patients who received treatment with palliative intent were excluded from this study. According to the records at the centre, an average of 58 cervical cancer patients attend treatment every quarter of the year. Using Slovin's formula¹³ which provides for calculating appropriate sample sizes from randomly sampled populations, a sample size of 51 was obtained. This prospective case control study therefore involved adult cervical cancer patients who underwent concurrent chemoradiation with curative intent between April and July 2021. This period was the appointed time allocated for data collection to conduct the study as a requirement by the institution. The small sample size is mainly attributed to the fact that the study was conducted over a short period. Random sampling and a longitudinal quantitative approach were used to select and follow up the patients over the course of 2 weeks (15th fraction).

Patients were treated with either a Cobalt-60 (Co-60) teletherapy machine or a 6 MV (Varian Medical Systems UNIQUETH) linear accelerator (Linac). A conventional fractionation of 46Gy in 23# was prescribed to all patients included in this study. None of the patients had undergone surgery for cervical cancer or received any previous antineoplastic treatment. Intermittent speculum, vaginal and pelvic examinations were undertaken to detect any changes that had occurred over the study period. Anticipated changes that were monitored included perineal desquamation,

hypopigmentation or hardening as well as the loss of pubic hair, vaginal bleeding and vaginal stenosis.

The 16-itemized Female Sexual Function Index (FSFI) was used to evaluate the sexual functions (desire, arousal, lubrication, orgasm, satisfaction and pain) scores in the cervical cancer patients while the Body Image Scale (BIS) was adapted for the study. In particular, the BIS questionnaires were used for assessing body image concerning the impact of the treatment on their self-consciousness, physical and sexual attractiveness, satisfaction with body and scars, body integrity, and avoidance behavior.^{14,15} Patient assessments were consistently done on two specific days of treatment. In this study, the two time points were chosen as day 1 (D1) which represented the first day of treatment, and day 15 (D15) which indicated 15 days after the first treatment was delivered. Examination on D1 represents the pre-treatment condition of the patient whereas examination on D15 represents some acute radiation-induced changes that had occurred because of the radiation treatment received by the patients.

The structured questionnaire addressing the sexuality of cervical cancer patients was administered to patients on the same days. The first part of the questionnaire elicited patients' demographic information whilst the second part explored the objectives of the study. Data were analyzed using the MATLAB R2015a analytical tool. The Statistical Package for Social Sciences (SPSS) Version 24.5 (IBM Inc., NY, USA) was used for inferential and descriptive analyses, and *p*-values <0.05 were considered statistically significant. The chi-square test was used as part of statistical analysis because of the small sample size.

Results

Out of fifty-one patients who were approached, 44 (86 %) consented to the trial. In all, out of the 7 patients who declined participation, four did so because they felt the topic was too sensitive, whereas the other 3 stated that they were just not interested in being part of the study.

Patients' age and menopausal status

The study comprised 19 premenopausal and 25 postmenopausal cervical cancer patients with a mean age of 50.9 years (SD 3.33). The youngest patient was 30 years whereas the oldest was 69 years. All the postmenopausal patients were between 50 and 59 years old (Fig. 1).

Physiological complications relating to sexual function

Sexual desire among cervical cancer patients

A comparison of the sexual desire at two time points for the premenopausal versus postmenopausal groups is shown in Fig. 2. D1 represents the pre-treatment state of the patient whereas D15 captures acute radiation-induced changes that occurred because of the radiation treatment received by the patients. At D1 of treatment, most of the premenopausal patients with cervical cancer (*n* = 10, 53 %) had no sexual desire, 7 (37 %) had 'some' and 2 (10 %) 'always' experienced sexual desire since their diagnosis. On D15 the number of premenopausal patients who had no sexual desire had increased to 15 (79 %). Among the postmenopausal patients, 24 (96 %) had no sexual desire on D1, and none on D15.

Sexual arousal and sexual activity among cervical cancer patients

Among the premenopausal patients, 12 (63 %) were sexually inactive at D1 whereas 15 (79 %) were sexually inactive on D15 (Fig. 3). Regarding sexual activity, 3 (16 %) and 4 (21 %) had occasional sexual arousal, at D1 and on D15 respectively. Among the

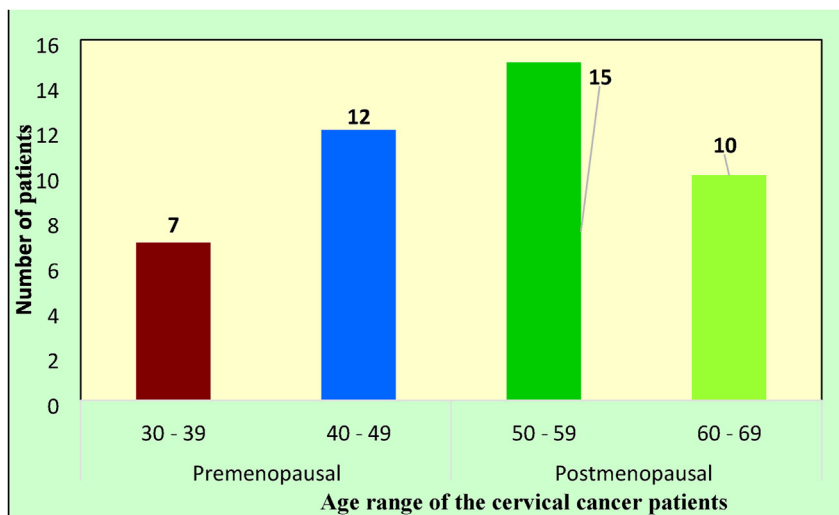


Figure 1. Age range and menopausal status of patients with cervical cancer.

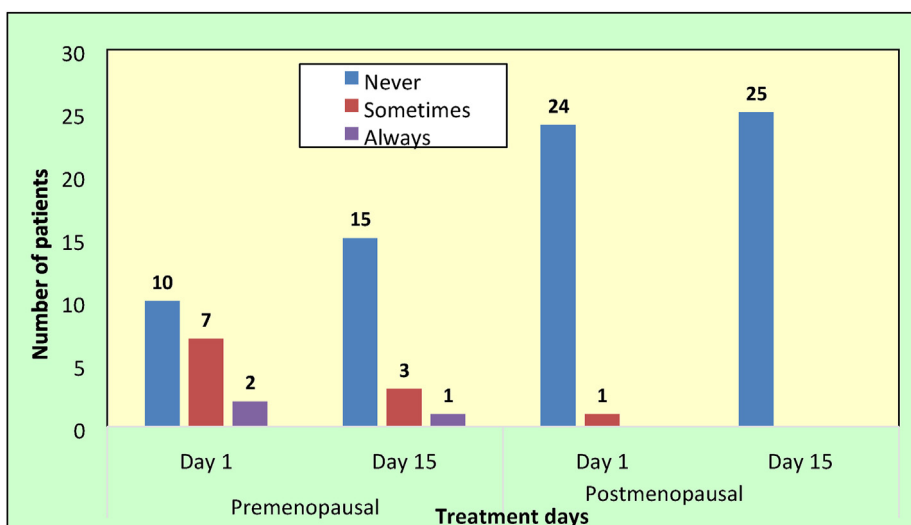


Figure 2. Sexual desire among cervical patients.

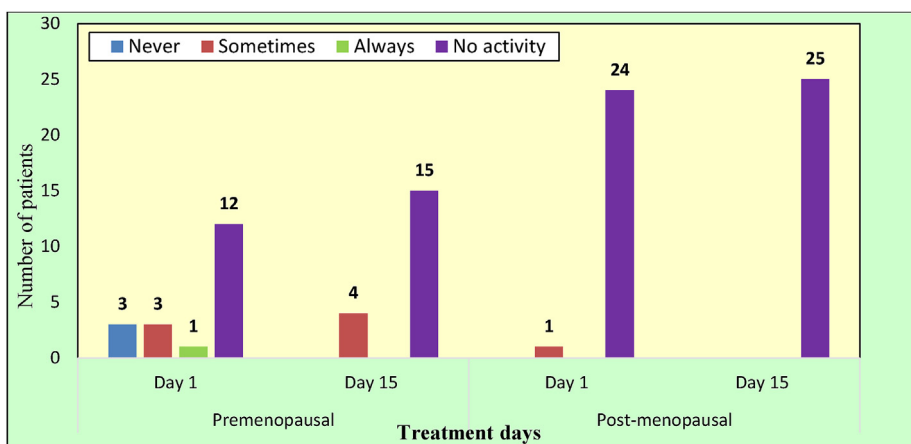


Figure 3. Sexual arousal and sexual activity among cervical cancer patients.

postmenopausal patients, 24 (96 %) were sexually inactive at D1, while none of the patients was sexually active by D15.

Sexual confidence among cervical cancer patients

The confidence of cervical cancer patients to get sexually aroused and engage in sexual activity was rated as absent, low, moderate or high (Fig. 4). Among the premenopausal women, 12 (63 %) had no confidence on D1 with an increase to 15 (79 %) on D15. However, among the postmenopausal women, 96 % and 100 % had no sexual confidence on D1 and D15 respectively.

Lubrication, dyspareunia, orgasm and satisfaction of sexual life of patients

Table 1 shows the patients lubrication, dyspareunia, orgasm and satisfaction of sexual life of the cervical cancer patients. Among the sexually active premenopausal patients, on D1, 5 (26 %) always experienced difficulty with lubrication during sexual intercourse whereas only 4 (21 %) admitted having this problem on D15. There was only one sexually active postmenopausal patient on D1 who always had difficulty with lubrication during sexual intercourse. This patient became sexually inactive by D15. In all, 6 (32 %) premenopausal patients always had dyspareunia and extreme difficulty having orgasms on D1 whereas on D15, 4 (21 %) and 3 (16 %) still had dyspareunia and extreme difficulty achieving orgasm respectively. The single sexually active postmenopausal cervical cancer patient always had dyspareunia but no difficulty with orgasm on D1.

Most (68 %) of the premenopausal patients rated their overall sex life as moderately satisfactory, whereas 5 (26 %) were very dissatisfied and only 1 (5 %) being very satisfied on D1 of treatment. The majority of postmenopausal patients (n = 23, 92 %) reported moderate satisfaction with their overall sex life, only 2 patients (8 %) reported being dissatisfied. By D15, 15 (79 %) premenopausal patients had become sexually dissatisfied and the remaining 4 (21 %) claimed to be moderately satisfied with their sex life. The postmenopausal cervical cancer patients did not experience any change in their overall satisfaction with their sex lives on D15 compared to D1.

Psychological complications relating to sexual function

The BIS and two indices (satisfaction of emotional closeness with partner, and satisfaction of sexual relationship with partner)

from the FSFI were used to assess the radiation-induced psychological complications of radiotherapy on the sexuality of cervical cancer patients (Table 2). Most of the patients answered “not at all” to the question “are you dissatisfied with the appearance of your radiotherapy-related scar?” on D1 (premenopausal = 79 % and postmenopausal = 56 %) and D15. Consistent with previous answers, most of the patients did not feel less feminine after the treatment on either day. Only 4 (21 %) of the premenopausal patients did “not feel less sexually attractive at all” compared to 18 (72 %) of the postmenopausal patients at the beginning of the treatment. The number of patients who assessed their feeling of sexual attractiveness as “a little” increased on D15. Most premenopausal patients (47 %) felt “Very much” less sexually attractive on day D1, compared to their postmenopausal counterparts (16 %).

Satisfaction with emotional intimacy and sexual relationships of cervical cancer patients

The patients’ satisfaction with emotional intimacy and sexual relationship with their partners are shown in Table 3.

The absence of sexual activity among the premenopausal and postmenopausal cervical cancer patients increased from 12 (63 %) and 24 (96 %) on D1 to 15 (79 %) and 25 (100 %) by D15 respectively. Besides 3 (16 %) premenopausal patients on D1, no other patients “very dissatisfied” with their emotional closeness to their partners. Among the premenopausal patients, 4 (21 %) were moderately satisfied with the intimacy with their partners on as well as on D15. The single sexually active postmenopausal patient was moderately satisfied on D1 but had ceased engaging in sexual activity by D15. The number of “very dissatisfied” premenopausal patients increased from 7 (37 %) on day 1–15 (79 %) by D15. On the contrary, there were no changes in the numbers of postmenopausal patients who were either “moderately satisfied” or “very dissatisfied” in respect of their sexual relationships with their partners on either day of treatment.

Inferential and descriptive statistical analyses

The results of the inferential and descriptive analyses obtained via the SPSS Version 24.5 (IBM.

Inc., NY, USA) software is shown in Table 4.

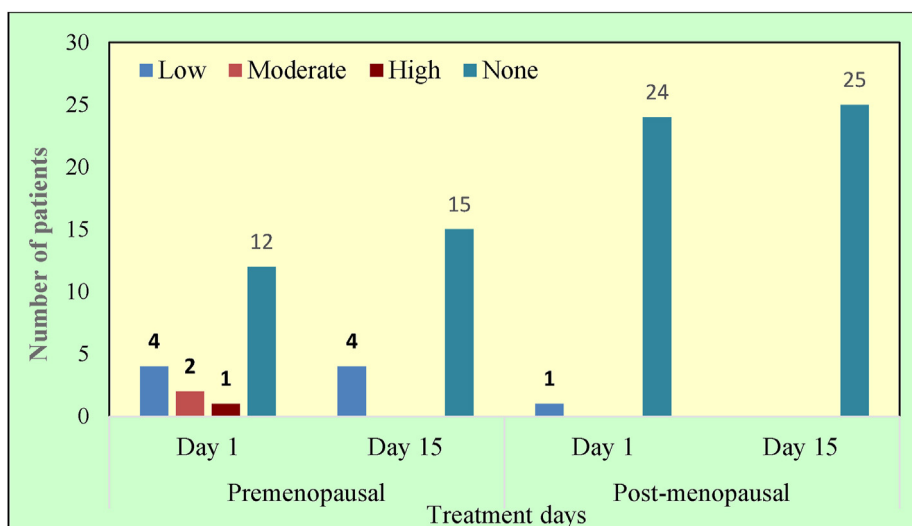


Figure 4. Sexual confidence among cervical cancer patients.

Table 1
Lubrication, dyspareunia, orgasm and satisfaction of sexual life of cervical cancer patients.

Female sexual Function	Frequency of Experience	Premenopausal (n)		Postmenopausal (n)	
		Day 1	Day 15	Day 1	Day 15
Difficulty of lubrication during sexual intercourse	Never	0	0	0	0
	Sometimes	2	0	0	0
	Always	5	4	1	0
	No sexual activity	12	15	24	25
Dyspareunia	Never	0	0	0	0
	Sometimes	1	0	0	0
	Always	6	4	1	0
	No sexual activity	12	15	24	25
Orgasm	Not difficult	0	0	1	0
	Difficult	1	1	0	0
	Extremely difficult	6	3	0	0
	No sexual activity	12	15	24	25
Overall satisfaction with sex life	Very dissatisfied	5	15	2	2
	Moderately satisfied	13	4	23	23
	Very satisfied	1	0	0	0

Table 2
Psychological impact of radiotherapy on sexuality of cervical cancer patients.

Questions	Response	Day 1		Day 15	
		Pre-m (n)	Post-m (n)	Pre-m (n)	Post-m (n)
1 Do you feel dissatisfied with your body?	Not at all	9	12	10	15
	A little	1	7	2	5
	Very much	9	6	7	5
2 Do you find it difficult to look at yourself naked	Not at all	12	15	15	18
	A little	3	5	3	4
	Very much	4	5	1	3
3 Do you feel the treatment will render/has rendered your body less whole?	Not at all	13	21	15	15
	A little	5	3	4	6
	Very much	1	1	0	4
4 Do you have self-conscious feelings about your appearance?	Not at all	10	20	14	22
	A little	5	4	3	2
	Very much	4	1	2	1
5 Do you feel dissatisfied with your appearance when dressed up?	Not at all	14	21	15	20
	A little	3	2	3	4
	Very much	2	2	1	1
6 Do you avoid people because of your feelings about your appearance?	Not at all	10	20	9	17
	A little	5	0	6	4
	Very much	4	5	4	4
7 Do you feel less feminine because of your disease or treatment	Not at all	10	21	9	22
	Quite a bit	5	2	4	1
	Very much	4	2	6	2
8 Do you feel less physically attractive because of your disease/treatment?	Not at all	14	16	14	20
	A little	4	4	3	1
	Very much	1	5	2	4
9 Do you feel less sexually attractive because of your disease/treatment?	Not at all	4	18	3	15
	A little	6	3	10	4
	Very much	9	4	6	6

Key: Pre-m = premenopausal, Post-m = postmenopausal.

Table 3
Satisfaction with emotional intimacy and sexual relationships of cervical cancer patients.

Satisfaction	Responses	Premenopausal		Postmenopausal	
		D1 (n/%)	D15 (n/%)	D1 (n/%)	D15 (n/%)
Emotional intimacy with partners	Very satisfied	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Moderately satisfied	4 (21.1)	4 (21.1)	1 (4.0)	0 (0.0)
	Very dissatisfied	3 (15.8)	0 (0.0)	0 (0.0)	0 (0.0)
	No sexual activity	12 (63.2)	15 (79.0)	24 (96.0)	25 (100.0)
Sexual relationship with partners	Very satisfied	1 (5.3)	0 (0.0)	0 (0.0)	0 (0.0)
	Moderately satisfied	11 (57.9)	4 (21.1)	23 (92.0)	23 (92.0)
	Very dissatisfied	7 (36.8)	15 (79.0)	2 (8.0)	2 (8.0)

There were statistically significant differences between pre- and postmenopausal patients with respect to their experience of sexual desire (sometimes/never) ($p = 0.00–0.04$), difficulty with

lubrication (always/sometimes) ($p = 0.00–0.03$), no sexual activities regarding frequency of orgasm ($p = 0.01–0.02$) and emotional closeness with partner ($p = 0.01–0.02$) on D15. Statistically

significant differences were found between pre- and postmenopausal patients regarding their sexual relationship with their partners (moderately satisfied/very dissatisfied) ($p = 0.00–0.02$), and dyspareunia (always/sometimes) ($p = 0.01–0.02$).

Discussion

The management of cervical cancer is influenced by several factors including the patients' age, stage of the disease, performance status, comorbidities, and renal function.⁶ This study reports a mean age of 50.9 years (SD = 3.33) among 44 patients (age range: 30–69 years) compared to a lower mean age of 45.7 years (SD = 9.2; range: 30–73 years) among a larger cohort of 147 cervical cancer patients reported in another study.¹⁶ This study also showed that cervical cancer was more prevalent (56.8 %) in the older women (age range: 50–69 years) receiving treatment at this centre. This is in line with other studies^{17–19} reporting that cervical cancer is most prevalent in older, post-menopausal women.

Physiological complications relating to sexual function

Impairment in any of the female sexual function domains resulting from treatment regimens including radiotherapy can cause or induce defects in the sexual pleasure experienced by couples.¹⁹ Decreased elasticity, reduced lubrication, anorgasmia, and vaginal bleeding during or after intercourse have also been identified as other common sexual dysfunctions associated with radiotherapy for cervical cancer.²⁰ Physiologically, sexual dysfunction after radiotherapy involves physical effects such as disorders of arousal and orgasm, vaginal bleeding and dyspareunia. Patients with advanced cervical cancer are at a high risk of developing chronic sexual dysfunction which can be linked to both vaginal toxicity and psychological aspects of femininity and body image.²¹

A decrease in sexual desire among the cohort of cervical cancer patients undergoing radiotherapy was observed in this study.

Similar findings have also been reported in the literature, where decreased sexual desire has been indicated as one of the most common sexual dysfunctions associated with cervical cancer treatment.²⁰ This is evidenced by the increased number of premenopausal (53 %) and postmenopausal (96 %) patients who never experienced sexual desire at the onset of treatment to 79 % and 100 % respectively by D15 of treatment. There was no statistically significant difference in expressions of sexual desire of premenopausal ($p = 0.09$) and postmenopausal ($p = 0.31$) patients between D1 and D15 of treatment. This finding is supported by another study²¹ which established no significant variations in sexual desire before and after cervical cancer treatment. There were significant differences between the premenopausal patients and postmenopausal patients who never experienced sexual desire at the beginning ($p = 0.00$) and end of the treatment ($p = 0.02$). Similarly, a higher prevalence of sexual dysfunction in postmenopausal women has been reported.²²

The findings of this study revealed that 79 % of the premenopausal patients did not engage in sexual activity. Consistent with this finding, another study stated that cervical cancer patients who undergo radiotherapy lose interest in sexual activity, leading to vaginal atrophy and a decline in sexual desire and arousal.²³ The patients also feared that engagement of sexual activity would affect the treatment. From Table 4, statistically significant relationships were rather established between premenopausal and postmenopausal cervical cancer patients who abstained from sexual activity on D1 ($p = 0.01$) and D15 ($p = 0.02$).

Amongst the 37 % of premenopausal patients who engaged in sexual activity on D1, 16 % were never sexually aroused, while none of the 21 % who reported engagement in sexual activity on D15 was ever aroused ($p = 0.07$). The findings are similar to another study which found no significant relationship in sexual arousal between pre-treatment and post-treatment periods, although, a significant difference was established between premenopausal and postmenopausal patients on the first day of treatment ($p = 0.04$).²⁴ Age

Table 4
Comparison of domains between pre- and postmenopausal cervical cancer patients.

Activity	Response	Pre & Post	p-value (D15)	p-value (D1 & D15)	
		0.10	Pre & Post	Pre	Post
Sexual desire	Always	0.01	0.25	0.55	–
	Sometimes	0.00	0.04	0.14	0.31
	Never	0.01	0.02	0.09	0.31
Sexual arousal	No sexual activity	0.25	0.02	0.28	0.31
	Always	0.18	–	0.31	–
	Sometimes	0.04	0.02	0.68	0.31
Difficulty with lubrication	Never	0.01	–	0.07	–
	Always	0.03	0.02	0.28	0.31
	Sometimes	0.10	0.02	0.70	0.31
Frequency of orgasm	Never	0.01	–	0.15	–
	No sexual activity	–	0.02	0.28	0.31
	Always	–	–	–	–
Emotional closeness with partner	Sometimes	0.01	0.04	0.07	–
	Never	0.01	0.25	0.02	0.31
	No sexual activity	–	0.02	0.28	0.31
Sexual relationship with partner	Very satisfied	0.08	–	–	–
	Moderately satisfied	0.04	0.02	1.00	0.31
	Very dissatisfied	0.25	–	0.07	–
Satisfaction with sex life	Very satisfied	0.01	–	0.31	–
	Moderately satisfied	0.02	0.00	0.02	1.00
	Very dissatisfied	0.25	0.00	0.01	1.00
Dyspareunia	Very satisfied	0.05	–	0.31	–
	Moderately satisfied	0.10	0.00	0.00	1.00
	Very dissatisfied	0.01	0.00	0.00	1.00
Dyspareunia	Always	0.01	0.02	0.28	0.31
	Sometimes	0.25	0.02	0.46	0.31
	Never	–	–	0.31	–

Key: Pre = Premenopausal Post = Menopausal.

groups have not been independently assessed for association with sexual health in this study. Therefore, this study affirms that the patients' involvement in sexual activity was influenced by menopausal status other than the pre-treatment and post treatment periods selected for this study.

It has been extensively reported that lubrication is a defining feature of sexual arousal challenges.²⁵ Difficulty with lubrication during sex can lead to dyspareunia which is associated with pain during vaginal penetration. This consequently impacts a woman's orgasm and overall satisfaction and quality of sexual life. No significant difference was found between premenopausal ($p = 0.28$) and postmenopausal patients ($p = 0.31$) at the beginning of treatment and on D15 with respect to difficulty with lubrication. Similar findings have been reported,²⁰ although a significant relationship with changes in vaginal dryness from pre- and post-treatment studies was established to the contrary.

From Table 4, dyspareunia was reported among 86 % sexually active premenopausal patients prior to radiotherapy. Although significant relationships were found both on D1 and D15 between premenopausal and postmenopausal patients who reported dyspareunia, none was found between them in respect of its frequency. The persistence of pain can be attributed to changes in the vaginal wall flexibility, vaginal hemorrhage, shortened length, and decreased lubrication.

Women report difficulties with orgasm during and after treatment, regardless of the duration of the diagnosis.²⁶ This study found a decline in the number of premenopausal patients who engaged in sexual activity and never experienced orgasm from the beginning of treatment to D15. This resulted in a decline in the frequency of orgasm among the cervical cancer patients after treatment, and a deterioration in their sexual function. Patients who received radiotherapy had significant difficulty reaching orgasm, compared to those who received surgery as part of their management.²⁷ Consistent with this, significant differences in the frequency of orgasm in cervical cancer patients pre- and post-radiotherapy have also been established.²⁸ However, there was no significant differences in the frequency of orgasm experienced by the postmenopausal patients between D1 and D15 of treatment, as similarly reported in another article.²⁶

This study found a sharp increase in the number of very dissatisfied premenopausal patients between the two selected treatment days (Table 4). Consequently, a significant association was established between the number of premenopausal patients very dissatisfied with their overall sex life between the treatment days. This high level of dissatisfaction in the premenopausal patients could be attributed to frequent interruptions, poor sexual performance, and psychological issues with their partners regarding sexual relations. On the contrary, only 8 % of the postmenopausal patients were very dissatisfied with their overall sex life throughout the treatment period. Statistically, there was an insignificant association between the very sexually dissatisfied premenopausal and postmenopausal patients by D15 ($p = 0.10$), whereas a significant association between both patients on D1 ($p = 0.00$) was established. This is explained by the fact that women have a propensity to adapt to sexual interactions to please their partners, even if they have little or no desire, in line with the literature.²⁰

Psychological complications relating to sexual function

Sexual dysfunction after radiotherapy also consists of psychological impacts such as anxiety, depression, fear of altered body image and reduced sexual satisfaction among female cancer patients and their partners.²⁵ In this study, fewer premenopausal and postmenopausal patients felt "very dissatisfied" with their bodies

at the end of treatment. These findings show that cervical cancer presents psychological effects on affected patients which contribute to elevated body image dissatisfaction, as also reported.²⁸ On the contrary, most of the postmenopausal patients were "Not at all" dissatisfied with their bodies during and after treatment. This shows that older women may be less concerned with their body image.

Satisfaction of emotional closeness and sexual relationships with partners

The majority of the patients did not engage in sexual activity and hence, did not experience emotional closeness resulting in a deterioration in their QoL. This could be explained by the fact that depression, anxiety, and skewed body image are some important psychological changes that negatively impact on sexual health.^{8,29} Emotional changes resulting from poor satisfaction with sexual relationships and intimacy also adversely impact sexual health.^{8,30} Another study found that the emotional and social well-being of majority of cervical cancer patients undergoing radiotherapy in Ghana were affected, although they reported stable QoL.¹⁰

Three out of 7 premenopausal patients were "very dissatisfied" with emotional closeness with their partners on the first day of treatment. Decreased sexual desire resulting from cervical cancer can lead to emotional distancing from partners, which invariably induces changes in their partners' level of sexual interest. The outcomes of this study affirms that sexual relationship concerns include perceptions of changes in their partners' sexual desire, or feeling of inability to meet their partners' sexual needs which constitute the most important sources of distress, especially among young and sexually active cervical cancer patients.

The high level of sexual dissatisfaction of these patients could also be attributed to the fact that most of their partners sexually distanced themselves. Neglect by their partners because of the disease was common. The absence of sexual partners has been identified as accounting for the disparagements regarding sexual relationships among postmenopausal cervical cancer patients.³¹

Limitations

There are three radiation treatment centers in Ghana for the management of patients with cervical and other cancers. Two of these centers are located in the southern part of the country whereas the third is in the middle part. This study was conducted at the largest of these radiotherapy centers that is in the southern part of the country. The possibility of patient inhomogeneity between different radiotherapy centers should be taken into consideration when interpreting the results of this study. Also, the sample size of this study was small, hence the findings must be interpreted with relevant caution.

Conclusions

Both premenopausal and postmenopausal cervical cancer patients receiving radiotherapy experience sexual dysfunction and dissatisfaction though more commonly in premenopausal patients. Deterioration of sexual desire, arousal, lubrication and dyspareunia in premenopausal patients resulting from the treatment were less drastic compared to physiological domains such as orgasm and satisfaction with overall sex life which worsened with treatment. Generally, the premenopausal patients expressed more dissatisfaction with their bodies, while the postmenopausal patients were less concerned about the associated physiological and psychological effects.

In general, sexual health is worse in older patients. Most of the patients in this study did not engage in sexual activity during treatment as their partners distanced themselves, while their menopausal status influenced their interest in sexual activities. This study concludes that surviving cervical cancer patients develop sexual health problems which substantially worsen with menopausal status. The study has implications for future practice as the multidisciplinary team would learn from the results to improve the quality of care for these patients, and assist personnel in implementing measures necessary to guide the treatment of cervical cancer patients.

Data availability

Data supporting the findings in this research article are available upon reasonable request to the corresponding author.

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Conflicts of interest

The authors have no conflicts of interest to disclose.

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