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Sexual Dysfunction in Moroccan Cervical Cancer Survivors: A Prospective Study of 220 Patients

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Abstract:

- ***Introduction***

Cervical cancer and its treatments can have a significant impact on various aspects of sexual health, including physical function, emotional well-being, and intimate relationships. Survivors often face changes in body image, sexual function, desire, and intimacy. There is a growing awareness of the importance of sexual health in the quality of life of cervical cancer survivors. This study aims to assess various aspects of sexual function, including desire, vaginal lubrication, orgasm, satisfaction, and pain, as well as their impact on quality of life.

- ***Methods***

This prospective study included patients who had completed their treatment for gynecological cancer between 6 months and 1 year prior, from January 2022 to January 2024, at the Radiotherapy Department of the National Institute of Oncology in Rabat. Patients completed the following questionnaires: The Female Sexual Function Index (FSFI).

- ***Results***

The study included 220 patients, with a median age of 47,2 years. After treatment, 62% of women scored below the FSFI cutoff for sexual dysfunction, Factors significantly associated with sexual dysfunction included brachytherapy, age over 50, low socioeconomic status, longer time since treatment, and perceived low partner interest. Women treated with chemoradiotherapy and brachytherapy had significantly lower FSFI scores (19.4 ± 4.8) than those treated without brachytherapy (22.7 ± 3.7, $p < 0.01$).

- ***Conclusion***

Sexual dysfunction in cervical cancer survivors is a complex issue requiring early detection and appropriate patient education to improve their quality of life.

Keywords*: Cervical Cancer, Sexual Dysfunction, Survivorship.*

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I. INTRODUCTION

Cervical cancer is a major public health issue, posing a significant threat to women's lives worldwide, particularly in developing countries. However, advances in treatment, early screening, and prevention especially with vaccination have contributed to improved survival rates, leading to an increase in the number of cervical cancer survivors.

These advancements have sparked growing interest in improving the quality of life of survivors, particularly concerning their sexual health. Sexual well-being is a fundamental aspect of quality of life, and numerous studies highlight a correlation between cervical cancer, its treatments, and changes in the sexual behavior of survivors [1,2].

The treatment of early-stage cervical cancer is based on radical hysterectomy combined with pelvic lymphadenectomy, whereas locally advanced cases are treated with concurrent chemoradiotherapy, associated with intracavitary brachytherapy.

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The impact of these treatments on women's sexuality is primarily related to vaginal changes, including vaginal shortening, dryness, and dyspareunia compared to their pre-treatment state [3,4], Additionally, physical changes such as decreased physical functions, diarrhea, and fatigue can occur.

In young survivors, sexual dysfunction is exacerbated by the perception of decreased sexual interest from their partner or by feelings of being unable to meet their partner's needs, which represents a major source of sexual dysfunction [5].

In this prospective study, we evaluated the sexual function in female survivors of cervical cancer who had undergone different treatments. Various aspects of sexual function were assessed, including desire, vaginal lubrication, orgasm, satisfaction, and pain.

II. METHODS

This is a prospective and analytical study conducted at the Radiotherapy Department of the National Institute of Oncology, Rabat, between January 1, 2022, and December 31, 2023.

We identified 220 women who had been treated for cervical cancer and recruited them during follow-up consultations at the gynecology-breast unit.

The inclusion criteria were as follows:
- Histological diagnosis of cervical cancer,
- No ongoing cancer treatment at the time of the study,
- Currently in complete remission,
- Completion of treatment at least six months prior,
- No history of any other cancer.

The exclusion criteria were:
- Women not in complete remission,
- Women over 65 years of age,
- Treatment received other than chemoradiotherapy with or without brachytherapy (primary surgery),
- History of another cancer,
- Women who were non-autonomous or followed for severe neurological or cognitive disorders.

Eligible women were invited to participate in the study and were duly informed about the procedures, rationale, and importance of the research.

Those who agreed to participate were recruited during a single face to face interview conducted within the institution.

The instruments used in the study are described below:

➢ *Sexual Function Assessment Questionnaire*

To assess the sexual function of participants, the Female Sexual Function Index (FSFI) was used [6]. This questionnaire was translated into Arabic and culturally adapted for validation in evaluating the sexual responses of Moroccan women [7].

The FSFI is a self-administered questionnaire commonly used to assess female sexual function. It was developed by Rosen et al. in 2000 and consists of 19 questions evaluating sexual desire, arousal, vaginal lubrication, orgasm, sexual satisfaction, and pain [6].

The scores are summed to produce a total score ranging from 2 to 36. A total score of 26.55 or lower is generally used as the cutoff for diagnosing sexual dysfunction **[8,9]**.

➢ *Statistical Analysis*

Data were analyzed using the Statistical Package for Social Sciences (SPSS) software, version 21, and presented in tables. Statistical tests included the Student's t-test for comparing two means and ANOVA for comparing multiple means.

A bivariate analysis was also performed to explore associations between sexual dysfunction and certain clinical and sociodemographic variables (age, marital status, type of treatment, post-treatment interval, etc.). A p-value < 0.05 was considered statistically significant.

➢ *Ethical Considerations*

Patients were informed about the study's objective and the confidentiality of their data prior to information collection.

III. RESULTS

A total of 220 women who had survived locally advanced cervical cancer were included in this prospective study. The mean age of the participants was 47.2 ± 8.1 years (range: 28–65 years).

The majority of patients (68.6%) had a low educational level, 54% belonged to a low socioeconomic background, and 53.2% were unemployed. Additionally, 64.5% were married, and 94% reported having family support.

More than half of the patients (52%) were postmenopausal at the time of evaluation. The interval since the completion of treatment ranged from 6 to 36 months, with a mean duration of 16 months (Table 1).

Table 1: Sociodemographic and Clinical Characteristics of Cervical Cancer Survivors

Characteristics	n (%)
Mean age	47.2 ± 8.1 years
Married	142 (64.5%)
Unmarried	78 (35.5%)
Low educational level	151 (68.6%)
Medium or high educational level	69 (31.4%)

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Characteristics	n (%)
Low socioeconomic status	119 (54%)
Unemployed	117 (53.2%)
Employed	103 (46.8%)
Receiving family support	207 (94%)
Postmenopausal	114 (52%)
Mean time since end of treatment	16 months

According to the 2018 FIGO classification, the most common tumor stages were IIB (35.9%) and IIIC2 (17.3%). Regarding treatment, 70% of the patients had received concomitant chemoradiotherapy followed by brachytherapy, while 30% had been treated with exclusive chemoradiotherapy (Table 2).

Table 2: Tumor Stage and Treatment Characteristics.

Variables	Number (%)
FIGO stage	
IIA	8 (3.63%)
IIB	79 (35.90%)
IIIA	14 (6.36%)
IIIB	21 (9.54%)
IIIC1	32 (14.54%)
IIIC2	38 (17.27%)
IVA	28 (12.72%)
treatment	
Exclusive chemoradiotherapy	66 (30%)
Chemoradiotherapy + brachytherapy	154 (70%)

Sexual function assessment, conducted using the FSFI questionnaire, revealed a global impairment of sexual function.

The mean total FSFI score was 22.5 ± 4.2.

Overall, 62% of participants had a score below the threshold of 26.55, indicating moderate to severe sexual dysfunction.

Among the 220 patients, 103 (46.8%) were sexually active at the time of the survey, while 117 (53.2%) were sexually inactive.

The main reasons for sexual inactivity included the absence of a partner (35.5%), lack of sexual desire (35.9%), and pain during intercourse (27.3%).

Among the sexually active patients, 21.4% were found to have sexual dysfunction according to FSFI criteria. Bivariate analysis revealed that factors significantly associated with sexual dysfunction included: age under 40 years, having received brachytherapy, low socioeconomic status, a post-treatment interval greater than 12 months, and a perceived low level of sexual interest from the partner ($p < 0.01$).

Mean FSFI scores varied significantly according to these variables.

Patients who had received brachytherapy had significantly lower mean FSFI scores (19.4 ± 4.8) compared to those treated without brachytherapy (22.7 ± 3.7, $p < 0.01$).

Similarly, a perceived low partner sexual interest was associated with a significantly lower FSFI score (18.2 ± 5.3 versus 24.5 ± 3.2; $p < 0.01$).

Finally, a progressive decline in sexual function scores was observed with increasing age and longer time since the end of treatment, although the association with marital status did not reach statistical significance ($p = 0.08$). (Table 3)

Table 3: Factors Associated with Sexual Function (FSFI Scores)

Factor	Mean FSFI Score ± SD	p-value
Type of treatment		
Chemoradiotherapy with brachytherapy	19.4 ± 4.8	< 0.01
Exclusive Chemoradiotherapy	22.7 ± 3.7	< 0.01
Age		
30–40 years	24.2 ± 3.9	< 0.05
41–50 years	22.4 ± 4.1	< 0.05
> 50 years	19.6 ± 5.3	< 0.01
Post-treatment interval		
Less than 6 months	22.8 ± 3.8	< 0.05
6 to 12 months	21.0 ± 3.6	< 0.05
More than 12 months	19.5 ± 4.2	< 0.05

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Factor	Mean FSFI Score ± SD	p-value
Perceived partner interest		
High interest	24.5 ± 3.2	< 0.01
Low interest	18.2 ± 5.3	< 0.01
Educational level		
Low	20.2 ± 4.5	< 0.01
Medium or high	23.8 ± 3.6	< 0.01
Employment status		
Employed	23.4 ± 4.0	< 0.01
Unemployed	20.8 ± 4.3	< 0.01
Marital status		
Married	22.9 ± 4.2	0.08
Unmarried	21.7 ± 4.0	0.08
Menopausal status		
Non-menopausal	23.1 ± 3.9	< 0.05
Menopausal	20.5 ± 4.6	< 0.05

IV. DISCUSSION

The sexual health of cervical cancer survivors and the impact of oncologic treatments have long been underestimated in clinical practice and research. It is now well established that pelvic surgery and radiotherapy, commonly employed in the management of cervical cancer, are associated with a significant risk of sexual dysfunction (10), these consequences profoundly alters the perception of femininity and intimacy, making it challenging to preserve or restore a satisfying sexual life after treatment. Over the past decade, the topic of 'cancer and sexuality' has gradually emerged in the medical literature, prompting an increasing number of women and couples to address these concerns with healthcare professionals, including psycho-oncologists and sexologists, thereby bringing greater attention to patients' experiences and needs (11,12).

Our study revealed a significant prevalence of sexual dysfunction, estimated at 62% based on FSFI criteria. This rate is consistent with findings in the literature, where the prevalence of sexual dysfunction among patients treated for gynecological cancers particularly cervical cancer ranges from 32% to 80%. (13,14,15).

Concurrent chemoradiotherapy (CCRT), with or without brachytherapy, remains an effective treatment for locally advanced cervical cancer. However, it is associated with late onset anatomical and functional side effects that negatively impact the genital tract. In our study, women treated with CCRT including brachytherapy had significantly lower FSFI scores (19.4 ± 4.8) compared to those who received radiotherapy alone (22.7 ± 3.7; $p < 0.01$). These findings are consistent with those of White et al. and Frumovitz et al., who demonstrated that brachytherapy may lead to fibrosis, vaginal stenosis, reduced lubrication, and persistent dyspareunia. (16,17).

There was a downward trend in sexual function scores with increasing time since treatment completion (19.5 ± 4.2, $p < 0.05$), suggesting that sexual sequelae do not improve spontaneously over time, unlike other treatment related side effects. This observation aligns with longitudinal data reported by Greimel et al., which showed that sexual dysfunction can persist for several years after treatment and requires long-term, specialized support. (18)

"Beyond physical impairments, the relationship with a partner was found to be significantly associated with sexual function. In this regard, Fernandes and Kimura [19] emphasized that for cervical cancer survivors, the presence of a sexual partner is crucial in fostering a supportive environment. In our study, the perception of low sexual interest from the partner was strongly associated with sexual dysfunction (FSFI score: 18.2 ± 5.3 vs. 24.5 ± 3.2; $p < 0.01$). These findings highlight the importance of relationship quality in maintaining a fulfilling sexual life, as also reported by Cleary and Hegarty, who underlined the partner's essential role in the sexual rehabilitation process (20).

The sociocultural context in Morocco plays a major role in shaping how cervical cancer survivors experience sexual dysfunction. As previously mentioned, sexuality remains a taboo subject in Moroccan society. Many survivors feel embarrassed or ashamed to seek help, and healthcare providers may lack the training or resources to adequately address these sensitive issues (21)

Our study shows that women from a lower socioeconomic background with a low level of education (20.2 ± 4.5, $p < 0.01$) are at a higher risk of experiencing sexual dysfunction. This finding is consistent with Huguet et al., who suggested that the level of education positively influences patients' ability to cope with illness, seek information, articulate their difficulties, and pursue appropriate support [22].

Moreover, social support factors, along with counseling on illness and sexuality offered to both the woman and her partner, could be further encouraged to improve patient care [23]. By addressing sexual issues, couples may develop acceptance and adaptation to the changes caused by cancer and its treatment-related sequelae [24].

In this regard, Iavazzo et al. [25] assessed the value of the Gynecological Advice Clinic at Christie Hospital in Manchester, UK. The study demonstrated a positive impact of counseling and solutions addressing the psychosexual concerns of women. Although such an approach is critically

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important, neglect is often observed among the majority of healthcare professionals in post-treatment follow-up [15,26,27,28,29]. In a context such as that of Morocco, where sociocultural taboos surrounding female sexuality remain deeply ingrained, these factors represent an additional barrier to the effective management of these disorders.

Age also emerged as a determining factor. Contrary to common belief, the average age of the patients was 47.2 ± 8.1 years. It was observed that older patients (>50 years) had significantly lower FSFI scores (19.6 ± 5.3) compared to younger patients (24.2 ± 3.9 for those aged 30-40 years, $p < 0.05$). This may be explained by the fact that older women surviving cervical cancer are at an increased risk of experiencing local sequelae of radiotherapy (fibrosis, dryness, vaginal stenosis), chronic fatigue, and deterioration in body image. This aligns with the conclusions of Schover (2005) (30), who noted that youth is associated with greater sexual distress due to a discordance between sexual expectations and physical capabilities post-treatment.

Induced menopause (due to pelvic radiotherapy or brachytherapy) is often more abrupt and severe than natural menopause (31). n our study, 52% of patients were postmenopausal, with significantly lower FSFI scores (20.5 ± 4.6) compared to non-menopausal women (23.1 ± 3.9, $p < 0.05$). This contributed to the exacerbation of sexual dysfunction, particularly dryness and pain, as extensively documented by Carter et al. (2013) in their review on sexuality after gynecological cancer (14).

Our study has some limitations. The absence of a control group of women without cancer prevents direct comparison. Additionally, self-assessment of responses may introduce biases related to social desirability and cultural factors concerning sexual issues. However, the sample size, prospective design, and the diversity of criteria used for evaluation have provided a robust clinical and epidemiological foundation.

The results presented here justify the systematic inclusion of sexual health improvement in the follow-up care of women with cervical cancer, including a multidisciplinary approach involving oncologists, gynecologists, psychologists, and sexologists. Educating patients, breaking the taboo surrounding sexual dysfunction, and providing appropriate therapeutic options are key drivers to improving the quality of life for women after cancer.

V. CONCLUSION

This prospective study highlights a significant prevalence of sexual dysfunction among Moroccan women who have survived cervical cancer. The results underline the multifactorial nature of sexual difficulties, influenced not only by clinical variables but also by psychosocial and cultural factors. In morocco society, sexuality remains a neglected aspect for cancer survivors. Addressing this issue requires a multidisciplinary approach that includes sexual health education, counseling, and the development of culturally appropriate interventions. Breaking the silence surrounding female sexuality in cancer survivorship is essential to improving the overall quality of life of these women.

REFERENCES

[1]. Gavrilova N, Anderson D (2007) Sexual morbidity in very long term survivors of vaginal and cervical cancer: a comparison to national norms. Gynecol Oncol 106:413–418

[2]. Jensen PT, Groenvold M, Klee MC, Thranov I, Petersen MA, Machin D (2004) Early-stage cervical carcinoma, radical Archives of Gynecology and Obstetrics hysterectomy, and sexual function. A longitudinal study. Cancer 100:97–106

[3]. Jensen PT, Groenvold M, Klee MC, Thranov I, Petersen MA, Machin D. Longitudinal study of sexual function and vaginal changes after radiotherapy for cervical cancer. *International Journal of Radiation Oncology Biology Physics* 2003;56:937-949. DOI: 10.1016/S0360-3016(03)00362-6

[4]. Bergmark K, Avall-Lundqvist E, Dickman PW, Henningsohn L, Steineck G. Vaginal changes and sexuality in women with a history of cervical cancer. *New England Journal of Medicine* 1999;340:1383-1389. DOI: 10.1056/NEJM199905063401802

[5]. Kwekkeboom KL, Abbott-Anderson K, Cherwin C, Roiland R, Serlin RC, Ward SE (2012) Pilot randomized controlled trial of a patient-controlled cognitive-behavioral intervention for the pain, fatigue, and sleep disturbance symptom cluster in cancer. J Pain Symptom Manag

[6]. Pacagnella RC, Vieira EM, Rodrigues OM Jr, Souza C (2008) Adaptac¸a˜o transcultural do female sexual function index. Cad Saude Publica. 24(2):416–426

[7]. Tarek H. Anis, MD, Samah Aboul Gheit, MD, Hanan S. Saied, MD, Samar A. Al_kherbash, MD, Arabic Translation of Female Sexual Function Index and Validation in an Egyptian Population, The Journal of Sexual Medicine, Volume 8, Issue 12, December 2011, Pages 3370–3378, https://doi.org/10.1111/j.1743-6109.2011.02471.x

[8]. Baser RE, Li Y, Carter J (2012) Psychometric validation of the Female Sexual Function Index (FSFI) in cancer survivors. Cancer 118(18):4606–4618

[9]. Wiegel M, Meston C, Rosen R (2005) The Female Sexual Function Index (FSFI): cross-validation and development of clinical cutoff scores. J Sex Marital Ther 31(1):1–20

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25aug545

[10]. Andersen BL, Woods XA, Copeland LJ. Sexual self-schema and sexual morbidity among gynecologic cancer survivors. J Consult Clin Psychol. 1997;65:221–9. doi: 10.1037//0022-006x.65.2.221.
[11]. Brandenbarg, D., et al. (2018). *Sexual health in cancer survivors: A systematic review*. Cancer Treatment Reviews, 69, 1-10.
[12]. Zebrack, B. J., et al. (2015). *Sexuality in cancer survivors: A comprehensive review*. Supportive Care in Cancer, 23(5), 1381-1391.
[13]. Lima CS, et al. *Sexual function of women surviving cervical cancer*. Arch Gynecol Obstet. 2015;292(4):885–891.
[14]. Carter J, et al. *Contemporary quality of life issues affecting gynecologic cancer survivors*. Hematol Oncol Clin North Am. 2012;26(1):169–194.
[15]. Donovan KA, et al. *Sexual health in women treated for cervical cancer: characteristics and correlates*. Gynecol Oncol. 2007;104(2):428–434.
[16]. White ID. *Assessment and management of sexual difficulties after treatment of cervical and endometrial malignancies*. Clin Oncol. 2008;20(6):488–496.
[17]. Frumovitz M, et al. *Quality of life and sexual functioning in cervical cancer survivors*. J Clin Oncol. 2005;23(30):7428–7436.
[18]. Greimel ER, et al. *Quality of life and sexual functioning after cervical cancer treatment: a long-term follow-up study*. Psychooncology. 2009;18(5):476–482.
[19]. Fernandes WC, Kimura M (2010) Qualidade de vida relacionada a` sau´de de mulheres com ca^ncer de colo uterino. Rev Lat Am Enfermagem 18(3):360–367
[20]. Cleary V, Hegarty J. *Understanding sexuality in women with gynaecological cancer*. Eur J Oncol Nurs. 2011;15(1):38–45.
[21]. Sexuality of Moroccan Survivors of Cervical Cancer: A Prospective Data Zineb Dahbi 1, Ali Sbai, Loubna Mezouar PMCID: PMC6318393 DOI: 10.31557/APJCP.2018.19.11.3077
[22]. Huguet PR, et al. *Qualité de vie et sexualité de femmes traitées pour cancer du sein*. Rev Bras Ginecol Obstet. 2009;31(2):31–37.
[23]. Golbasi Z, Erenel AS (2012) The quality of sexual life in women with gynaecological cancers. Arch Gynecol Obstet 285(6):1713–1717
[24]. Fleury HJ, Pantaroto HSC, Abdo CHN (2011) Sexualidade em oncologia. Diagn Tratamento. 16(2):86–90
[25]. Iavazzo C, Johnson K, Savage H, Gallagher S, Datta M, Winter- Roach BA (2015) Sexuality issues in gynaecological oncology patients: post treatment symptoms and therapeutic options. Arch Gynecol Obstet 291:653–656
[26]. Herzog TJ, Wright JD (2007) The impact of cervical cancer on quality of life—the components and means for management. Gynecol Oncol 107(3):572–577
[27]. Stilos K, Doyle C, Daines P (2008) Addressing the sexual health needs of patients with gynecologic cancers. Clin J Oncol Nurs 12(3):457–463
[28]. Lindau ST, Gavrilova N, Anderson D (2007) Sexual morbidity in very long term survivors of vaginal and cervical cancer: a comparison to national norms. Gynecol Oncol 106(2):413–418
[29]. Rutledge TL, Heckman SR, Qualls C, Muller CY, Rogers RG (2010) Pelvic floor disorders and sexual function in gynecologic cancer survivors: a cohort study. Am J Obstet Gynecol. 203(5):e1–e7
[30]. Schover LR. Sexuality and fertility after cancer. *Hematol Oncol Clin North Am.* 2005;19(3):771-796. doi:10.1016/j.hoc.2005.04.012
[31]. Jensen PT, Groenvold M, Klee MC, Thranov I, Petersen MA, Machin D. *Early-stage cervical carcinoma, radical hysterectomy, and sexual function. A longitudinal study.* Cancer. 2004;100(1):97-106.