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Effect of Multidisciplinary Team Care on Psychosexual Problems Resulting from Gynecological Malignancies Treatment

Mai Mohamed Abdallah[1],Inass Kassem Ali [2],

Naser Abdelbary[3], Eman Seif Ashor[4]

[1]assistant lecturare of maternal and newborn health nursing,

[2]Professor of maternal and newborn health nursing,

[2 3]professor of oncology and nuclear medicine,Faculty of Medicine,

Menoufia Univerisity , Egypt

[4]Assistant professor of maternal and newborn health nursing

[1,2,4]Faculty of Nursing, Menoufia Univerisity , Egypt

Background: Gynecologic cancer and its treatments can create hopelessness and anxiety and alter the lifestyle of the affected women. In addition, they often lead to sexual changes that impair female identity and sexual functioning which make the development of a multidisciplinary team in order to address patient's psychosexual problems very crucial. **The purpose of the study** was to investigate the effect of multidisciplinary team care on psychosexual problems resulting from gynecological malignancies treatment **Design**: A quasi-experimental research design was utilized. **Settings**: The study was conducted at Oncology and Surgical Departments of Menoufia University Hospital. **Sample**: A purposive sample of 110 patients diagnosed with gynecological malignancies and were planned to undergo surgery, chemotherapy or radiation. **Instruments**: A structured interview questionnaire, the distress thermometer, the hospital anxiety and depression scale and female sexual function index. **Results**: There was a highly statistically significant difference in the distress score (23.6% and 0% moderate to severe distress) in the study group compared to (80% and 16.4, respectively) in the control group. In addition, there was a marked reduction in mean anxiety level (6.54±1.37) and mean depression level (8.03 ± 1.87) of the study group after receiving the multidisciplinary team care. Also, there was significant improvement in sexual function of the study group (56.4% of the study group demonstrated good sexual function) after the treatment. **Conclusion**: There was significant improvement on the psychological and sexual wellbeing of the gynecological malignancies patients who received the multidisciplinary team care **Recommendations**: Integration of multidisciplinary team care in the management of gynecological malignancies patients should be considered in order to address any psychological and sexual needs.

Keywords*: Gynecological malignancies treatment, multidisciplinary team care, psychosexual problems.*

Introduction:

The magnitude of the impact cancer has on an individual extends beyond the physical dimension (Uslu-Sahan et al., 2019). They also stated that evidence aside from the physical impacts, the course of cancer diagnosis and treatments potentially causes psychosexual effects in both the short and long term. In addition, they added that some of the effects are psychological distress, depression, anxiety, and post-traumatic stress disorder.

Also, Gil-Ibanez et al. (2023) explained that the diagnosis and treatment of gynecological cancers are stressful experiences for women with a significant impact on their psychological, sexual, and social functioning. Similarly, they suggested that women with gynecological cancer suffer from depression, anxiety, suicidal ideation, feelings of anger and shame, lower self-esteem, and inferior quality of life.

Meanwhile, Hwang et al. (2020) suggested that estrogen is highly involved in a wide range of brain functions, such as cognition, memory, neurodevelopment, and neuroplasticity. Also, they mentioned that it has neuroprotective and anti-inflammatory effects that can be utilized in managing psychiatric disorders. Moreover, they noted that patients with gynecological cancer treated by radical surgery exhibited high prevalence rates of anxiety and depression symptoms. Furthermore, they explained that this can be related to the loss of neuroprotective effects of estrogen because of surgical management.

Furthermore, treatments for gynecological cancers often lead to sexual changes that impair female identity and sexual functioning. Sexual dysfunctions are characterized by disturbance in sexual desire and physiological changes that characterize the sexual response that develop as a result of vulvo-vaginal atrophy (one of the most common adverse events reported by gynecological cancer patients with spontaneous or iatrogenic menopause) (D'Oria et al., 2022).

Sexual health is defined by the World Health Organization (WHO) as a state of physical, emotional, mental, and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction, or infirmity (WHO, 2017). Moreover, Shankar et al. (2017) stated that the sexual problems that affect gynecological malignancies patients result from ovarian damage and injury of genital organs because of surgical management, exposure to pelvic radiation, chemotherapy, and hormonal therapy. Likewise, they mentioned that ovarian damage led to sudden drops in estrogen levels that contribute to the development of early menopausal symptoms such as hot flashes, night sweats, sleep disturbance led to nervousness, and varying degrees of depression, and anxiety.

The management of gynecological malignancies becomes very complex, it is important to involve all key professional groups in making clinical decisions for each patient (Cook et al.,

2019). They also added that development of a multidisciplinary team in order to provide comprehensive care to gynecological malignancies patients during treatment period is very important. A multidisciplinary team aims to ensure that all patients receive timely treatment and care from appropriately skilled professionals, it also ensures continuity of care, and that all patients get appropriate information and support. In addition the team collects reliable data for audit and research, monitor patient adherence to clinical guidelines and offer an opportunity for development and learning which improve the quality of patient life.

Based on Ho et al. (2021) the nurse plays a major role in facing psychological, sexual, physical and social problems that face the gynecological malignancies patients. Additionally, assessment of patient health status during the early stages of cancer diagnosis is needed to be carried out by nurse to help overcoming any health problem arises in response to the cancer or its treatments.

Furthermore, nurses are closely involved with numerous supportive care issues encountered by cancer patients and their families (Williams et al., 2017). They also mentioned that they should be able to assess any psychological problems and should provide supportive care for both patients and their families. Also they should provide health teaching regarding any health problem that may be initiated by cancer or its treatment and should be able to provide the appropriate nursing care.

Significance of the study

Gynecological malignancies accounted for 5.2% about 151 from total cases of 2794 cancer patients at Oncology department in Menoufia University Hospital (El-Senbawy et al., 2018). In addition around half of all newly examined cancer patients reported clinically significant levels of anxiety and/or depression (Cassedy et al., 2018). Also about one third of adolescents and young adults with both reproductive and non-reproductive cancer experience sexual dysfunction (Mütsch et al., 2019). According to Bober et al. (2018) nearly 90% of patients with a history of cancer have sexual dysfunction at some points during their cancer experience. Furthermore Han et al. (2021) mentioned that the application of multidisciplinary collaborative continuous nursing for cervical cancer patients can improve patients' depression, anxiety, quality of life, cancer-related fatigue, sleep quality, and reduce the incidence of complications. For these reasons, the researcher found an importance in conducting the present study to investigate the effect of multidisciplinary team care on health problems resulting from gynecological malignancies treatment.

The purpose of this study was to

Investigate the effect of multidisciplinary team care on psychosexual problems resulting from gynecological malignancies treatment

Research Hypotheses

- Patients with gynecological malignancies who receive the multidisciplinary team care will experience lower levels of distress, anxiety and depression than those who don't receive it.
- Patients with gynecological malignancies who receive the multidisciplinary team care will have better sexual function than those who don't receive it.

Definitions of variables

- **Multidisciplinary team care**: it is theoretically defined as a patient centered care provided through multiple health professionals from several different disciplines who collaborate and communicate together in order to address as many aspects of a patient's care as possible (Cook et al., 2019). While in this study, it means cooperation between oncologist, nurse, psychotherapist and gynecologist to provide comprehensive care in the form of educational instructions, psychotherapy sessions, dietary, gynecological and medical consultation in order to address the psychological, sexual, physical and social problems of gynecological malignancies patients.
- **Psychosexual problems**: It is theoretically defined as a state in which the person is unable to function normally (Shannon et al., 2017). While in this study; it is defined as the psychological and sexual problems resulting from the gynecological malignancies treatment. It was assessed through hospital anxiety and depression scale, distress thermometer and female sexual function index.

Methods

Research Design:

A quasi-experimental research design (study/ control group) was utilized in this study.

Research settings:

The study was conducted at Oncology and Surgical Departments at Menoufia University Hospital.

Sampling:

Sample type:

A purposive sample of 110 patients with gynecological malignancies who were planned to undergo surgery, chemotherapy or radiotherapy, who were married and sexually active and whom ages ranged from 18 years till menopause. The exclusion criteria included gynecological malignancies patients with current or previous psychiatric disease or receiving psychiatric medications and women with any uncontrolled medical illness other than gynecological malignancies that may affect their psychological and sexual wellbeing.

Data collection instruments:

Two instruments were used for data collection.

<u>Instrument one</u>: A structured interview questionnaire

It was developed by the researcher based on reviewing of related literature to assess the following:

- **Part 1:** Sociodemographic data: it included age, level of education, employment status, and place of residence and income.
- **Part 2**: Medical history: it included medical diagnosis and treatment modalities (surgery, chemotherapy, radiotherapy, hormonal therapy or combination).

<u>Instrument two</u>: Assessment of the psychosexual problems resulting from gynecological malignancies treatment:

It was done using the following:

- **Part 1**: The Distress Thermometer: It was adopted from Ownby (2019), for evaluation of the emotional distress of the gynecological malignancies patients through visual analogue scale (thermometer) which extends from 0 (no distress) to 10 (extreme distress).

The scoring system:

- 0 to 3 (mild distress levels).
- 4 to 7 (moderate distress level).
- 8 to 10 (severe distress level) (NCCN, 2021).

- **Part 2**: The Hospital Anxiety and Depression Scale (HADS): It was adopted from Stern (2014) to assess the level of anxiety and depression of gynecological malignancies patients. It contains 14 items; 7 to assess depression (HADS- D) and 7 for anxiety (HADS-A).

The scoring system:

Each item had a separate score extended from 0 to 3; (0= Not at all, 1= from time to time, 2= A lot of the time, 3= Most of the time). The score of the 7 items related to anxiety (HADS-A) was added to each other and took a score from 0 to 21. Also, the score of the 7 items related to depression (HADS- D) was added together. The results for both anxiety and depression were interpreted as follows:

- 0 to 7: (Normal).
- 8 to 10: (Mild anxiety or depression).
- 11 to 14: (Moderate anxiety or depression).
- 15 to 21: (Sever anxiety or depression) (Stern (2014)).

- **Part three**: Female Sexual Function Index (FSFI): It was adopted from Rosen et al. (2000). It was used to assess 6 domains (desire, arousal, lubrication, orgasm, satisfaction, and sexual pain) which included 19 items.

The scoring system:

Domain	Question	score	Domain factor	minimum	maximum	Patient score
Desire	1-2	1 – 5	0.6	1.2	6.0	
Arousal	3-6	0 – 5	0.3	0	6.0	
Lubrication	7-10	0 – 5	0.3	0	6.0	
Orgasm	11-13	0 – 5	0.4	0	6.0	
Satisfaction	14-16	0 – 5	0.4	0.8	6.0	
Pain	17-19	0 – 5	0.4	0	6.0	
Full Scale Score Range				2	36	

The score for each domain extended from 0 to 5 for all items except sexual desire extended from 1 to 5;(0= no sexual activity, 1= very low or never, 2= low or few times, 3= moderate or some times, 4= high or most times, 5= very high or always). Patient's score for each domain items was added together then multiply the sum with the domain factor. The scores of the 6 domains were added together to obtain the full-scale score. A domain score of zero indicated that the patient reported having no sexual activity during the past month. The total score was classified as the following:

The scoring system:

- Good sexual function: ≥75 %, equal to 27- 36 from the total score.
- Average sexual function: 50 % -74 %, equal to 18- 26 from the total score.
- Sexual dysfunction: <50 % equal to 17 or less from the total score (Reed et al., 2014).

Validity of the instrument:

Validity of the instrument was established by four qualified experts (two experts from Maternal and Newborn Health Nursing Department, one expert from Oncology and Nuclear Medicine Department, Faculty of Medicine.

Reliability of the instrument:

The reliability of the instrument was computed by the researcher for testing the internal consistency of the instrument. The researcher used test-retest reliability. It took place through the administration of the same instrument to the same participants under similar conditions on two or more occasions. Scores from repeated testing were compared to test consistency of the results over the time. All dimensions in the instrument were internally reliable with Cronbach's α scores ranging from 0.80 to 0.95.

Ethical Considerations:

The approval of the Committee of Research and Ethics of the Faculty of Nursing, Menoufia University was obtained on December, 21, 2021. Approaches to ensure the ethics were considered in the study regarding the confidentiality. Confidentiality was achieved by the use of locked papers with the names of the participating women replaced by numbers. The interview was individualized with each patient and all women were informed that the information they provided during the study would be kept confidential and used only for statistical purposes. The findings would be presented as a group of data without participant's personal information remained. Informed consent was obtained from all women after explaining the nature and purpose of the study. Each woman was informed that participation in the study was optional and they were given the opportunity to freely refuse participation

Pilot study:

A total of 10% of the participants (11 women) were included in the pilot study in order to assess the feasibility, clarity of the instruments and

determine the needed time to answer the questions. The necessary modifications were made according to the pilot study's results. So, they were excluded from the study sample.

Study procedure:

The study was carried out through four phases: interview and assessment phase (pre-test), planning phase, implementation phase and follow up and evaluation phases. These phases extended over a period of nine months started in September 2022 to the end of May 2023.

- **Assessment phase (pre-test):**
  - At the beginning of the study, the researcher reviewed the operation list and admission records to determine the treatment schedule of each patient. The initial visit was arranged in order to include the patients who met the predetermined criteria in the sample.
  - The second visit was arranged three weeks after surgery, two months after the first chemotherapy session and one week after starting radiotherapy. During the second visit assessment was done for both study and control groups in order to assess the effect of gynecological malignancies treatment on psychological and sexual health.
  - The researcher identified the deficit in women knowledge regarding gynecological malignancies and the effect of treatment on their psychological and sexual wellbeing and measures to manage the negative impact of treatment.
- **Planning phase:**
  - Extensive review of related literature was made through review of electronic dissertations, available books, articles and periodicals to formulate a knowledge base relevant to the study area. An educational booklet for gynecological malignancies patients to overcome the health problems resulting from the treatment was developed by the researcher and revised by supervisors of the current study.
  - Educational sessions were arranged for the study group to include groups of 7 to 10 patients together according to their treatment schedule. Patients of the study group who demonstrated high level of distress anxiety or depression were referred to psychiatrist to receive psychotherapy sessions. Also gynecologist consultation was arranged for patients who suffered from sexual dysfunction as a result of the treatment.
- **Implementation phase: (for the study group only):**
  - It evolved cooperation between members of the multidisciplinary team in order to address all the patients' needs and to reach the highest level of satisfaction through providing comprehensive care.
  - At first patients with severe distress, anxiety and depression started psychotherapy sessions;

the number of sessions was determined by the psychiatrist according to patient condition and response to treatment. Different measures were employed in psychotherapy sessions as mindfulness, teaching the patient copying strategies, and relaxation techniques.

- Second patients who suffered from sexual dysfunction were referred to gynecologist who described the needed medication which included local estrogen, water based lubricants, training on the use of vaginal dilators and discussion about the alternative options for management of vaginal stenosis as vaginal rejuvenation and vaginal reconstructive surgery.
- Fourth the researchers carried out three educational sessions each lasted for 30 minutes to one hour. An educational booklet was given to each patient during the first session.

- The first session involved brief explanation of cancer meaning, risk factors, gynecological malignancies types, symptoms and treatment employed for each type.
- The second session included explanation of the psychological impact of gynecological malignancies, and management strategies of distress, anxiety and depression and also evolved practical training on different relaxation techniques as deep breathing exercise, progressive relaxation techniques and guided imagery.
- The third session included explanation of the impact of gynecological malignancies and their treatment on sexual health and management strategies of vaginal dryness including the use of vaginal moisturizers, eating healthy diet rich with natural estrogen as fish oil and wearing cotton underwear. Signs and management strategies of vaginal atrophy as using vagina dilators and practicing kegel exercise. signs and management strategies of hot flushes as maintaining cool environment, avoiding caffeinated drinks and spicy food, practicing relaxation techniques, maintaining ideal body weight and avoiding smoking.

▪ **Follow- up and evaluation phases:**

- Follow up was maintained throughout the entire intervention period in order to ensure the adherence of the patients with the management strategies. Evaluation (posttest) was carried out after two weeks to one month after completion of the treatment for both control and study groups.
- -The control group received only routine care during the intervention period and they were given the educational booklet after posttest for ethical aspects.

Statistical Analysis

Data was entered and analyzed by using SPSS (Statistical Package for Social Science, version 25). Graphics were done using Excel program as well as SPSS package. Quantitative data were presented by mean ($\bar{X}$) and

standard deviation (SD). It was analyzed using t and ANOVA (F) tests for comparison between two or more than two means. Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square ($\chi 2$) test. Level of significance was set as P value <0.05 for all significant tests.

Results

Table 1 illustrates the socio-demographic data of the studied patients. It revealed that there were no statistically significant differences between the study and control groups regarding their socio-demographic data in terms of age, level of education, employment status and place of residence. Meanwhile, there was statistically significant difference between the study and control groups regarding their income.

Table 2 illustrates the medical history of the studied patients in the study and control groups. It revealed that there were no statistically significant differences between the study and control groups regarding their medical diagnosis in terms of ovarian cancer, endometrial cancer, cervical cancer, vaginal cancer, vulvar cancer, and others (p value > 0.05). Meanwhile, there was statistically significant difference between the study and control groups regarding their treatment modality (p value >0.001).

Figure 1 illustrates the total distress categories in the study and control groups before, during, and after the treatment. The figure shows that there was a moderate distress score before the treatment in the study and control groups (67.3% - 83.6% respectively). Meanwhile, 81.8% and 18.2% of the study group had moderate and severe distress scores during the treatment compared to (70.9%) and (27.3%), respectively in the control group. Additionally, 23.6% and 0.0% of the study group had moderate and severe distress scores after the treatment compared to (80.0% and 16.4%, respectively) in the control group.

Table 3 illustrates the total anxiety levels in the study and control groups before, during, and after the treatment. It revealed that there were highly statistically significant differences between the study and control groups after the treatment (p value > 0.001). It also revealed that there were statistically significant differences between the study and control groups during the treatment (p value > 0.05). It also revealed that there were no statistically significant differences between the study and control groups before and during the treatment (p value > 0.05).

Figure 2 illustrates the total depression levels in the study and control groups before, during, and after the treatment. It revealed that 50.9% of the study group and 61.9% of the control group had mild depression score before the treatment. Also, 47.3% of the study group and 60.0% of the control group had moderate depression score during the treatment. Additionally, 38.2% of the study group and 1.8% of the control group had normal scores after the treatment.

Figure 3 shows the correlation between the total anxiety and

depression scores in the study and control groups after the treatment. There was a positive correlation between the total anxiety score and total depression score in the study and control groups after the treatment (r = 0.350), which means that when the total anxiety scores increase, the total depression scores also increase.

Table 4 illustrates the sexual desire levels of the study and control groups as it applies to the past 4 weeks before, during and after the treatment. It revealed that there were no statistically significant differences between the study and control groups before and during the treatment (p value > 0.05). Also, there were highly statistically significant differences between the study and control groups after the treatment (p value > 0.001).

Table 5 illustrates the mean sexual orgasm score of the study and control groups before, during, and after the treatment. It revealed that there were highly statistically significant differences between the study and control groups after the treatment (p value < 0.001). It also revealed that there were no statistically significant differences between the study and control groups before and during the treatment (p value > 0.05). Meanwhile, there were highly statistically significant differences among the study group before, during and after the treatment (p value > 0.001).

Table 6 illustrates the total mean score of dyspareunia of the study and control groups before, during, and after the treatment. It revealed that there were highly statistically significant differences between the study and control groups after the treatment (p value < 0.001). It also revealed that there were no statistically significant differences between the study and control groups before and during the treatment (p value > 0.05). Furthermore, there were statistically significant differences among the study group before, during and after the treatment (p value < 0.001).

Table 7 illustrates the sexual satisfaction level of the study and control groups as it applies to the past 4 weeks before, during and after the treatment. It revealed that there were no statistically significant differences between the study and control groups before and during the treatment (p value > 0.05). Also, there were statistically significant differences between the study and control groups after the treatment (p value > 0.001).

Figure 4 illustrates the total female sexual function score of the study and control groups as it applies over the past 4 weeks before, during and after the treatment. It revealed that 69.1% of the study group and 60.0% of the control group had average sexual function before the treatment. Also, 65.5% and 72.7% of the study and control group had sexual dysfunction during the treatment. Additionally, 56.4% of the study group had good sexual function after the treatment while only 10.9% of the control group demonstrated good sexual function after the treatment.

Table 1: Socio-Demographic Data of the Studied Patients (n = 110)

Variables	The studied patients (N=110)				X^2	P- value
	Study group (N=55)		Control group (N=55)			
	No.	%	No.	%		
Age (years)						
Mean ± SD	52.32 ± 9.19		55.18 ± 6.25		t 1.90	> 0.05 ns
Minimum	20.0		35.0			
Maximum	70.0		68.0			
Level of education						
Illiterate	6	10.9	4	7.3	4.83	> 0.05 ns
Primary education	14	25.5	15	27.3		
Secondary education	27	49.1	34	61.8		
University	8	14.5	2	3.6		
Employment status						
Working	21	38.2	15	27.3	1.04	> 0.05 ns
Not working	34	61.8	40	72.7		
Place of residence						
Urban	20	36.4	19	35.8	0.005	> 0.05 ns
Rural	35	63.6	34	64.2		
Income						
Enough	13	23.6	26	47.3	6.71	< 0.05*
Not enough	42	76.4	29	52.7		

NB: ns = not statistically significant ($p > 0.05$). * = statistically significant ($p < 0.05$).

Table 2: Medical History of the Studied Patients in the Study and Control Groups (n = 110)

Variables	The studied patients (N=110)				X^2	P- value
	Study group (N=55)		Control group (N=55)			
	No.	%	No.	%		
Medical diagnosis						
Ovarian cancer	23	41.8	20	36.4	6.57	> 0.05 ns
Endometrial cancer	17	30.9	22	40.0		
Cervical cancer	8	14.5	5	9.1		
Vaginal cancer	1	1.8	5	9.1		
Vulvar cancer	4	7.4	3	5.4		
Gestational trophoblastic neoplasia	2	3.6	0	0.0		
Treatment modality?						
Surgery only	5	9.1	2	3.6	21.26	< 0.001**
Chemotherapy only	3	5.5	0	0.0		
Radiation only	3	5.5	1	1.8		
Surgery and chemotherapy	29	52.7	14	25.5		
Surgery and radiation	7	12.7	25	45.5		
Chemotherapy and radiation	0	0.0	0	0.0		
Surgery, radiation and chemotherapy	8	14.5	13	23.6		

NB: ns = not statistically significant (p > 0.05). ** = statistically significant (p < 0.001).

Figure 1: Total Distress Categories in the Study and Control Groups Before, During, and After the Treatment

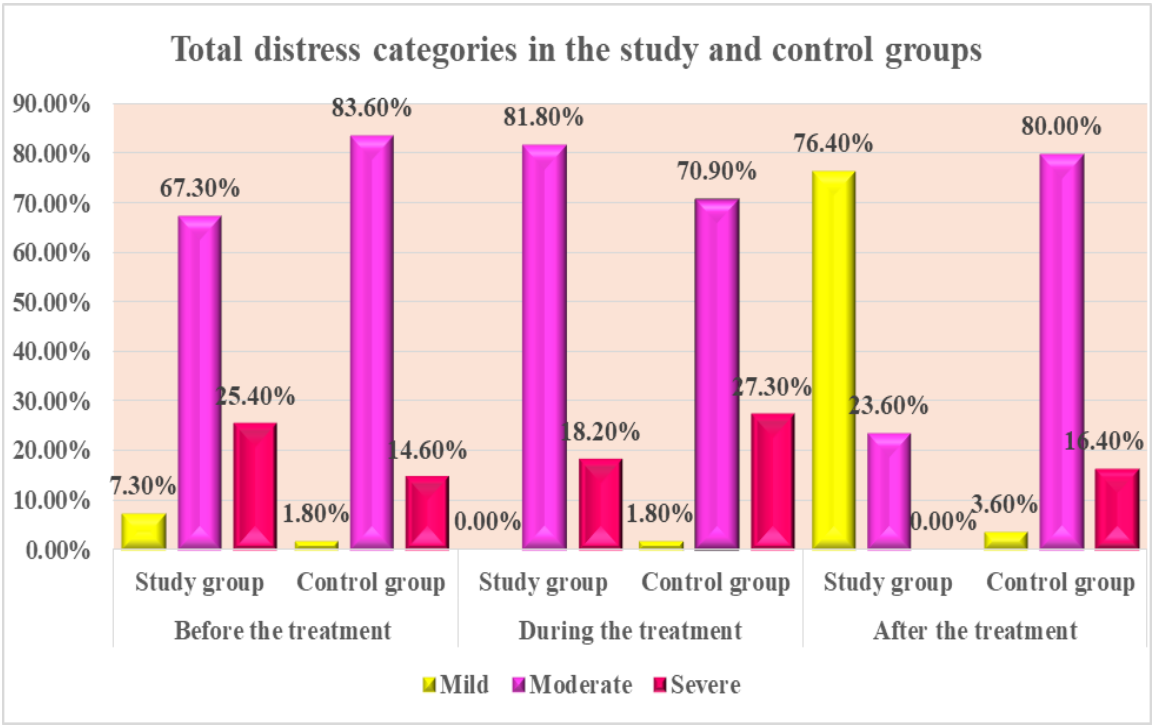


Table 3: Total Anxiety Levels in the Study and Control Groups Before, During, and After the Treatment Before, During and After the Treatment (n = 110

Variables	Study group (N=55)		Control group (N=55)		X^2	P-value
	No.	%	No.	%		
Before the treatment						
- Mild anxiety	1	1.8	11	20.0	22.07	> 0.05 ns
- Moderate anxiety	16	29.1	29	52.7		
- Severe anxiety	38	69.1	15	27.3		
During the treatment						
- Mild anxiety	0	0.0	0	0.0	0.33	< 0.05*
- Moderate anxiety	22	40.0	25	45.5		
- Severe anxiety	33	60.0	30	54.5		
After the treatment						
- Normal	44	80.0	0	0.0	110.0	< 0.001**
- Mild anxiety	11	20.0	0	0.0		
- Moderate anxiety	0	0.0	22	40.0		
- Severe anxiety	0	0.0	33	60.0		

NB: ns = not statistically significant (p>0.05). * = statistically significant (p < 0.05).

** = highly statistically significant (p < 0.001).

Figure 2: Total Depression Levels in the Study and Control Groups Before, During, and After the Treatment

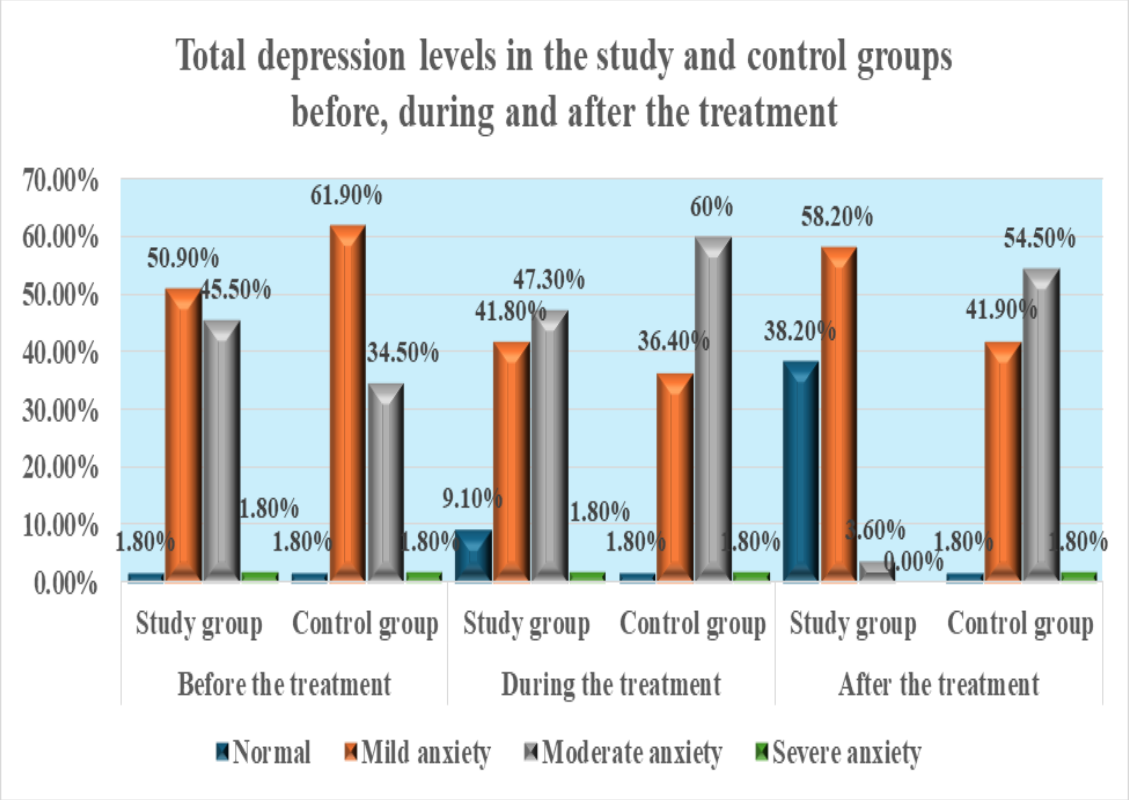


Figure 3: Correlation between Total Anxiety and Depression Scores in the Study and Control Groups after the Treatment

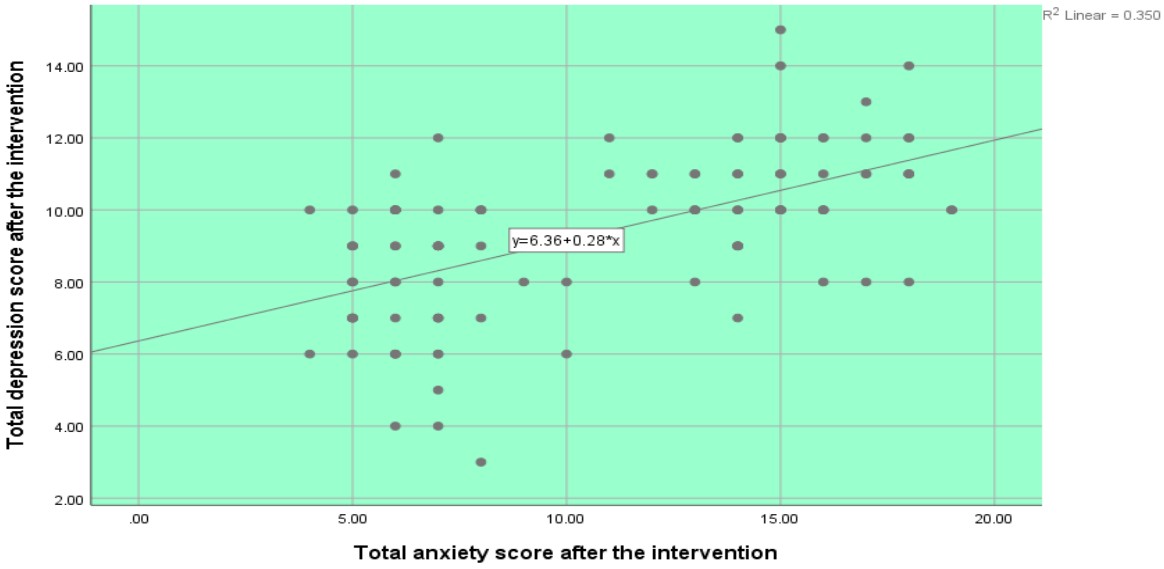


Table 4: Levels of Sexual Desire of the Study and Control Groups Before, During, and After the Treatment (n = 110)

	Before the treatment				X^2 & P-value	During the treatment				X^2 & P-value	After the treatment				X^2 & P-value
	Study group (N=55)		Control group (N=55)			Study group (N=55)		Control Group (N=55)			Study group (N=55)		Control group (N=55)		
	No.	%	No.	%		No.	%	No.	%		No.	%	No.	%	
1. Over the past 4 weeks, how often did you feel sexual desire or interest?															
4 = Most times (more than half the time)	0	0.0	0	0.0		0	0.0	0	0.0		6	10.9	0	0.0	
3 = Sometimes (about half the time)	0	0.0	0	0.0	3.09 >0.05 ns	0	0.0	0	0.0	0.76 >0.05 ns	29	52.7	0	0.0	65.55 <0.000**
2 = A few times (less than half the time)	26	47.3	17	30.9		12	21.8	16	29.1		20	36.4	25	45.5	
1 = Almost never or never	29	52.7	38	69.1		43	78.2	39	70.9		0	0.0	30	54.5	

	Before the treatment				X^2 & P-value	During the treatment				X^2 & P-value	After the treatment				X^2 & P-value
	Study group (N=55)		Control group (N=55)			Study group (N=55)		Control Group (N=55)			Study group (N=55)		Control group (N=55)		
	No.	%	No.	%		No.	%	No.	%		No.	%	No.	%	
2. Over the past 4 weeks, how would you rate your level (degree) of sexual desire or interest?															
4 = High	0	0.0	0	0.0		0	0.0	0	0.0		5	9.1	0	0.0	
3 = Moderate	2	3.6	0	0.0	5.75 >0.05 ns	0	0.0	0	0.0	1.78 >0.05 ns	35	63.6	0	0.0	64.02 <0.000**
2 = Low	32	58.2	23	41.8		25	45.5	32	58.2		12	21.8	34	61.8	
1 = Very low or none at al	21	38.2	32	58.2		30	54.5	23	41.8		3	5.5	21	38.2	

NB: ** = highly statistically significant (p≤ .001).

Table 5: Total Mean Sexual Orgasm Score of the Study and Control Groups as It Applies Over the Past 4 Weeks Before, During, and After the Treatment (n = 110)

Variables	Study group (N=55) Mean ±SD	Control group (N=55) Mean ±SD	t-test	P-value
Before the treatment	3.49 ± 0.87	2.80 ± 0.75	4.44	>0.05 ns
During the treatment	2.25 ± 0.56	2.09 ± 0.70	1.32	>0.05 ns
After the treatment	3.49 ± 0.65	2.20 ± 0.52	11.42	<0.001**
ANOVA test	0.70**	0.35ns		
P-value	<0.001	>0.05		

NB: ** = highly statistically significant (p≤ .001).

Table 6: Total Mean Score of Dyspareunia of the Study and Control Groups as It Applies over the Past 4 Weeks Before, During, and After the Treatment (n = 110)

Variables	**Study group (N=55) Mean ±SD**	**Control group (N=55) Mean ±SD**	**t-test**	**P-value**
Before the treatment	4.37 ± 0.49	4.26 ± 0.79	0.86ns	>0.05
During the treatment	3.00 ± 0.93	2.61 ± 0.83	2.28ns	>0.05
After the treatment	4.21 ± 0.49	2.66 ± 0.65	13.91**	<0.001
ANOVA test	0.61**	0.72ns		
P-value	<0.001	>0.05		

NB: ns = not statistically significant (p>0.05). ** = highly statistically significant (p < 0.001).

Table 7: Level of Sexual Satisfaction of the Study and Control Groups as It Applies Over the Past 4 Weeks Before, During, and After the Treatment (n = 110)

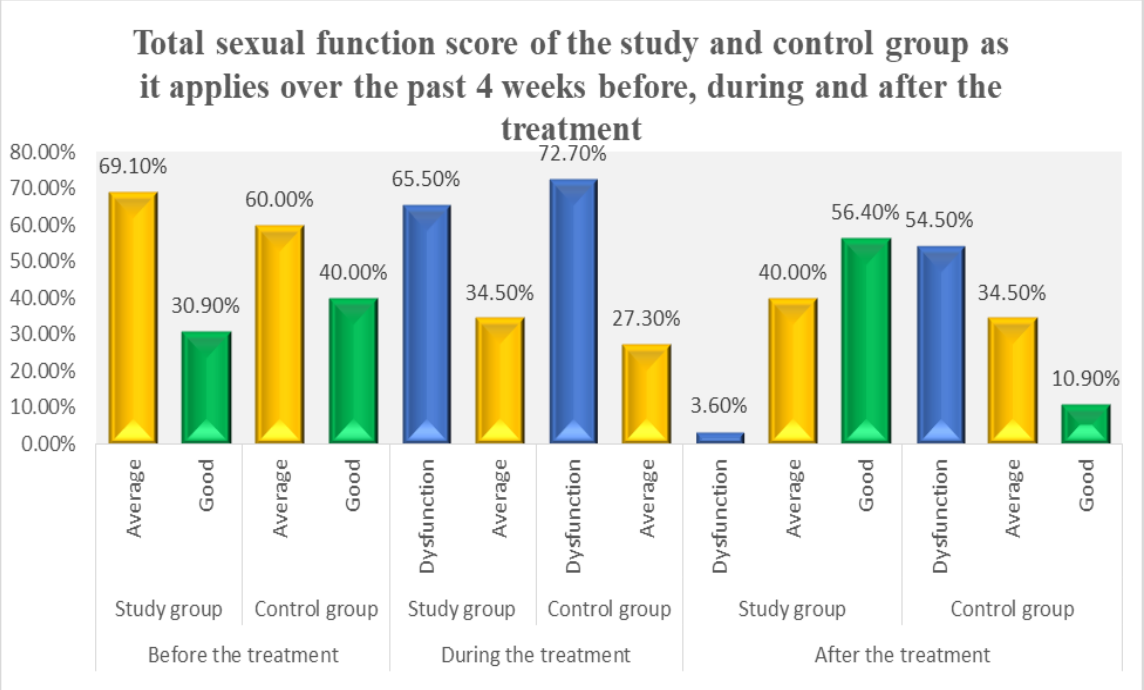
	Before the treatment				X^2 & P-value	During the treatment				X^2 & P-value	After the treatment				X^2 & P-value
	Study group (N=55)		Control group (N=55)			Study group (N=55)		Control group (N=55)			Study group (N=55)		Control group (N=55)		
	No.	%	No.	No.		No.	%	No.	No.		No.	%	No.	No.	
14. Over the past 4 weeks, how satisfied have you been with the amount of emotional closeness during the sexual activity?															
No sexual activity	0	0.0	1	1.8		4	7.3	2	3.6		0	0.0	0	0.0	
Very satisfied	0	0.0	1	1.8		0	0.0	0	0.0		0	0.0	0	0.0	
Moderately satisfied			14	25.5		1	1.8	0	0.0		30	54.5	0	0.0	
About equally satisfied and dissatisfied	25	45.5	11	20.0	40.37 >0.05 ns	41	74.5	24	43.6	18.23 >0.05 ns	25	45.5	24	43.6	61.02 <0.001**
Moderately dissatisfied	25	45.5	22	40.0		9	16.4	23	41.8		0	0.0	24	43.6	
Very dissatisfied	5	9.1	6	10.9		0	0.0	6	10.9		0	0.0	7	12.7	

	Before the treatment				X^2 & P-value	During the treatment				X^2 & P-value	After the treatment				X^2 & P-value
	Study group (N=55)		Control group (N=55)			Study group (N=55)		Control group (N=55)			Study group (N=55)		Control group (N=55)		
	No.	%	No.	No.		No.	%	No.	No.		No.	%	No.	No.	
15. Over the past 4 weeks, how satisfied have you been with your sexual relationship?															
No sexual activity	0	0.0	1	1.8		0	0.0	0	0.0		0	0.0	0	0.0	
Moderately satisfied	25	45.5	14	25.5		0	0.0	0	0.0		30	54.5	0	0.0	
About equally satisfied and dissatisfied	31	56.3	12	21.8	40.02 >0.05 ns	9	16.4	8	14.5	0.60ns >0.05	25	45.5	8	14.5	85.75 <0.001**
Moderately dissatisfied	25	45.5	22	40.0		29	52.7	33	60.0		0	0.0	33	60.0	
Very dissatisfied	0	0.0	6	10.9		17	30.9	14	25.5		0	0.0	14	25.5	
16. Over the past 4 weeks, how satisfied have you been with your overall sexual life?															
5 = Very satisfied	0	0.0	1	1.8	40.02 >0.05	0	0.0	0	0.0	0.06 >0.05	0	0.0	0	0.0	75.78 <0.001**

	Before the treatment				X^2 & P-value	During the treatment				X^2 & P-value	After the treatment				X^2 & P-value
	Study group (N=55)		Control group (N=55)			Study group (N=55)		Control group (N=55)			Study group (N=55)		Control group (N=55)		
	No.	%	No.	No.		No.	%	No.	No.		No.	%	No.	No.	
4 = Moderately satisfied	24	43.7	14	25.5	ns	0	0.0	0	0.0	ns	30	54.5	0	0.0	
3 = About equally satisfied and dissatisfied	31	56.3	12	21.8		19	34.5	19	34.5		25	45.5	13	0.0	
2 = Moderately dissatisfied	0	0.0	22	40.0		26	47.3	25	45.5		0	0.0	28	50.9	
1 = Very dissatisfied	0	0.0	6	10.9		10	18.2	11	20.0		0	0.0	14	25.5	

NB: ** = highly statistically significant (p≤ .001).

Figure 4: Total Female Sexual Function Level of the Study and Control Groups as It Applies Over the Past 4 Weeks Before, During and After the Treatment



Discussion

In regard to psychological problems, the current study findings revealed that the majority of patients in both the study and control groups suffered from moderate to severe distress and anxiety before and during the treatment, and the distress level increased for both groups during the treatment period, more than before the treatment. Moreover, the results showed a significant reduction in the distress and anxiety levels for the study group after the intervention. Also, the findings of the current study showed that the majority of the study and control groups suffered from mild depression before the treatment and moderate depression during the treatment. Moreover, the results showed that the depression levels of the patients in the study group had improved after the intervention.

These findings came in agreement with Shirali et al. (2020), who demonstrated that the patients with gynecological malignancies exhibited poor quality of life and high levels of anxiety and depression. Likewise, the previous findings were in concordance with Nasution et al. (2021), who studied "The Effectiveness of Spiritual Intervention in Overcoming Anxiety and Depression Problems in Gynecological Cancer Patients" in Indonesia. They revealed that spiritual intervention which evolved from relaxation sessions was effective in reducing anxiety and depression levels among gynecological malignancy patients, and there were significant differences between the patients in the study and control groups at the end of the intervention period.

The agreement between the current study and previous studies can be rationalized through the following: diagnosis of cancer is a distressing event, and exposure to treatment side effects affects patients' psychological health negatively and creates high levels of anxiety and depression. Correspondingly, this agreement supports the need to incorporate psychological measures as sufficient psychological support and teaching the patients different relaxation techniques to overcome intrusive thoughts and help them control distress, anxiety and depression

In regard to sexual function more than one half of the study participants exhibited low or absent sexual desire before and during the treatment. Also, the majority of patients in the study and control groups exhibited a moderate to low level of sexual arousal before and during the treatment. Additionally, there was a marked reduction in vaginal lubrication during the treatment for majority of the study participants. Also, there was a marked reduction in orgasm and sexual satisfaction and a marked increase in pain combining sexual intercourse for both the study and control groups during the treatment period compared to before the treatment. In addition, the current study findings revealed that more than one half of the studied patients suffered from sexual dysfunction during the treatment period, which reflects the negative effect of cancer treatment on sexual health.

These findings were in concordance with Hosseini et al. (2022), who summarized "Prevalence of sexual dysfunction in women with cancer: A systematic review and meta-analysis" in Iran. It showed that the prevalence of sexual dysfunction in women with cancer was sixty-six, which indicates that not only gynecological malignancy patients but also all cancer patients experience a varying degree of sexual dysfunction as a side effect of cancer treatment.

However, the results of the current study revealed a marked improvement in overall sexual function after the treatment for the study group, which stresses the importance of multidisciplinary team care in addressing the sexual problems such as vaginal dryness, vaginal stenosis, and dyspareunia that arise during the treatment and the importance of pelvic floor exercises, the use of vaginal dilators, vaginal lubricants, and local estrogen in the relief of sexual dysfunction that combines gynecological malignancy treatments.

These findings came in agreement with Chow et al. (2020), who investigated the effect of a psycho-educational program on anxiety, sexual function, and uncertainty of illness among gynecological malignancy patients in China. They concluded that patients were more likely to be sexually active, have greater sexual interest, and perceive a greater level of intimacy after the intervention. The agreement between the current and the previous study implies the significant importance of educational intervention in the management of sexual concerns

among gynecological malignancy patients.

Conclusion

The current study findings showed marked reduction in distress, anxiety and depression levels for the study group in comparison to control group. Also, the present study findings showed a highly statistically significant increase in the total score of female sexual function score for the study group after the treatment. Therefore, the findings of the current study fail to accept the null hypothesis.

Recommendations

Based on the findings of the current study, the following recommendations are proposed:

- Integration of multidisciplinary team care in the management of gynecological malignancies patients should be considered in order to address any psychological or sexual needs.
- Development of educational and counseling programs for gynecological malignancies patients to provide the needed guidance and instructions to address treatment related side effects.

Suggestions for future studies:-

- Studying the effect of vaginal dilator usage on the relief of pelvic radiation induced vaginal stenosis.

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