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

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Abstract: Background: Surgery, chemotherapy, radiotherapy and hormonal therapy are very effective in gynecological malignancies treatment but they produce a wide variety of health problems which affect the psychological, sexual, physical and social aspects of patients' health which make the development of a multidisciplinary team in order to provide comprehensive patient care very crucial. The purpose of the study was to investigate the effect of multidisciplinary team care on health 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, female sexual function index and functional assessment of cancer therapy questionnaire. **Results**: There was a highly statistically significant difference in the distress score (23.6% and 0% moderate to severe distress, respectively) in the study group compared to (80% and 16.4%, respectively) the control group. In addition, there was marked reduction in mean anxiety (6.54±1.37) and depression level (8.03 ± 1.87) of the study group and significant improvement in sexual function of the study group (56.4% of the study group demonstrated good sexual function) after the intervention. Furthermore, there was significant difference in regard to mean physical wellbeing of the study group (48.37± 8.08) in comparison to control group (10.72± 7.83) after the treatment. Additionally, there was significant difference in regard to mean social wellbeing of the study group (78.56 ± 12.51) in comparison to control group (54.84 ± 7.80) after the treatment. **Conclusion:** Multidisciplinary team care provided by the oncologist, psychotherapist,

gynecologist, nutritionist and nurse resulted in significant improvement on the psychological, sexual, physical and social wellbeing of the gynecological malignancies patients. **Recommendations**: Integration of multidisciplinary team care in the management of gynecological malignancies patients should be considered in order to address the patient's needs.

***Keywords**: Gynecological malignancies treatment, health problems, Multidisciplinary team care.*

Introduction

Surgery, chemotherapy, radiotherapy and hormonal therapy are very effective in gynecological malignancies treatment but they produce a wide variety of health problems (Suneja & Viswanathan, 2020). Also, they mentioned that these health problems exceeded the physical dimension to include the psychological, sexual and social aspects of patients' life which in response led to a tremendous negative impact on gynecological malignancies patients' quality of life

Meanwhile, Cook et al. (2019) stated that gynecological malignancies treatments can cause severe psychological problems. Regardless of the prognosis, they noted that several factors can lead to anxiety, depression and emotional distress among gynecological malignancies patients as fear of death, fear of pain and uncertainty about the future. Moreover, they illustrated that the severity of clinical symptoms, therapeutic outcomes, patient's general health state, personal traits and coping strategies can affect the level of psychological distress experienced by gynecological malignancies patients.

Furthermore, treatments for gynecological cancers often lead to sexual changes that impair female identity and sexual functioning (D'Oria et al., 2022). Also, they noted that 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).

In addition, Boa & Grénman (2018) stated that there are a wide range of physical problems that can be classified systematically as gastrointestinal tract problems as vomiting, nausea, anorexia, diarrhea, heart burn and constipation which result from cytotoxic effect of chemotherapy on both healthy and cancerous tissues. They also added that urinary problems such as incontinence and recurrent urinary infection are direct effect of pelvic radiation. Also, reproductive problems such as infertility, amenorrhea and early menopausal symptoms are associated

with oophorectomy and exposure to chemotherapy or radiotherapy.

Correspondingly, Littell et al. (2019) noted that a high level of emotional distress, anxiety, fatigue and pain associated with gynecological malignancies treatment can contribute to disturbance in personal relations as ability to communicate effectively with family and friends. They also noted that it can affect the patient's ability to carry out her role as ability to take care of children and ability to work. Moreover, these changes in role and function associated with gynecological malignancies treatment can interfere with social interaction and lead to social isolation.

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., s study (2021) nursing is one of the most important professions that must be integrated in providing multidisciplinary team care for gynecological malignancies patients. They also stated that 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 one 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. Additionally, Pearce et al. (2017) stated that around 86% (386 patients) of cancer patients in Australia reported at least one treatment related physical health problem. Also, Reb & Cope (2019) noted that the lowest ranking quality of life items (physical, psychological, social and functional) among gynecologic cancer survivors were during cancer diagnosis and treatment.

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 health 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.
- Patients with gynecological malignancies who receive the multidisciplinary team care will experience less physical health affection than those who don't receive it.
- Patients with gynecological malignancies who receive the multidisciplinary team care will exhibit less social health affection 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, nutritionist 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.

- **Health 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, sexual, physical and social problems resulting from the gynecological malignancies treatment. It was assessed using the hospital anxiety and depression scale, distress thermometer, female sexual function index and functional assessment of cancer therapy questionnaire.

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.

Instrument one: 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).

Instrument two: Assessment of the health 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 (sever 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 3**: 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.
- **Part four**: Functional Assessment of Cancer Therapy Questionnaire:

  It was adapted from Cella & Nowinski (2002). It was modified by the researcher to match the purpose of the study. Two domains were assessed using the functional assessment of cancer therapy questionnaire (physical and social domain). The physical domain (7 items) was used to assess the presence of pain, nausea, fatigue, illness, botheration by side effect of treatment, the need to spend more time in bed and ability to meet family needs. It was scored using a five-point Likert scale that was modified by the researcher to facilitate statistical analysis as the following (0 = very much, 1 = quite a bit, 2 = somewhat, 3 = a little bit, 4 = not at all). The seven items score were added together and the total score extended from 0 to 28. The social domain (6 items) was used to assess the degree of emotional support, closeness and acceptance from family members, friends and husband and the degree of satisfaction with family communication. It was rated as the following (0 = not at all, 1 = a little bit, 2 = somewhat, 3 = quite a bit, 4 = very much). The sex items score was added together and the total score extends from 0 to 24. The percentage was then obtained for both physical and social domain and the result was interpreted as the following.

Scoring system:

- 0 – 33.2% sever affection of physical or social wellbeing.
- 33.3 - 66.7% Moderate affection of physical or social wellbeing.
- More than 66.7% Mild affection of physical or social wellbeing (Cella & Nowinski (2002)).

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 results. So, they were excluded from the study sample.

Procedure:

The study was achieved 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

- **Interview and 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 group in order to assess the effect of gynecological malignancies treatment on psychological, sexual, physical and social wellbeing.

- 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.
  - 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.
  - 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.
  - All physical health problems were reported to the oncologist and the needed medication was described also modification of cancer treatment dose was done to optimize patient response with minimal adverse reaction. Administration of the prescribed medication and follow up of patient's condition was carried out by the oncology nurse.
  - The researchers carried out four 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.
- ♦The fourth session evolved explanation of possible causes and management strategies of the physical problems as anorexia, nausea and vomiting, anemia, leukopenia, thrombocytopenia, fatigue, hair loss and skin problems also dietitian consultation was given.

- **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 group.
  - The control group received only routine care during the intervention period and they were given the educational booklet after posttest for ethical aspect.

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.

Table 4 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).

Figure 3 illustrates the 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. 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 5 illustrates the physical well-being level of the study and control group as it applies to the past 7 days 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 physical well-being levels in the study and control groups as it applies to the past 7 days before, during, and after the treatment. It revealed that 65.5% of the study group and 60.0% of the control group had mild affection score before the treatment. Also, 85.5% of the study group and 90.9% of the control group had moderate affection score during the treatment. Additionally, no percent of the study group and 1.8% of the control group had severe affection score after the treatment

Figure 5 illustrates the total mean social well-being score of the study and control groups before, during and after the treatment. It shows that the mean social well-being score of the study and control groups before the treatment was 55.07 ± 7.76 and 52.72 ± 7.61, respectively. Additionally, the total mean social well-being score of the study and control groups after the treatment was 78.56 ± 12.51 and 54.84 ± 7.80, respectively.

Table 6 illustrates the total social well-being levels 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).

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

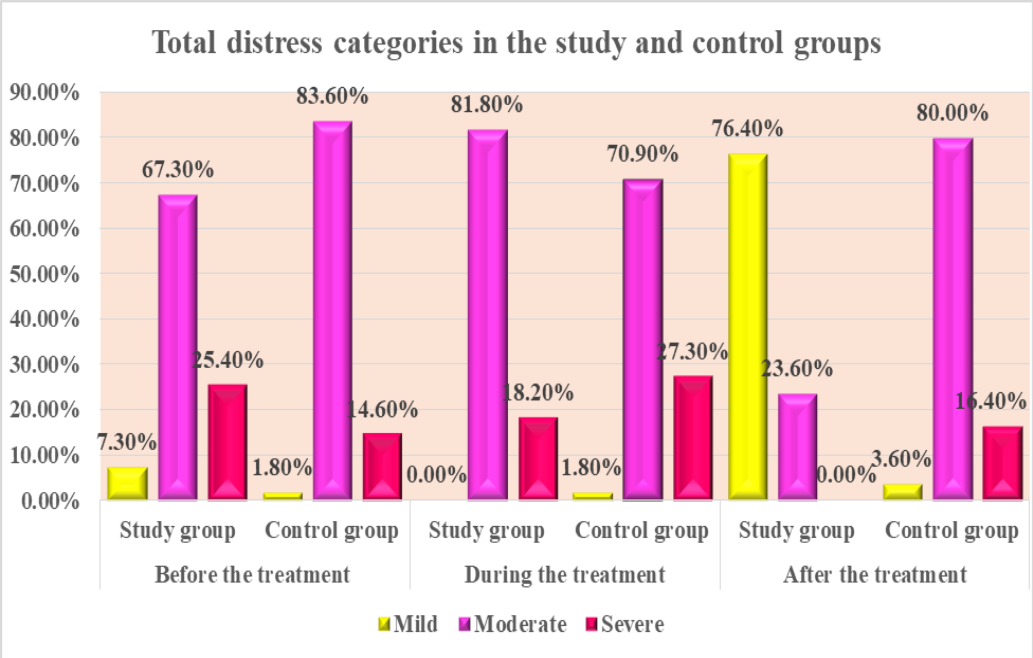

Table 3: Total Anxiety Levels in the Study and Control Groups Before, During, and After the Treatment Before, During and After the Treatment (n = 110

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

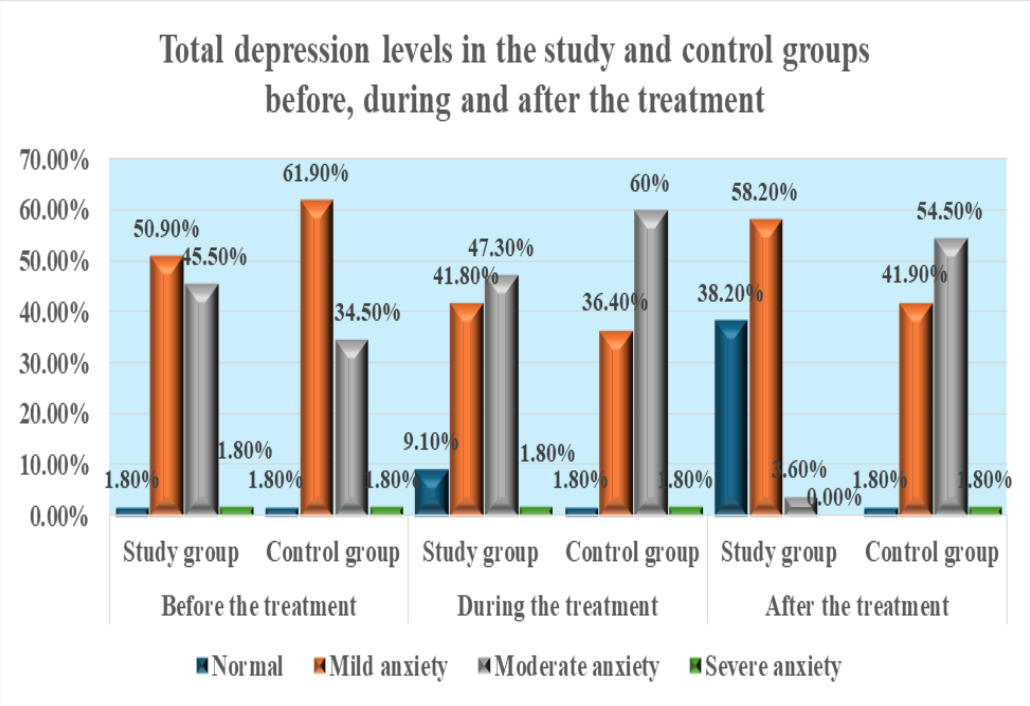

Table 4: Total Mean Score of Dyspareunia of the Study and Control Groups as It Applies over the Past 4 Weeks Before, During, and After the Treatment (n = 110)

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	0.86	>0.05 ns
During the treatment	3.00 ± 0.93	2.61 ± 0.83	2.28	>0.05 ns
After the treatment	4.21 ± 0.49	2.66 ± 0.65	13.91	<0.001**
ANOVA test	0.61	0.72		
P-value	<0.001**	>0.05 ns		

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

Figure 3: 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

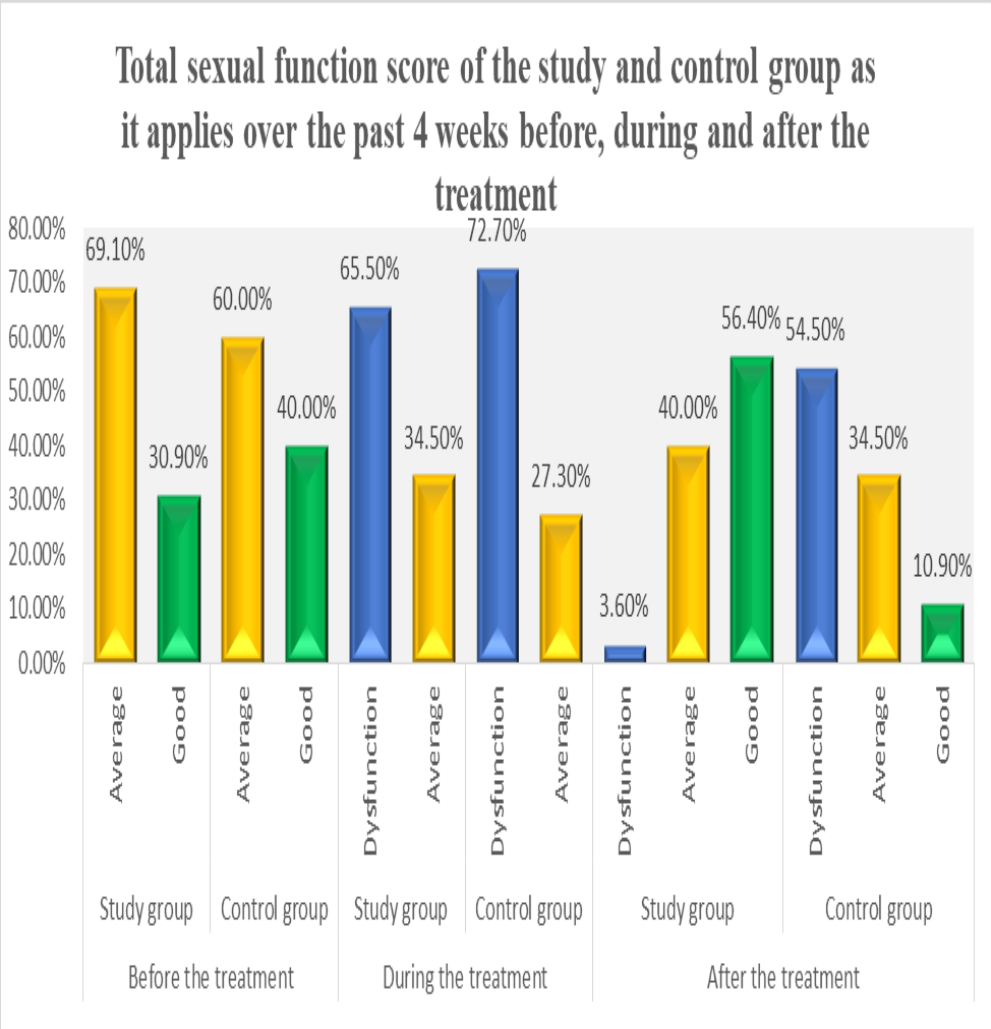

Table 5: Physical Well-Being Level of the Study and Control Group as It Applies to the Past 7 Days Before, During, and After the Treatment (n = 110)

	Before the treatment					During the treatment					After the treatment				
	Study group (N=55)		Control group (N=55)		X2& P-value	Study group (N=55)		Control group (N=55)		X2& P-value	Study group (N=55)		Control group (N=55)		X^2& P-value
	No.	%	No.	%		No.	%	No.	%		No.	%	No.	%	
I have a lack of energy															
Very much	0	0.0	0	0.0		1	1.8	1	1.8		0	0.0	1	1.8	
Quite a bit	4	7.3	8	14.5	3.38	25	45.5	16	29.1	3.89	0	0.0	16	29.1	31.59
Some-what	32	58.2	23	41.9	>0.05	19	34.5	21	38.2	>0.05	14	25.5	20	36.4	<0.001**
A little bit	19	34.5	24	43.6	ns	10	18.2	17	30.9	ns	27	49.1	17	30.9	
Not at all	0	0.0	0	0.0		0	0.0	0	0.0		14	25.5	1	1.8	
I have nausea															
Very much	0	0.0	0	0.0		3	5.5	2	21.8		0	0.0	4	7.3	
Quite a bit	0	0.0	0	0.0	2.16	20	36.4	28	50.9	19.29	0	0.0	25	45.5	80.81
Some-what	1	1.8	0	0.0	>0.05	12	21.7	12	21.8	>0.05	7	12.7	24	43.6	<0.001**
A little bit	21	38.2	27	49.1	ns	20	36.4	3	5.5	ns	25	45.5	2	3.6	
Not at all	33	60.0	28	50.9		0	0.0	0	0.0		23	41.8	0	0.0	
Because of my physical condition, I have trouble meeting the needs of my family															
Very much						1	1.8	0	0.0		0	0.0	0	0.0	
Quite a bit	0	0.0	7	12.7	7.53	18	32.7	13	23.6	4.47	0	0.0	12	21.8	29.71
Some-what	22	40.0	20	36.4	>0.05	24	43.6	22	40.0	>0.05	14	25.5	24	43.6	<0.001**
A little bit	31	56.4	26	47.3	ns	12	21.8	19	34.5	ns	24	43.6	18	32.7	

	Before the treatment				X2& P-value	During the treatment				X2& 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.	%	
Not at all	2	3.6	2	3.6		0	0.0	1	1.8		17	30.9	1	1.8	
I have pain															
Very much	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	
Quite a bit	6	10.9	6	10.9	0.05	15	27.3	10	18.2	1.30ns	0	0.0	8	14.5	71.42
Some-what	37	67.3	38	69.1	>0.05	28	50.9	31	56.4	>0.05	0	0.0	33	60.0	<0.001**
A little bit	12	21.8	11	20.0		12	21.8	14	25.5		31	56.4	14	25.5	
Not at all	0	0.0	0	0.0		0	0.0	0	0.0		24	43.6	0	0.0	
I am bothered because of side effects of treatment															
Very much	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	
Quite a bit	0	0.0	0	0.0	a	30	54.5	16	29.1		0	0.0	13	23.6	70.97
Some-what	0	0.0	0	0.0		23	41.8	24	43.6	14.22	0	0.0	26	47.3	<0.001**
A little bit	0	0.0	0	0.0		2	3.6	15	27.3	>0.05	25	45.5	16	29.1	
Not at all	55	100.0	55	100.0		0	0.0	0	0.0	ns	30	54.5	0	0.0	
I feel ill															
Very much	0	0.0	0	0.0		1	1.8	0	0.0		0	0.0	0	0.0	
Quite a bit	24	43.6	16	29.1	4.06	23	41.8	22	40.0		0	0.0	19	34.5	53.27
Some-what	22	40.0	22	40.0	>0.05	24	43.6	27	49.1	1.27	16	29.1	32	58.2	<0.001**
A little bit	9	16.4	17	30.9	ns	7	12.7	6	10.9	>0.05	29	52.7	4	7.3	

	Before the treatment				X2& P-value	During the treatment				X2& 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.	%	
Not at all	0	0.0	0	0.0		0	0.0	0	0.0	ns	10	18.2	0	0.0	
I am forced to spend time in bed															
Very much	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	
Quite a bit	1	1.8	0	0.0	2.11	19	34.5	12	21.8	2.31	0	0.0	11	20.0	45.56
Some-what	28	50.9	34	61.8	>0.05	23	41.8	29	52.7	>0.05	11	20.0	30	54.5	<0.001**
A little bit	26	47.3	21	38.2	ns	13	23.6	14	25.5	ns	19	34.5	14	25.5	
Not at all	0	0.0	0	0.0		0	0.0	0	0.0		25	45.5	0	0.0	

a No statistics are computed because I am bothered because of side effects of treatment is a constant

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

Figure 4: Total Physical Well-Being Levels of the Study and Control Groups as It Applies to the Past 7 Days Before, During, and After the Treatment

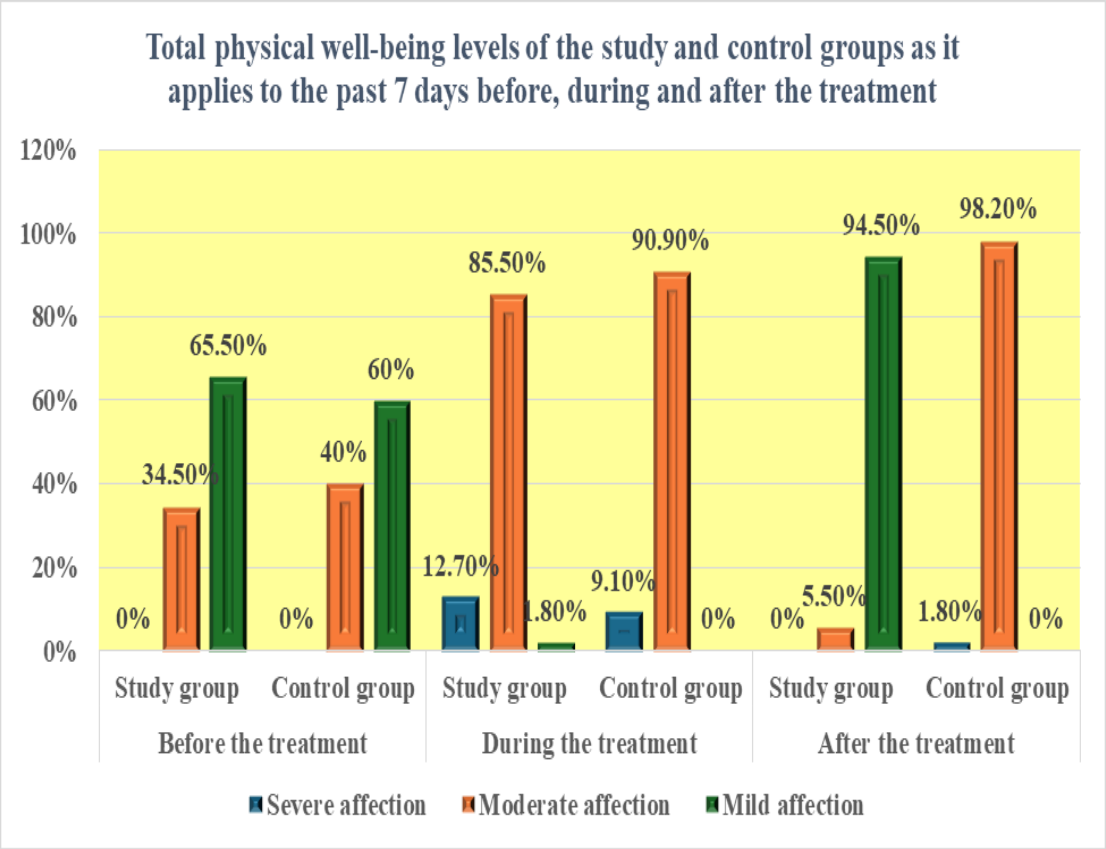

Figure 5: Total Mean Social Well-Being of the Study and Control Groups as It Applies to the Past 7 Days Before, During and After the Treatment

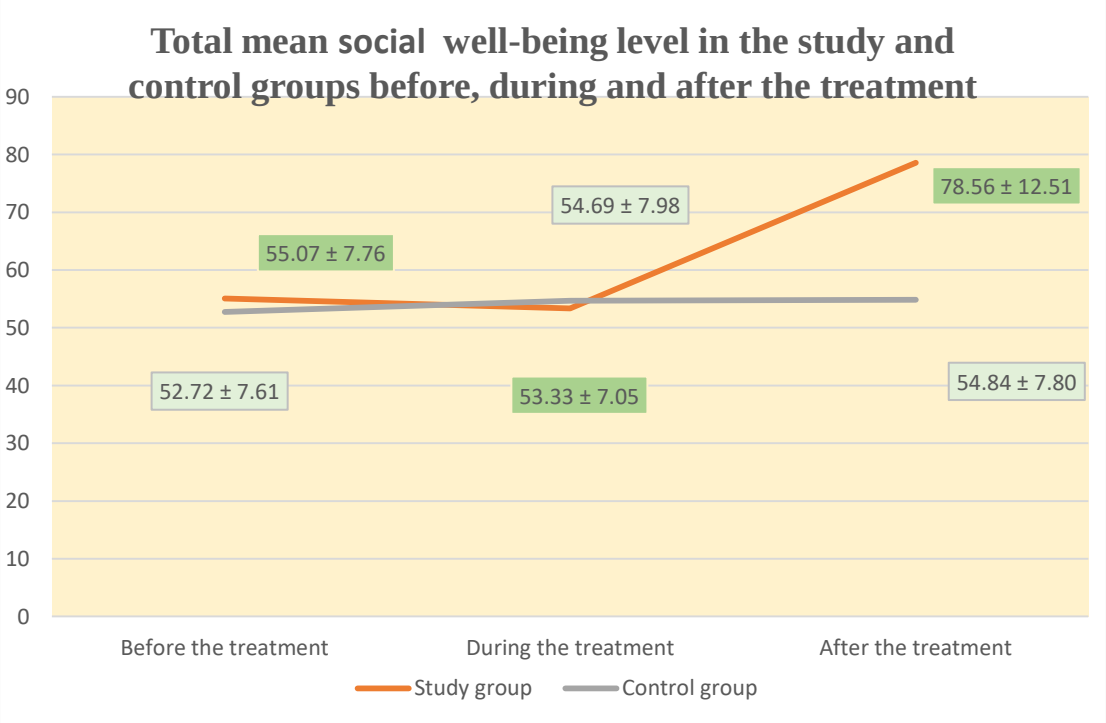

Table 6: Total Social Well-Being Levels of the Study and Control Groups as It Applies to the Past 7 Days Before, During, and After the Treatment (n = 110)

Variables	Study group (N=55)		Control group (N=55)		X^2	P-value
	No.	%	No.	%		
Before the treatment						
- Severe affection	0	0.0	0	0.0	2.03	>0.05 ns
- Moderate affection	53	96.4	55	100.0		
- Mild affection	2	3.6	0	0.0		
During the treatment						
- Severe affection	0	0.0	0	0.0	1.03	>0.05 ns
- Moderate affection	54	98.2	52	94.5		
- Mild affection	1	1.8	3	5.5		
After the treatment						
- Severe affection	0	0.0	0	0.0	77.17	<0.001**
- Moderate affection	6	10.9	52	94.5		
- Mild affection	49	89.1	3	5.5		

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

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.

The current study findings showed a marked decline in the physical wellbeing of all the study patients during the gynecological malignancy treatment period compared to before starting the treatment. Also, the patients suffered from a mild to moderate degree of physical health affection before the treatment compared to moderate to severe levels during the treatment period.

These results came in agreement with Shirali et al. (2020), who found out that more than three-quarters of the study patients suffered deterioration of physical health as a result of gynecological malignancy treatments. Similarly, these findings came in line with those of Putri et al. (2018), who studied "Supportive care needs and quality of life of patients with gynecological cancer undergoing therapy", in Indonesia. In a study of gynecological malignancy patients, more than ninety-five percent of them had unmet supportive care needs, and around eighty percent had unmet physical care needs. They complained of several physical problems, such as fatigue, nausea, vomiting, pain, loss of appetite, and insomnia.

This match could be a result of the systemic effects of gynecological malignancy treatments, including the cytotoxic effects of chemotherapy on healthy tissues of different body parts, especially rapidly dividing tissues, and the destructive effect of pelvic radiation on the surrounding pelvic organs.

The results of the current study also revealed a marked improvement in the physical health of the study group after the treatment. These findings came in agreement with Dikmen & Terzioglu (2019), who concluded that reflexology and progressive muscle relaxation are very effective in alleviating the pain and fatigue associated with chemotherapy.

In addition, these findings came in agreement with Ling et al.'s (2020), who studied "The management of nausea and vomiting symptoms induced by chemotherapy in gynecological cancer patients" in China. They concluded that the incidence of nausea and vomiting decreased after the implementation of a management program that combined both drug intervention as antiemetic's and non-drug intervention such as modifying dietary habits, eating small, frequent meals, avoiding irritating foods such as spicy, caned, and smoked foods, and arranging fluid intake between meals. This concordance between the current and previous studies highlighted the need to integrate multidisciplinary team care for the management of cancer patients.

The results of the current study showed that the majority of the study participants in both study and control groups had moderate social affection before and during gynecological malignancy treatments. These results came in agreement with Yeh et al. (2021), who studied "quality of life and its predictors among women with gynecological cancers", in Taiwan.

They revealed that gynecological malignancy patients reported a low quality of life, including the four domains: physical, psychological, sexual, and social. They also revealed that stress was the main contributing factor to poor quality of life, and the majority of patients reported an intense need for emotional and family support to address their needs.

In addition, these findings were in concordance with Shirali et al. (2020), who demonstrated that patients with gynecological cancer had a low quality of life, including the four domains of physical, psychological, social, and functional, which were associated with high levels of anxiety and depression. These results may be related to the disruption of body image associated with cancer treatments, which contributed to low self-confidence and isolation from social interaction with husbands, family members, and friends. Also, bad psychological conditions associated with cancer diagnosis and exposure to treatment side effects make the patients feel vulnerable and contribute to varying degrees of depression and social isolation.

The present study findings also showed a marked improvement in the level of social wellbeing for the study group by the end of the treatment period as a result of supportive care provided by the multidisciplinary team, which came in agreement with Faller et al.'s (2019), who studied "Supportive care needs and quality of life in patients with breast and gynecological cancer attending inpatient rehabilitation" in Germany. A study included two hundred and ninety-two patients and was considered the first study to show that meeting the supportive care needs of gynecological and breast cancer patients improves their quality of life.

Conclusion

The current study findings showed marked reduction in distress, anxiety and depression levels for the study group in comparison to control group which supported the first hypothesis. 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 which supported the second hypothesis.

In addition, there was significant increase in the total score of physical and social domains of the functional assessment of cancer therapy questioner after the treatment which supported third and fourth hypothesis. 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:-

Studies should be done about the effect of relaxation techniques and exercise program on the level of cancer related fatigue among gynecological malignancies patients.

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