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Effectiveness of Quality of Life Planned Teaching Program on Women Undergoing Gynecologic Cancer Treatment

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Abstract:

Background: All women are at risk for gynecologic cancer. There is no doubt that gynecologic cancer is a stressful experience by creating heavy psychological trauma for the woman and has a great impact on psychological, emotional health & quality of life of women.

Aim: assess the effectiveness of an education program on quality of life (QOL) improvement in women undergoing treatment for gynecologic cancer.

Study design: Quasi-experimental design.

Sample & settings: A purposeful sample of 36 women diagnosed with gynecologic cancer that attended the oncology institute, El-Minia governorate.

Tool: An interview questionnaire included reproductive concern scale female sexual function index and impact of event scale.

Results: The percentages of women with sexual dysfunction in the study and control group were (5.6% & 22.2%). A moderate statistical significant difference in relation to the impact of the health education program on cancer specific stress ($p = 0.011$) in the study group was observed. In related cancer specific QOL, a highly statistically significant difference in relation to the impact of the health education program on cancer specific stress ($p = 0.001$). There was a significant relationship in the study group with gynecologic cancer pre and post administration of the program of the domains, and the entire quality of life except on emotional well-being (posttest), ($p < 0.05$), (r = correlated positively).

Conclusion: Program enhances physical, social, emotional, functional well-being & additional concerns related to gynecologic cancer, and on enabling women to proactively live with a cancer condition.

Recommendations: Based on the findings of the current study, it is suggested to heighten awareness & knowledge about the treatment-related side effects among the nursing staff in the department for the nursing care of this group of patients.

Keywords: Gynecologic cancer- reproductive concerns- quality of life.

Introduction

The burden of gynecological cancer in developing countries appears huge. In these countries, gynecological cancers account for 25% of all new cancers diagnosed among women aged up to 65 years compared to 16% in the developed world. [1] According to a recent report developing countries accounted for 820, 265 cases

(77.7%) of global estimates for new cases of the commonest gynecological cancer including cervical, corpus and ovarian cancer in 2009. This constituted 12.1% of the 6.8 million cases of cancer in the developing countries. [2]

Gynecologic cancer is observed on the top among women that has resulted in death. [3] Gynecological cancer includes cancer of the female reproductive tract, including the cervix, endometrium, Fallopian tubes, ovaries, uterus, Fallopian tubes, vulva, and vagina. [4, 5]

Uterine cancer is the most common as more than 52,500 new cases per year. [6] Each year, approximately 35,000 women in the USA get uterine cancer. [7, 8] Worldwide, cancers of the uterine corpus are the 6th most common cancer in women, with over 218,100 new cases diagnosed each year. [9, 10] An estimated 60,050 women in the USA will be diagnosed with uterine endometrial cancer, and 10,470 deaths from this disease will occur. [11] In Egypt 426 cases diagnosed in 2014. [12] Ovarian cancer remains the most lethal gynecological malignancy, and is the 5th leading cause of cancer death in women in the USA. An estimated 22,280 women in the USA will be diagnosed with ovarian cancer. It is estimated that 14,240 deaths from this disease will occur. [11] In Egypt 2434 case diagnosed with ovarian cancer in 2014. [12] Primary Fallopian tube carcinoma is usually an adenocarcinoma, although, are rarely reported. About two-thirds of patients with this rare type (< 1.0% of gynecological cancer) are postmenopausal. However, this figure may not be correct as some doctors now think that most high grade serous type ovarian cancers actually start at the far end of the Fallopian tube, rather than the surface of the ovary. [13] Cervical cancer is the 3rd most common cancer in the world, with 2.3 million prevalent cases and 510 000 incident cases each year. Annually, 288 000 women die of cervical cancer and 80% of these deaths occur in low-resource countries. It is estimated that 4,120 deaths from the disease will occur. [11, 14, 15] In Egypt, 752 cases diagnosed with cervical cancer in 2014. [12] Vulvar carcinoma accounts for approximately 4% of gynecological malignancies. In the USA an estimated 5,950 women in the USA will be diagnosed with vulvar cancer, and 1,110 deaths from this disease will occur. Its incidence is increasing in young women because of its association with the human papillomavirus (HPV). [11] In Egypt, 56 cases diagnosed with vulvar carcinoma in 2014. [12] Vaginal cancer is rare, representing only 1-2 % of female genital tract malignancies and is comprised of a heterogeneous group of tumors. An estimated 4,620 women in the USA will be diagnosed with vaginal cancer. It is estimated that 950 deaths from this disease will occur. [11] In Egypt, 103 cases diagnosed with vaginal cancer in 2014. [12] The majority of vaginal neoplasms are metastases from other primary malignancies of the endometrium, cervix, or vulva. Less commonly, vaginal metastases can occur with non-gynecologic malignancies (kidney, breast, lung, etc.). [16]

While specific treatment recommendations will depend on cancer site, stage, and tumor characteristics, women with gynecological cancer will typically be treated with surgery followed by adjuvant chemotherapy, radiation, and/or hormonal therapies. For women with gynecological cancer, surgical treatment may involve removal of the ovaries and/or uterus, as well as pelvic radiation. For women with estrogen/progesterone receptor positive tumors (the majority of breast and gynecological cancer), treatment-induced estrogen depletion is therapeutically desirable. In fact, hormonal therapies (e.g.; Tamoxifen & Aromatase inhibitors) are specifically designed to block the production and action of estrogens to prevent cancer growth, and are typically recommended for up to five years following the cessation of other treatments. [17]

Chemotherapy causes ovarian damage and related-changes in menstruation and fertility. The effects will depend on the type of chemotherapy a woman receives and her pre-treatment ovarian reserve (number of remaining immature follicles in the ovaries). [18] Chemotherapies will therefore result in either temporary or permanent ovarian failure. Women with a greater ovarian reserve prior to treatment (i.e.; younger women) will be more likely to recommence ovulation after chemotherapy. [19] Any return of menstruation will typically occur within the 12 months following chemotherapy treatment. [20] Even if they do recommence menstruation, women with decreased ovarian reserve will experience menopause at an earlier age. [19]

Women with gynecologic cancer, because of their exposure to these common cancer treatments, many women will experience increased menopausal symptoms and changes in sexual functioning & fertility. Young women identify vasomotor symptoms, sexual problems & fertility-changes as post-treatment concerns. [21, 22] In fact, young survivors' rate concerns about premature menopause (including sexual symptoms) & pregnancy difficulties as their most challenging post-diagnosis problems. While changes in sexual & reproductive health can pose problems for healthy women, they may confer additional burden in the context of cancer. [23] The shift from reproductive capacity to menopause (cessation of menses), the climacteric, is gradual & begins in the mid-thirties, but cancer treatments often cause an abrupt shift. [24] This treatment-induced interruption of natural aging can have both physiologic & psychological consequences. [21]

Reduced ovarian function & estrogen depletion can exacerbate menopausal symptoms in women who were pre/post-menopausal at diagnosis. Physiological symptoms of menopause include vasomotor symptoms (e.g., hot flashes, flushing, and sweating), and other symptoms such as joint pain, dizziness, & headache. Women will also experience sexual functioning changes associated with decreased estrogen, namely lessened desire, a lessened or slowed arousal response (including vaginal dryness & dyspareunia), and/or orgasm difficulty. [25, 22]

Due to the nature of the disease and treatment modalities typically utilized, many cancer survivors report psychosocial and Health-Related quality of life (HRQOL) effects. [26]. As documented by Zabora et al 2001, patients receiving multi-modal therapy, such as the treatment for gynecological cancer, is at risk for prolonged psychological distress that can affect their overall quality of life (QOL). [27] Despite heightened risk of existential crisis and psychological distress, women who have undergone surgery for gynecological cancers do not receive optimal post-discharge care to facilitate their physical recovery while maintaining their QOL. Care in the clinic setting instead focuses on disease management and preparation for chemotherapy, patients' existential concerns and psychological needs are considered secondarily if at all. [28]

Quality of Life (QOL) has grown significantly with numerous studies that were directed in this research area. [29] Quality of life is a broad multidimensional concept that considers a person's physical, emotional, social, and spiritual well-being (figure 1). [30-33] According to data from the National Health Interview Survey, approximately 1 in 4 cancer survivors reports a decreased QOL due to physical problems and 1 in 10 due to emotional problems. [32]

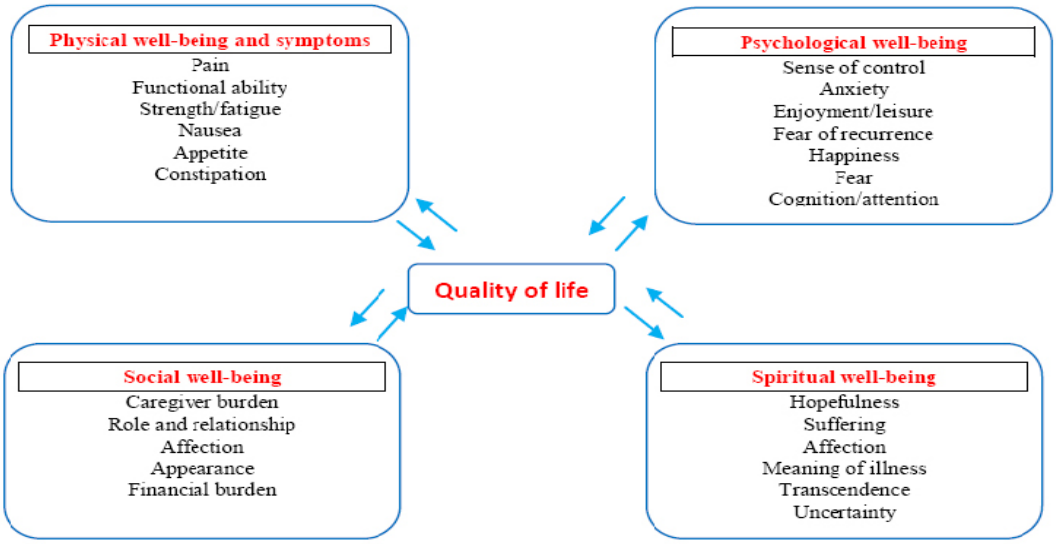


Figure 1: Dimensions of QOL affect by cancer. [33]

Significance of the Study

Nurse, as one of the members of the treatment team, has an important role in diagnosis, treatment, & caring patients with gynecologic cancer and as they spend more time with the patient compared to the other treatment team members, they may be the first people who can recognize the needs of patients as well as their families and be effective in controlling disease complications & treatment and enhancing QOL of the patients. [6] The concept of educating the patients on transition follow-up treatment protocols assists the patient with symptoms management & expected outcomes that increased satisfaction of the overall treatment process through: patient education & outcome criteria: The patient and/or family should be able to describe the state of the disease & therapy at a level consistent with the patient's educational & emotional status, participate in the decision-making process pertaining to the plan of care & life activities, identify appropriate community resources that provide information & services, describe appropriate actions for highly predictable problems, oncologic emergencies, & major side effects of the disease and/or therapy, & describe the schedule when ongoing therapy is predicted. [34, 35]

The usual care given during cancer treatment tends to focus on procedures, side effects of treatment, and its process rather than on the resulting symptoms and their management. Therefore, a more comprehensive approach to helping women with their symptom management is required.

Aim of the Study

Assess the effectiveness of education program on QOL improvement in women undergoing treatment for gynecologic cancer.

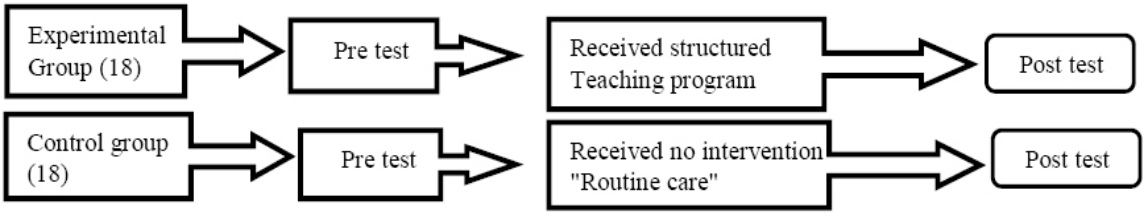
Research Hypothesis

The QOL of the women undergoing treatment for gynecologic cancer will be improved after implication of the educational program.

Subjects and Methods

Research Design

A quasi experimental research design was adopted.



Settings

The study was conducted in the oncology institute in El-Minia governorate.

Sample

A purposeful sample of 36 women diagnosed with gynecologic cancer that attended the oncology institute and recruited randomly.

Tools

Consisted of 3 parts;

A. Baseline Assessment Sheet included

1. A structured interview questionnaire included:
    a. Socio-demographic data as age, marital status, education, employment, residence, social support, and family income.
    b. Menstrual history as age at menarche, menstrual status.
    c. Clinical characteristics include information about gynecologic disease site and the type of treatment which may include.
2. The Reproductive Concerns Scale (RCS). [36]
3. Female Sexual Function Index (FSFI). [37]
4. The Impact of Events Scale-Revised (IES-R). [38]
5. The Functional Assessment of Cancer Therapy-General (TCHI FACT-G) to measure the QOL. [39]

B. The Evaluation Sheet Included

The functional assessment of cancer therapy-general (TCHI FACT-G) to measure the QOL. [39]

1.The Impact of Events Scale-Revised (IES-R). [38]

2.Female Sexual Function.

Pilot Study

A pilot study was implemented in 10% of women included in the study to ascertain the relevance of the tools.

Administrative Design

Official letters including the title and purpose of the study were submitted to the directors of the Oncology Institute at El-Minia government, to get approval for data collection to conduct the study.

Ethical Considerations

The ethical research consideration in this study includes the following:

1. The research proposal was approved by the ethical committee of the faculty of nursing.
2. There was no risk for study subject during application of the research.
3. The study followed common ethical principles in clinical research.
4. Oral consent was obtained from patients or guidance that for willing to participate in the study, after explaining the nature and purpose of the study.
5. Confidentiality and anonymity were assured.
6. Study subjects had the right to refuse to participate and/or withdraw from the study without any rational any time.
7. Study subject privacy was considered during collection of data.

Statistical Analysis

All the statistical analysis was performed using SPSS package version 20. Collected data were coded and analyzed. Descriptive statistics for the variables were calculated.

Inferential Statistics

The data were tested for normality using the Anderson Darling test and for homogeneity variances prior to further statistical analysis. Categorical variables were described by number & percent **(N & %)**, where continuous variables described by mean & standard deviation (Mean ± SD). Chi-square *(x^2)* test used to compare between categorical variables where compare between continuous variables by paired & unpaired t test. Pearson correlation coefficient (r) used to assess the association between continuous scales. A two-tailed P < 0.05 was considered statistically significant. All analyses were performed with the IBM SPSS 20 software.

Results

Table 1 Presents distribution of the studied women according to their characteristics. The mean age of the subjects in the study group was 39.6 ± 8.9 as compared with 40.6 ± 10.2 in the control group. Regarding the level of education, 55.6% in the study group vs. 61.1% in the control group were illiterate. Eleven percent in the study group and approximately seventeen percent in the control group are able to read and write, 27.8% in the study group had secondary education compared to 22.2% in the control group, and only 5.6% in the study group had university education. No statistical significant difference was found (p = 0.715). Regarding to the residence of women, over half of the subject in the study and control groups lives in rural areas (72.2% & 77.8% respectively. No statistical significant difference was found (p = 0.700). All of the subjects in the study group (100%) as compared with the majority (94.4%) of the subjects in the control group were housewives. No statistical significant difference (p = 0.310). Half of the study group and more than half of the control reported enough income (50% - 55.6%), respectively. No statistical significant difference (p = 0.738). The age at first childbirth, age at last childbirth, No. of living children in the study and control group were approximately similar (20.3 ± 3.2 & 17.3 ± 5.6), (29.2 ± 4.8 & 27.2 ± 8.9), (3.6 ± 1.5, 3.9 ± 2.2), respectively. No statistical significant difference (p = 0.070, 0.444, 0.566), respectively. More than half in the study group (66.6%) Vs. (77.7%) in the control group had a cessation of menstruation. No statistical significant difference (p = 0.137).

Table1. Distribution of the Studied Women According to Their Socio-demographic Characteristics.

Socio-demographic Characteristics	Study (18)		Control (18)		P. value
	No.	%	No.	%	
Age	39.6 ± 8.9		40.6 ± 10.2		0.742
Education					
Illiterate	10	55.6	11	61.1	0.715
Read and write	2	11.1	3	16.7	
Technical education	5	27.8	4	22.2	
Higher education	1	5.6	0	0.0	
Occupation					
Working	0	0.0	1	5.6	0.310
House wife	18	100.0	17	94.4	
Residence					
Urban	5	27.8	4	22.2	0.700
Rural	13	72.2	14	77.8	
Income					
Enough	9	50.0	10	55.6	0.738
Not enough	9	50.0	8	44.4	
Age at first child birth	20.3 ± 3.2		17.3 ± 5.6		0.070
Age at last child birth	29.2 ± 4.8		27.2 ± 8.9		0.444
No. of living children	3.6 ± 1.5		3.9 ± 2.2		0.566
Menstrual status					
Yes	11	61.1	15	83.3	0.137
No	7	38.9	3	16.7	

Chi square test for qualitative data between the two groups *Significant level at P value < 0.05*

Table2. Distribution of the studied women according to their clinical characteristics

Clinical characteristics	Study (18)		Control (18)		P value
	No.	%	No.	%	
Stage at diagnosis					
Zero stage	0	0.0	1	5.6	0.252
First	4	22.2	0	0.0	
Second	1	5.6	1	5.6	
Third	2	11.1	2	11.1	
Unknown	11	61.1	14	77.8	
Treatment received #					
Surgical removal	6	33.3	13	72.2	0.073
Chemotherapy	7	38.9	2	11.1	
Radiotherapy	5	27.8	2	11.1	
Hormonal therapy	0	0.0	1	5.6	

- *Chi square test for qualitative data between the two groups - Significant level at P value < 0.05*
- *#More than one option was checked*

Table (2) demonstrates that sixty-one of the study group (61.1%) didn't know their stage of disease Vs. (22.2%) were in the first stage, and more than three-quarters (77.8%) of the control group didn't know their stage of disease Vs. (11.1%) were in the 3rd stage. Additionally, equally, more than one-third of the study group (38.9%) received chemotherapy and the other third received surgical treatment (33.3%), while in the control group near to three quarters (72.2%) received surgical treatment. No statistically significant difference was found.

Regarding reproductive concerns, this was measured at one-time a point only. **Table (3)** illustrates that more than equally, 61.1% of the women in the case and control group were somewhat concerned with no statistically significant difference. No statistical significant difference was found (p = 0.311).

Table3. Distribution of the studied women according to their reproductive concerns

Reproductive Concerns scale	Study (18)		Control (18)		P value
	No.	%	No.	%	
Little concerned	7	38.9	5	27.8	0.311
Somewhat concerned	11	61.1	11	61.1	
Very concerned	0	0.0	2	11.1	
Score average	40.8 ± 11.2		43.2 ± 13.3		0.555

- *Mann Whitney test for non-parametric quantitative data between the two groups*
- *Significant level at P value < 0.05*

During the first visit, the **table (4)** demonstrates that the percentage of women with sexual dysfunction in the study and control group were (5.6% & 5.6%), respectively, and the percentage of women who were healthy (have no sexual dysfunction) in the two groups was (94.4% & 94.4%). Also, during the last visit, there is an improvement in relation to the impact of the health education program on sexual function. The percentage of women with sexual dysfunction in the study and control group were (22.2% & 0.0%), respectively, and the percentage of women who were healthy (have no sexual dysfunction was (77.8% & 6.25%), respectively.

Table4. Distribution of the studied women in the study group according to sexual function at first and last visit

Female Sexual Function index (FSFI)	Study (18)			Control (18)		
	pre	Post	P-value	Pre	Post	P-value
Not present	17 (94.4%)	14 (77.8%)	0.148	17 (94.4%)	18 (6.25%)	0.310
Present	1 (5.6%)	4 (22.2%)		1 (5.6%)	0 (0.0%)	

- *Wilcoxon Signed rank test for non-parametric quantitative data within each group*
- *($) McNemar test for repeated measure qualitative data*
- *Significant level at P value < 0.05*

Table (5) reveals a moderate statistical significant difference in relation to the impact of the health education program on cancer specific stress (p = 0.011) in the study group. Since more than three quarters (72.2%) of the cases in the study group had severe traumatic stress disorder pre-administration of the program and decreased to (22.2%), while the healthy women with no stress increased from (11.1%) to (55.6%) after administration of the program. Regarding the control group, the great majority of the cases (83.3%) had a severe traumatic stress disorder during the first and decreased to (66.7%) during the last visit, with no statistically significant difference (p = 0.597)

Table5. Distribution of the studied women in the study and control group according to cancer specific stress at first and last visit

Cancer-specific stress (CSS)	Study (18)			Control (18)		
	pre	Post	P value	pre	Post	P value
No	2 (11.1%)	10 (55.6%)	**0.011****	0 (0.0%)	1 (5.6%)	0.597
Mild	3 (16.7%)	3 (16.7%)		3 (16.7%)	3 (16.7%)	
Moderate	0 (0%)	1 (5.6%)		0 (0.0%)	2 (11.1%)	
Severe	13 (72.2%)	4 (22.2%)		15 (83.3%)	12 (66.7%)	

- *Wilcoxon Signed rank test for non-parametric quantitative data within each group*
- *($)McNamara test for repeated measure qualitative data*
- *Significant level at P value < 0.05*

In relation cancer specific QOL in the first visit, **Table (6)** reveals when comparing the total score of quality of life, the percentage of women in the study group with poor quality of life decreased from (11.1%) pre administration of the program to zero percent, and the percentage of women with good quality of life increased from (0.0%) to (77.8%). After administration of the program, there is a highly statistically significant difference in relation to impact of the health education program on cancer specific stress (p = 0.001).

Table6. Distribution of the studied women in the study and control group according to cancer QOL at first and last visit

Quality of life	Study (18)			Control (18)		
	pre	Post		pre	Post	Post
Poor	2 (11.1%)	0 (0.0%)	**0.001****	2 (11.1%)	6 (33.3%)	0.125
Moderate	16 (88.9%)	4 (22.2%)		14 (77.8%)	12 (66.7%)	
good	0 (0.0%)	14 (77.8%)		2 (11.1%)	0 (0.0%)	

- *Wilcoxon Signed rank test for non-parametric quantitative data within each group*
- *Significant level at P value < 0.05*

In the other side in the control group, percentage of women with poor quality of life increased after the 1st visit and those with moderate level decreased with decrease in the good level [(11.1% vs. 33.3%, (77.8% vs 66.1%), (11.1% vs. 0.0%) respectively)] with no statistical significant difference (p = 0.125). There was no significant difference in any domains of quality of life at first and last visit

Table (7) demonstrates that there was no significant correlation between socio-demographic data and QOL as regards to study and control groups in the first visit except in the study group, there was a significant positive correlation with menopausal status and QOL, in the control group; there was a significant positive correlation between education of husband, income and QOL and significant negative correlation with presence of emotional illness and quality of life. Regarding the clinical characteristics, in the control group there was a significant negative correlation between stage at diagnosis and QOL. In the last visit there is no significant correlation between socio-demographic data and QOL as regards study and control groups except on the study group, there was a significant negative correlation with age at marriage and QOL and significant positive correlation with receiving surgical and chemotherapy and QOL.

Table7. The relationship between the studied women QOL (dependent), socio-demographic data, social stressors, and clinical characteristics (independents)

Item	Study (18)				Control (18)			
	pre		Post		Pre		Post	
	Beta	P. value	Beta	P. value	Beta	P. value	Beta	P. value
Age	0.428	0.689	0.505	0.668	- 0.402	0.789	0.722	0.349
Education	0.015	0.991	0.373	0.814	0.545	0.623	1.253	0.070
Occupation (working)	- 0.211	0.358	- 0.287	0.124	0.144	0.777	0.324	0.200
Residence (urban)	0.069	0.945	- 0.054	0.961	0.030	0.974	- 1.390	**0.019***
Income (enough)	- 0.160	0.937	- 0.302	0.892	0.100	0.790	- 0.259	0.227
Age at first child birth	0.184	0.813	- 0.518	0.555	0.763	0.398	0.796	0.101
Age at last child birth	-1.018	0.286	- 0.088	0.927	-1.058	0.272	- 0.726	0.207
No. of living children	0.419	0.621	0.063	0.945	1.130	0.186	- 0.723	0.119

- ** Statistically significant difference (p < 0.05)*

Table (8) demonstrates that there is no significant correlation between socio-demographic data and reproductive concerns as regards study and control groups of the studied women except in the study group, there was a significant positive correlation between education, age at marriage, age at 1st childbirth and reproductive concerns, and significant negative correlation between age, period of marriage and reproductive concerns. In relation to the control group, there was a significant positive correlation between education of the husband and reproductive concerns, and a significant negative correlation between age, period of marriage, age at last childbirth, menopause, and problems related to the drug as a social stressor, stage at diagnosis and reproductive concerns.

Table8. The relationship between the studied women reproductive concerns (dependent), socio-demographic data, social stressor, and (independents)

Reproductive concerns scale	Study group (18)		Control Group (18)	
	r	P value	r	P value
Socio-demographic data				
Age	**- 0.324**	**0.022***	**- 0.428**	**0.002***
Residence (Rural)	0.197	0.170	0.014	0.925
Education	**0.284**	**0.046***	0.256	0.073
Education of husband	0.175	0.225	**0.354**	**0.012***
Occupation	0.150	0.297	- 0.099	0.494
Occupation of husband	0.242	0.090	0.010	0.944
Income	0.069	0.632	0.098	0.497
Age at menarche	0.141	0.329	- 0.142	0.325
Age at marriage	**0.282**	**0.047***	0.081	0.575
Period of marriage	**- 0.392**	**0.005***	**- 0.457**	**0.001***
Age at first child birth	**0.467**	**0.001***	0.062	0.676
Age at last child birth	0.106	0.475	**-0.406**	**0.004***
Menopause	0.154	0.285	**-0.422**	**0.002***
Clinical characteristics				
Stage at diagnosis	-0.239	0.298	**-0.611**	**0.016***
Surgical treatment	-0.003	0.984	-0.039	0.786
Chemotherapy	-0.142	0.327	----	----
Radiotherapy	0.101	0.485	0.034	0.815
Hormonal therapy	0.260	0.068	0.251	0.078

Non-parametric Spearman's rho correlation **:Significant Level at P value < 0.05*

Table (9) illustrated that, there is no significant effect on sexual function as a predictor of cancer specific stress and quality of life as regards study group of gynecologic cancer women pre and post administration of the program, while in the control group it is a significant predictor on cancer specific stress in the first visit and on poor physical, social, functional well-being, and the overall quality of life in the last visit, ($p < 0.05$), (r = affected negatively). Additionally, it is a significant predictor of Cancer specific stress, Physical, Social, Functional well-being, and the overall Quality of life after administration of the program, ($p < 0.05$), (r = affected negatively). While in the control group it was a significant predictor of poor quality with the additional concerns of the disease in the first visit, ($p = 0.006$), ($r = - 0.620$). Also on the last, visit it was a significant predictor of poor Physical, Functional well-being and Quality of life, ($p < 0.05$), (r = affected negatively).

Table9. The relationship between sexual function of women with gynecological cancer and their cancer specific stress and quality of life at first and last visit

Item		Study (18)		Control (18)	
		Pre FSD	Post FSD	Pre FSD	Post FSD
Cancer specific stress	r	- 0.116	- 0.474	0.035	- 0.171
	p	0.646	0.047	0.891	0.498
Physical well-being	r	- 0.287	- 0.529	- 0.238	- 0.608
	p	0.249	0.024	0.342	0.007
Emotional well-being	r	0.037	- 0.256	0.082	- 0.048
	p	0.884	0.306	0.747	0.850
Social well-being	r	0.053	- 0.706	- 0.158	- 0.213
	p	0.836	0.001	0.532	0.397
Functional well-being	r	- 0.442	- 0.525	- 0.307	- 0.585
	p	0.066	0.025	0.216	0.011
Additional concerns	r	- 0.352	- 0.461	- 0.620	- 0.446
	p	0.151	0.054	0.006**	0.063
Quality of life	r	- 0.338	- 0.678	- 0.459	- 0.632
	p	0.171	0.002	0.055	0.005

** Statistically significant difference (p < 0.05)* *** Statistically significant difference (p<0.01)*

Table (10) shows the relationship between cancer specific stress and quality of life, there was a significant relationship with study group with gynecologic cancer pre and post administration of the program on the domains, and the entire quality of life except on emotional well-being (posttest), (p < 0.05), (r = correlated positively). While in the control group, there was a significant relationship between cancer specific stress, Physical well-being, and the entire quality of life at the first visit (p < 0.05), (r = correlated positively). As compared with the significant relationship with all domains of quality of life except on emotional well-being at the last visit, (p < 0.05), (r =correlated positively).

A significant relationship between cancer specific stress, Physical, social well-being, and the entire quality of life pre administration of the program (p < 0.05), (r = correlated positively). While after administration of program, there was a significant relationship between cancer specific stress, emotional, and social well-being (p < 0.05), (r = correlated positively). In the control group, there was a significant relationship between cancer specific stress, and social well-being (p < 0.05), (r = correlated positively).

Table10. The relationship between cancer specific stress of women with gynecological cancer and their and quality of life at first and last visit

Item	Study (18)				Control (18)			
	Impact of Events Scale before program		Impact of Events Scale after program		Impact of Events Scale before program		Impact of Events Scale after program	
	r	p. value	r	p. value	r	p. value	R	p. value
Physical well-being	0.66	0.003	0.11	0.664	0.43	0.073	0.13	0.619
Emotional well-being	- 0.03	0.894	0.48	**0.046***	0.14	0.569	0.35	0.156
Social well-being	0.52	0.027	0.55	0.019	0.54	**0.022***	0.73	**0.001****
Functional well-being	0.38	0.123	0.26	0.289	0.40	0.102	0.00	0.997
Additional concerns	0.28	0.268	- 0.01	0.981	- 0.08	0.738	- 0.29	0.239
QOL	0.58	**0.011***	0.38	0.122	0.35	0.155	0.32	0.191

** Statistically significant difference (p < 0.05)* *** Statistically significant difference (p < 0.01)*

Discussion

All women are at risk for gynecologic cancer. There is no doubt that gynecologic cancer is a stressful experience by creating heavy psychological trauma for the woman and has great impact on psychological, emotional health and quality of life of women. [8] Quality of life (QOL) issues are of interest in oncology because effective modern methods of treatment and detection have led to an increase in the number of longterm survivors. [40]

Regarding the relationship between the studied women QOL, socio-demographic data, and clinical characteristics there is no significant correlation between socio-demographic data and QOL as regards study and control groups of the studied women except for the control group; residence (urban) was a significant predictor of negative effect on QOL during the first visit ($r = - 1.390$, $p = 0.019$). This may attribute by urban dwellers usually have low economic status which result in poor quality of life. These findings are in line with Wilailak et al. (2011) in Thailand regarding association with financial status who studied QOL in gynecological cancer survivors compared to healthy check-up women and found the QOL scores were higher in gynecological cancer patients after treatment. And the factors that associated with the higher score in the patient group are having husband as a caregiver, no financial problem, eastern cooperative oncology group score 0 or 1 and having high school or higher education. [41]

For women with gynecological cancer, reproductive concerns may vary not only by site of disease but also by the presentation and manifestation of the disease. Gynecological cancer can present before childbearing has been started or completed, during pregnancy, or can even arise out of pregnancy, as is the case with gestational trophoblastic disease. Regarding reproductive concerns, the results of this study indicated that more than half (61.1% & 61.1%), respectively, of women in the study and control group were somewhat concerned. Moreover, around one third (38.9% & 27.8%) of the study and control group were less concerned. Additionally, 11.1% of women in the control group were very concerned. No one of both groups was had concerns. This may be attributed to in Islamic and eastern countries childbearing is very important and valuable. Moreover, childlessness is a main social onus for women in Upper Egypt, who are required to have children early in their marital life. Childlessness resulted in a social stigmatization of upper Egyptian women and may place them at risk of serious social consequences. Women without kids often feel incomplete and this results in blame and pressure from their relatives, families, neighbors, and society, as well as threat her marriage life; therefore contributing to psychological problems. [42] So, women may ignore to talk with their physician about the impact of cancer therapy on their fertility before starting treatment. These findings aren't consistent with Ruddy et al., 2014 in Aurora who studied fertility concerns and preservation strategies in young women with cancer, and found that almost half of women reported no concern about fertility, 13% were a little concerned, 14% were somewhat concerned, and 148 (24%) were very concerned. [43]

With regard to the relationship between the studied women's reproductive concerns, socio-demographic data, and social stressor, there is no significant correlation except on the study group, education, age at marriage, age at 1st child-birth were a significant predictor of positive effect on reproductive concerns ($p < 0.05$), while age, period of marriage were a significant predictor of negative effect on reproductive concerns ($p < 0.05$). On the other hand, education of husband was a significant predictor of positive effect on reproductive concerns ($p < 0.05$). While age, period of marriage, age at last childbirth, menopause, and problems related to drug as a social stressors, stage at diagnosis were a significant predictor of negative effect on reproductive concerns of the control group ($p < 0.05$).

These findings are in line with Levin, 2013 in Ohio State who studied the impact of reduced ovarian function and its consequences on young women survivors of GYN cancer and found older age was associated with minimal concerns about reproduction, and with Ruddy, 2014 who found that more concern about fertility was associated with receiving chemotherapy, being less than 35 years old, nonwhite race, and not having children. [44, 43]

Most of the studies have focused on QOL in cancer patients, and the less attention has been paid to the impact of the disease on close relationships of couples in various aspects as sexual satisfaction. The key to the effectiveness of interventions was the attempt to identify individual strengths and to improve patients' awareness and to train them on appropriate skills because raising awareness of the problem and its related factors lead to the use of appropriate skill to solve it. [45, 46] In relation to sexual function the results of the present study revealed that although there was no statistically significant difference in relation to the impact of the health education program on sexual function; there were an improvement and change in the sexual function index after implementation of the program. These findings are matched to the study of Anderson (2015) who attempted to facilitate lifestyle changes to manage menopausal symptoms in women with cancer and found improvements in sexual function were observed in the intervention group compared to controls. [47]

Regarding the relationship of predictor and outcomes, there is no significant difference between reproductive concerns and QOL in the study and control group ($p > 0.05$). These findings regarding the study group are in line with Kim el al., 2015 in Korea who compared QOL and sexuality between sexually active ovarian cancer survivors and healthy women and found that sexuality, both in terms of desire, arousal, lubrication, orgasm, satisfaction, and pain and in terms of interest in sex, sexual activity, and enjoyment of sex were similar between the groups, and with the study by Levin, 2013 who found that concerns about reproduction are not related to cancer-specific QOL. [48, 44] Also, with Wenzel et al., 2005 in California who studied QOL in long-term cervical cancer survivors and found in a multiple-regression model, cancer-specific distress, spiritual well-being, maladaptive coping, and reproductive concerns accounted for 72% of the variance in QOL scores. [49] Regarding the control group, these findings are in line with Levin, 2013 who confirmed that sexual symptoms are indeed associated with psychological adjustment and QOL in young survivors. [44]

Stress disorder somewhat post-traumatic usually following adverse life events. [50] There was a clear effect of the health education program on traumatic stress reactions to cancer diagnosis & treatment, as in the last visit; there was a clear effect of the health education program on traumatic stress reactions to cancer diagnosis and treatment. As pre-administration of the program; 72.2% of the study group, as compared with 22.2% pre-administration of the program had a severe traumatic stress disorder, and (11.1%) of the women in the same group vs. 5.5% were healthy with no stress. ($P \leq 0.011$).

It was interesting to learn that the cancer diagnosis was indeed experienced as unexpected by the vast majority of patients with subjective judgment between the severity of the cancer-related burden already experienced and the burden expected in the future. On the last visit, there was a clear effect of the educational program on traumatic stress reactions to cancer diagnosis and treatment, as the percentage of women with severe traumatic stress disorder in the study group decreased to less than one quarter while increased to more than two thirds in the control group. The findings of the present study revealed that the educational program succeeds in the improvement of psychological status and consequently in the cancer patient QOL. These findings are matched with those of Loh et al (2013) in Malaysia who studied the effectiveness of a patient self-management program for cancer as a chronic illness and stated that the differential positive impact on depression, anxiety, and stress. [51] Additionally, these results are in line with Hassan et al., 2016 who studied emotional distress associated with gynecologic & breast cancer in Ɓeni-Suef city. Their results illustrate the relationship between gynecologic cancer of the studied subjects and their emotional distress. It was noted that all types of gynecologic cancer, women suffered from different degrees of anxiety and depression. In addition, breast and gynecological cancers have significant relations with symptoms of the anxiety scale score ($P < 0.05$). [8]

The research results showed that QOL of the patients with gynecologic cancer has been enhanced under the influence of health education program. As preprogram, no one (0.0%) of the study group as compared with (11.1%) of the control group had good QOL and 11.1% of the study group vs. (11.1%) of the control group had poor QOL. Post-program, 77.8% of the study group as compared with no one (0.0%) of the control group had

good QOL and no one (0.0%) of the study group vs. (33.3%) of the control group had poor QOL. The findings of the present research indicated that QOL of the women with gynecological cancer have been enhanced under the influence of educational program and this improvement has not been only related to the total score of the QOL. This enhancement attributed to the improvement of women's knowledge regarding QOL items. This is in accordance with previous studies which displayed improving in women's perception and knowledge after implementing an educational program. [52-55] This improvement could be attributed to the varieties of educational methods which used by the researcher and Arabic booklet which distributed to every woman. It can remind the woman of the topics they have already learned in other ways. Booklets are best used when they are brief, written in plain language, full of good pictures and when they are used to back- up other forms of education. These findings were concurrent with the study reported by Shahsavari et al., (2015) who studied the effect of self-care education on the QOL in patients with breast cancer and showed that QOL of the patients with cancer has been enhanced under the influence of self-care education. [56]

Conclusion

In the light of the results of the present study, thus, it can be concluded that health education program enhances physical, social, emotional, functional well-being and additional concerns related to gynecologic cancer, and on enabling women to proactively live with a cancer condition.

Recommendations

Based on findings of the current study,

1. Since nursing intervention reduces distress during treatment, it is suggested that this type of nursing intervention should be implemented in the outpatient setting of a cancer therapy clinic.
2. Heightening awareness and knowledge about the treatment-related side effects among the nursing staff.

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