

# Quality of Life among Ovarian Cancer: A Cross-Sectional Approach

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## ABSTRACT

**Introduction:** Advances in ovarian cancer (OC) treatments during the former 40 years, have caused in the five-year survival rate enhancement. Although, the patients' survival increasing, patients with cancer experience different side effects that influence the quality of life (QoL). Hence, this study was to assess the quality of life between OC women by using validated questionnaires EORTC QLQ-C30, six months after their chemotherapy course termination.

**Materials and Methods:** This cross-sectional study was done on 137 histological confirmed ovarian cancer women, diagnosed and treated in Imam Khomeini hospital from September 2018 to September 2020.

**Results:** The average age of OC patients was 51.9±14.4 year-old with a range of 16 to 87 year-old. Comparing EORTC QLQ-C30 questionnaires mean scores according to chemotherapy types showed role (p-value=0.048), emotional (p-value=0.013), cognitive (p-value=0.005) and social (p-value=0.011) functioning were significantly better in BEP treatment group. Pain (p-value=0.002) and insomnia (p-value=0.028) and QoL (p-value=0.001) scores were worse in Paclitaxel and Carboplatin treatment group. Surprisingly, Cognitive function in patients older than 60 year-old treated with BEP had the least score and in women younger than 40 year-old underwent BEP the least adverse effect was seen. In addition, Constipation was significantly (p-value=0.036) higher in patients with BEP chemotherapy regimens and older than 60 year-olds. Noticeably, the financial factor had a significant adverse association with the patients' global health status ( $r = -0.61$ , p-value<0.001). Also, higher social and emotional function significantly (p-value<0.001) associated with a higher score of QoL.

**Conclusion:** It seems physicians should encourage prescribing proper conservative therapy besides chemotherapy agents to reduce their adverse effects on OC patients, also try to reduce the adverse effect of anxiety, depression, and financial stress because of cancer treatment, it consequently could promote the QoL of patients.

**Keywords:** Ovarian cancer; long-term survivor; psychosocial; quality of life; mood; lifestyle

## INTRODUCTION

Ovarian cancer is the fifth most prevalent cancer in female with age lower than 65 year-olds. The ovarian cancer risk for women age 65-year-old is 0.36% in developing countries and 0.64% in industrial countries. The optimal therapy consists surgical cytoreduction to no gross disease, or at least optimal debulking (to <1 cm of residual disease), continued by platinum-based combination chemotherapy [1, 2].

Although, some of the patient's relapse, the proportion of OC patients living five years or more after disease detection is remarkable. Advances in OC treatments during the former 40 years, have caused in the five-year survival rate enhancement from 21% to 46% in the OC patients [3-6].

Although with improving in chemotherapy agents, the patients' survival increasing, women with cancer experience different side effects including

chemotherapy-induced peripheral neuropathy (CIPN), decrease their appetite, nausea and vomiting, diarrhea, tiredness, pain, and distress that consequently influence the quality of life (QoL) [7-13].

OC and its treatment have important influence on quality of life including a person's physical, social, and spiritual well-being at different times of her treatment [12, 14, 15]. So, learning about QoL is important to organize follow-up care programs adjusted to the survivors' needs and provide an proper knowledge in prevention and on time diagnosis of survivors' requirements and finally improve their QoL [16].

it is approved that promotion in QOL cause to increase survival rates and survival time between OC patients. Researches in this scope will help in the outreach of interventions and palliative treatments to hold and promote QOL in women with OC. [17, 18].

To the best of our knowledge, no former studies have examined the relationship among OC and quality of life in the Iranian population. Hence, this study aimed to assess the quality of life among OC women by applied validated questionnaires EORTC QLQ-C30, six months after their chemotherapy course termination.

## MATERIALS AND METHODS

This cross-sectional study was done on histological confirmed ovarian cancer women, diagnosed and treated in Imam Khomeini hospital from September 2018 to September 2020.

This study was conducted in accordance with the Helsinki Declaration and was approved by the Tehran University of Medical Sciences ethics committee (IR.TUMS.IKHC.REC.1399.108). All the patients signed the informed consent form.

All histological confirmed ovarian cancer women referred to our oncology department in period of the study and were indicated for chemotherapy regimens (the tumor stages were stage1B or higher), with no recurrence or expire of OC, ability to speak in Persian, and have willing to participate in this study were included.

Women with psychiatric disorders like major depression, bipolar, schizophrenia, underlying diseases or chronic comorbidities including severe medical or cardiac or respiratory condition, uncontrolled hypertension/diabetes, gastrointestinal disease and malabsorption diseases, cirrhosis, Lynch syndrome, Myasthenia gravis, Duchenne muscular dystrophy, and immune deficiency diseases, were excluded. Finally, 18 patients did not have the study's inclusion criteria (7 women due to recurrence of disease and 11 patients due to expire of disease).

QoL were assessed by using validated Persian version of the European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C30) [19] six months after their chemotherapy course termination.

The QLQ-C30 consist of 30 queries, multi-item and single-item measures, contained five functional scales (physical, role, emotional, cognitive, and social functioning), three symptom scales (fatigue, nausea and vomiting, and pain), a global health status/QoL scale, and six single questions (dyspnea, insomnia, appetite loss, constipation, diarrhea, and financial difficulties).

Questions are responded on a 4-point Likert measure from (1) not at all to (4) very much, besides the global quality of life queries which are responded on a seven-point Likert measure from (1) very poor to (7) excellent.

Scores were changed to a 0–100 scale. Although, higher numbers on the functioning scales

and the global health status scale show superior level of functioning and QoL, higher numbers on symptoms indicate worse or more symptoms [20].

All the data analyzed with SPSS version 24.0 (IBM, New York, USA). A P-value of less than 0.05 was considered as the level of statistical significance. We used Independent T-test and Non-parametric Mann–Whitney U-test to assess differences in means. A Chi-square test was used to evaluate variations in proportions.

## RESULTS

A total of 137 OC eligible patients completed the EORTC QLQ-C30 questionnaire. The mean age of them was  $51.9 \pm 14.4$  year-old with a range of 16 to 87 year-old and 30.7% of the patients were over the age of 60 year-olds.

Most patients (60.6%) had high-grade serous carcinoma followed by poorly differentiated adenocarcinoma (7.3%) and other pathology types are summarized in table 1. (Table 1)

Our routine chemotherapy regimens for epithelial ovarian cancer patients are six courses of Paclitaxel and Carboplatin and for those with sex cord-stromal tumors and germ cell tumors, three courses of BEP were administered. About 84% (115) of patients underwent with Paclitaxel and Carboplatin and the other (22 patients) underwent BEP chemotherapy regimens.

The patients' EORTC QLQ-30 question Likert responses are also showed in figure 1. In all questions, "Not at all" had the most frequent responses except for three questions (concentration, depression, and memory trouble). Constipation and financial difficulties were only two questions that two and six patients selected "very much" as a response, respectively. (Figure 1)

Comparing EORTC QLQ-C30 questionnaires mean scores according to chemotherapy types showed role ( $p$ -value=0.048), emotional ( $p$ -value=0.013), cognitive ( $p$ -value=0.005) and social ( $p$ -value=0.011) functioning were significantly better in BEP treatment group. Also, the symptom pain ( $p$ -value=0.002) and insomnia ( $p$ -value=0.028) and QoL ( $p$ -value=0.001) scores were worse in Paclitaxel and Carboplatin treatment group. (Table 2, 3)

The average EORTC QLQ-C30 questionnaires scores (functioning and symptom subscales) according to chemotherapy types and age groups are illustrated in Figures 2 and 3. Surprisingly, Cognitive function in patients older than 60 year-old treated with BEP had the least score and in women younger than 40 year-old underwent BEP the least adverse effect was seen. In addition, Constipation was significantly ( $p$ -value=0.036) higher in patients with

BEP chemotherapy regimens and older than 60 year-olds. (Figure 2, 3)

The financial impact of cancer was slight in the patients except in six patients that indicated this effect was very much in her life, however, there was no significant diversity in terms of the financial impact of cancer between two types of chemotherapy ( $p$ -value=0.245). Noticeably, the financial factor had a significant adverse association with the patients' global health status ( $r = -0.61$ ,  $p$ -value<0.001).

## DISCUSSION

This cross-sectional study to our knowledge was the first research about quality of life in Iranian patients with OC treating with chemotherapy and also evaluating the effect of two usual chemotherapy regimens on OC patients' QoL.

Evidence showed that anxiety and depression enhance over cancer and this influences the QoL adversely. The large number of cancer patients lived in fright of the disease recurrence or extension [21, 22].

It seems strong social (friends, health care provider, ...) and familial supports can decline the patients' anxiety, consequently increase QoL. In our study higher social and emotional function significantly ( $p$ -value<0.001) associated with a higher score of QoL.

Also, as our study showed, the financial stress because of cancer treatment adversely effect on QoL of the patients. As a result, regard to the economic outcomes of cancer has increased because the number of survivors has grown [23, 24].

Totally, platinum/paclitaxel is possible and safe for the treatment of the old patients. However, the study showed pain and insomnia and QoL scores were worse in Paclitaxel and Carboplatin treatment group. Hence, future prospective trials assigned to studying the best treatment of old women are suggested [25-27].

The results of the study recommended physicians should encourage prescribing proper conservative therapy besides chemotherapy agents to reduce their adverse effects on OC patients, also try to reduce the adverse effect of anxiety,

depression, and financial stress because of cancer treatment, it consequently could promote the QoL of patients.

Six months after the treatment, most QoL function grads and the symptom scores were acceptable. This could be attributed to the cytoreductive surgery and adjuvant chemotherapy usage in OC patients. Our study findings were in compliance with former studies, reporting that the large number of ovarian cancer survivors, despite some symptoms, indicate good physical, psychological, social, and mental well-being [28, 29].

This study had some limitations. The first was the lack of assessing QoL at baseline that did not permit comparing the QoL through the disease period. Another limitation was single-center and the small sample size in the BEP treatment group. Therefore, future studies are suggested to evaluate QoL through the time of disease and according to different cases like with or without recurrence OC patients.

## CONCLUSION

This was the first study to investigate the QoL of OC women in the Iranian population. It seems physicians should encourage prescribing proper conservative therapy besides chemotherapy agents to reduce their adverse effects on OC patients, it consequently could promote the QoL of patients.

Table 1. The ovarian cancer patients' pathology type

Pathology type	Frequency	Percent
High-grade serous carcinoma	83	60.6
Mucinous adenocarcinoma	6	4.4
Endometroid carcinoma	8	5.8
Clear cell carcinoma	4	2.9
Dysgerminoma	2	1.5
Immature teratoma	5	3.6
Granulosa cell tumor	5	3.6
Sex cord stroma tumor	6	4.4
Poorly differentiated adenocarcinoma	10	7.3
Peritoneal carcinoma	2	1.5
Low-grade serous carcinoma	2	1.5
Yolk sac tumor	4	2.9
Total	137	100

Figure 1. The EORTC QLQ-C30 question responses of all participants

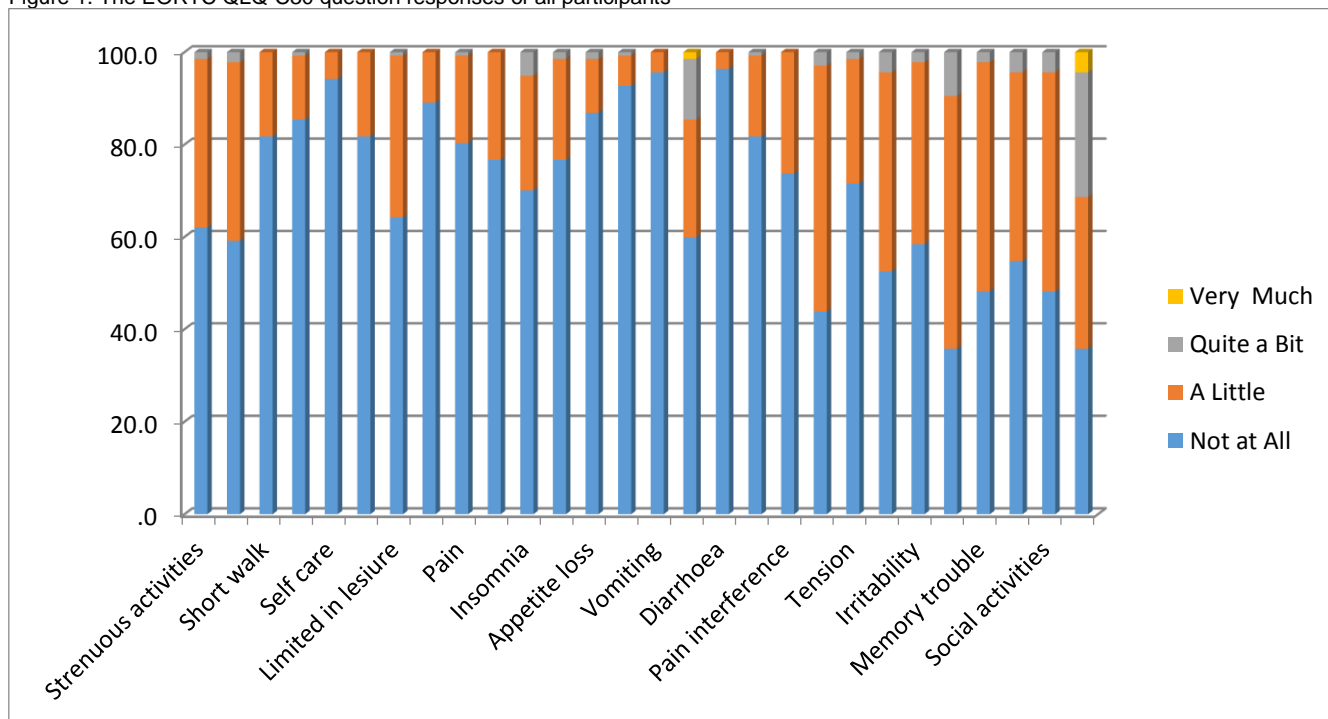


Table 2. Comparing Functional scales of EORTC QLQ-C30 questionnaires according to chemotherapy types

	Paclitaxel & Carboplatin (N=115)		BEP (N=22)		P-value
	Mean	SD	Mean	SD	
Functional scales					
Physical functioning	91.01	11.84	96.36	7.04	0.071
Role functioning	90	13.02	95.45	10.51	0.048
Emotional functioning	82.02	14.91	90.53	12.67	0.013
Cognitive functioning	78.26	19.39	89.39	16.7	0.005
Social functioning	80.72	17.74	90.9	14.29	0.011
Financial difficulties	35.07	29.56	24.24	31.17	0.093
Global health status/QoL scale	86.08	11.02	94.31	9.05	0.001

Table 3. Comparing Symptom scales of EORTC QLQ-C30 questionnaires according to chemotherapy types

Symptom scales	Paclitaxel & Carboplatin (N=115)		BEP (N=22)		P-value
	Mean	SD	Mean	SD	
Fatigue	8.21	11.02	3.53	8.66	0.03
Nausea and Vomiting	2.31	7.61	0.75	3.55	0.43
Pain	8.98	11.31	1.51	4.9	0.002
Dyspnea	4.05	10.94	1.51	7.1	0.296
Insomnia	13.04	19.59	4.54	15.58	0.028
Appetite loss	5.5	13.91	1.51	7.1	0.191
Constipation	19.42	26.11	15.15	24.61	0.437
Diarrhea	1.44	6.82	0	0	0.321

Figure 2. Comparing EORTC QLQ-C30 questionnaires scores (functioning subscales) according to chemotherapy types and age groups

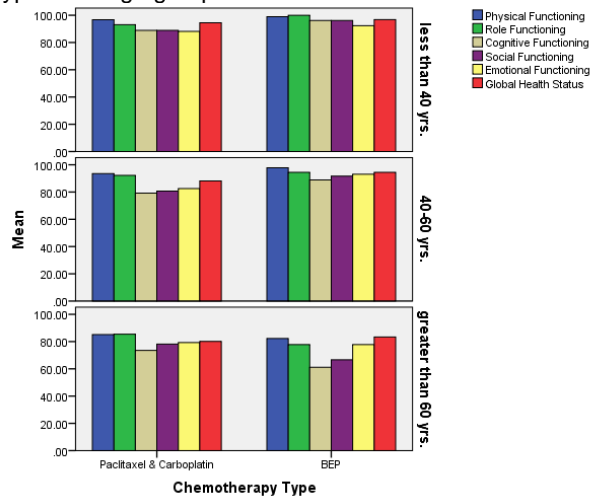
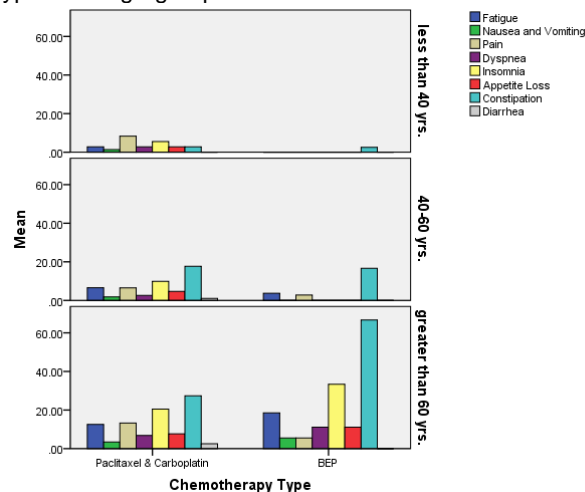


Figure 3. Comparing EORTC QLQ-C30 questionnaires scores (symptom subscales) according to chemotherapy types and age-groups



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