Original Article

Quality of Life in Women with Cancer and Its Influencing Factors

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ABSTRACT

Introduction: Studies show that some of the factors such as pain and psychological changes could decrease the quality of life of patients with cancer. The understanding of these factors can enhance the effectiveness and process of cancer treatment. Therefore this study was conducted to investigate the quality of life in women with cancer and its influencing factors.
Methods: This was a cross-sectional study which was carried out in the city of Tabriz in the northwestern part of Iran in 2016. The sample consisted of 150 women diagnosed with cancer. The EORTC QLQ-C30 (version 3) was used for evaluating the quality of life of the women. The collected data were analyzed in the SPSS ver. 13 using descriptive and inferential statistics. Also, t-test and ANOVA test were applied to investigate the correlation between the dimensions of quality of life and socio-demographic variables. P < 0.05 denoted as statistically significant.
Results: The results showed that the quality of life in the function and symptoms dimensions were in acceptable levels. In the function dimension, the highest and lowest scores belonged to the cognitive and emotional domains, respectively. Also, those women who had the symptoms of insomnia and fatigue, and reported the pressure due to financial burden of cancer treatment had a significantly lower quality of life. A low score was reported in general health dimension. No statistically significant relationships were reported between the socio-demographic characteristics and the women's quality of life and its dimensions.
Conclusion: Since sleeplessness and fatigue reduce the quality of life in women with cancer, nursing interventions are required to relieve cancer-related symptoms. The financial burden of cancer treatment is high. Therefore, governmental and insurance agencies should help with the costs paid by the patients and prevent from reducing their quality of life.

Introduction

In Iran, the death due to cancer ranks third after the death from cardiovascular diseases and traffic accidents. About 70 thousand new cases of cancer occur annually and 35 thousand deaths occur due to cancer.[1] The gender differences are the causes for variations in the prevalence of cancer in men and women. The most common cancers in women include breast, stomach, colorectal and esophageal cancers.[2,3] In 2012, about 47 percent of Iranian patients with cancer were female, with 165 out of 1000000 women getting cancer each year. The diagnosis of cancer is accompanied by many negative consequences, especially with women.[4] One of the negative effects of the diagnosis of cancer is on the patients' quality of life.

The psychological effects of cancer diagnosis and physical consequences associated with cancer treatment reduce the patients' quality of life. The diagnosis and treatment of cancer, impaired sleep and activity patterns, physical symptoms and impaired cognitive function, dysfunctions in social and individual tasks threaten the quality of life.[5-7]

Improving the quality of life of the patients with cancer is a research priority. It is also emphasized in the process of provision of care to patients with cancer. The quality of life in patients with cancer is evaluated to ensure the effectiveness of cancer treatment.[5,6] the dimensions of quality of life include function, social, mental and emotional factors.

These aspects are used as the indicators of patients' performances after the diagnosis and treatment of cancer.[7]

The measurement of quality of life has been recognized as an important indicator of the success of health care services in recent years, which is influenced by the context of the healthcare system. Such a measurement informs healthcare professionals of how much and in what aspects the diagnosis and treatment of cancer have influenced patient's quality of life. Also, clinicians can use this information to prioritize their services that meet the most urgent patients' needs.[8] Women play different roles in the family and society, so cancer may affect their performance in playing their roles. Monitoring and controlling the consequences of cancer not only improves women's survival, but can also enhance their quality of life and add to the coherence of the family structure. In this respect, the consideration of factors influencing the patients' quality of life can enhance the effectiveness and process of cancer treatment.[1,9] Most patients with cancer suffer from mental and emotional disorders, which can reduce their quality of life. For instance, diagnosis, treatment, consequences, side effects of the treatment and recurrence of breast cancer lead to psychological reactions such as depression, anxiety and stress. These reactions can reduce the quality of life in breast

cancer patients by causing interference in function, control of symptom, making decisions about treatment, adherence to treatment regimens and social interactions.[10]

Regarding QoL of women with cancer, studies show that signs such as pain and psychological changes decrease QoL of them and that the management of these signs could improve their condition.[11-13] In Iran, Moradi Msanesh showed that depression and stress lead to dissatisfaction of women with their social relationships and circumstances of their life environment. In addition, some of the factors like clinical and demographic factors could influence cancer patients' quality of life. Rabin and Shahsavari in a study about women with breast cancer indicated that arm problems, communication, comorbidity, age, marital, educational and employment status are all associated with quality of life.[14,15] Also Mohaddesi showed that having child had a positive effect on women quality of life. Since the concept of quality of life has been studied only in women with breast cancer, and there is little information on the quality of life in women with other types of cancer affected by cultural-contextual issues, the current study was designed to investigate the quality of life in women with different types of cancer in Tabriz, Iran. Therefore, the aim of this study was to investigate the quality of life in women with cancer and its influencing factors. We hope that our findings can help with the improvement of quality of life in women with cancer. It was noted that the hypothesis of the correlation between quality of life and the type of cancer was evaluated in this study.

Materials and methods

This research was one part of a larger cross-sectional study in which the effect of cancer on quality of life and performance of women in the city of Tabriz in the northwestern part of Iran was investigated in 2017. The inclusion criteria were being at least 18 years old, diagnosed with cancer by an oncologist and having a willingness to participate in this study voluntarily. The sample size was calculated using the G*power v.3/0/10 with the consideration of the following statistical factors: the correlation between the quality of life and performance = 0.35 in the Tulman study,[7] $\alpha = 0.05$, power = 0.99. Given the probability of 10 percent attrition of samples, the sample size was determined 150 women.

The recruitment of the samples started after obtaining the ethical permissions of the ethics committee affiliated with Tabriz, University of Medical Sciences, Tabriz, Iran (TBZMED.REC.1393.664). Also, the details of the study process were provided to the samples and the written informed consent was obtained from them. Due to limitation of enough eligible participants with cancer for sampling, convince sampling was used for gathering data from April to September 2017 from women referred to Shahid Ghazi hospital, the main referral center for cancer patients in Tabriz, for different treatments such as radiotherapy and chemotherapy. Inclusion criteria were age over 18 year, having one of different types of cancer, and willing to participate in this study.

The socio-demographic characteristics of the sample collected in this study included age, gender, marital status, educational level, occupation, the time passed since the cancer diagnosis and the type of treatment. The EORTC QLQ-C30 (version 3) was used for evaluating the quality of life of the women with cancer. This questionnaire was designed in 1986 by the European organization for research and treatment of cancer (EORTC) with three subscales as global health status/ quality of life, functional scales and symptoms scales. This questionnaire consisted of 30 items classified into five functional scales of physical (5 items), roll (2 items), cognitive (2 items), emotional (4 items) and social (2 items), nine symptoms of fatigue (3 items), pain (2 items), nausea and vomiting (2 items), shortness of breath (1 items), loss of appetite (1 items), insomnia (1 items), constipation (1 items) and diarrhea (1 items), and the financial burden of cancer (1 items) and two items for global health status/ quality of life subscale.[16] The four-point Likert scale (never = 1, little = 2, intermediate = 3 and high = 4) were used for the functional scales and symptoms scales. The subscale of global health status/ quality of life consisted of a seven-point grading scale from very weak to excellent with the scores of 1-7. The row scores were calculated and then carried out the linear transformation to 0-100 to obtain the scores based on instructions mentioned in the EORTC QLQ-C30 Scoring Manual.[17] A high score for a functional scale represents a high / healthy level of functioning, a high score for the global health status / QoL represents a high QoL, but a high score for a symptom scale / item represents a high level of symptomatology / problems.

In the current study, the Persian version of QoL questionnaire was used which the validity and reliability of it was determined by Montazeri et al., and other researchers.[18,19] The data for all participants were completed through face to face interviews in the patients' room in hospital wards. In this study, the reliability of this questionnaire was assessed, using the calculation of alpha Chronbach's coefficient and was reported 0.87 for the overall quality of life and 0.86, 0.86 and 0.72 for the dimensions of function, symptoms and general health, respectively.

The collected data were analyzed using descriptive and inferential statistics via the SPSS ver. 13 software (SPSS Inc., Chicago, IL USA). Also, Mann–Whitney U and Kruskal-Wallis tests were applied to investigate the correlation between the dimensions of quality of life and socio-demographic variables. P<0.05 denoted as statistically significant.

Results

The majority of the samples (31.3%) was in the age group of 40-50 years old. 77% were married and 89% housewives. The educational level of most of them was elementary school (38%). Also, about 1-3 years had passed since the diagnosis of cancer in most women (70%). A total of 17 women (11.3%) had gastrointestinal cancer, 57 women (38%) had breast cancer, 44 women (29.3%) had leukemia, 3 women (2%) had lung cancer, 16 women (10.7%) had urogenital cancer, 1 woman (0.7%) had skin cancer and 11 women (7.3%) had other types of cancer including brain tumors. Of the samples, 134 women (89.3%) were undergoing chemotherapy, 46 women (30.7%) radiotherapy, 69 women (46%) surgery and 51 women (34%) received other types of treatment. The results showed that the quality of life in the

function 79.3 (16.22) and symptoms dimensions 17.58 (16.04) were in acceptable levels. In the function dimension, the highest and lowest scores were for the cognitive 85.79 (19.89) and emotional 70.07 (23.67) domains, respectively. In the symptom dimension, the lowest score was for nausea and vomiting 18.22 (6.77) and the highest scores were for insomnia 33.87 (32.44), financial burden of cancer 32.21 (30.86) and fatigue 32.11 (25.85). Since a higher score in the dimension of function and lower score in the dimension of symptoms indicated a higher quality of life, those women in our study who suffered from insomnia, fatigue and financial burden of cancer had a low quality of life. Also, the score of total quality of life in the domain of general health determined by two questions regarding general health and quality of life in the past week from the patient's perspective was reported 33.05 (24.42). Given the score range of 0-100 for the total quality of life, the quality of life for the patients in our study was quite low (Table 1).

Table 1. Dimensions of QOL in women with cancer

Variables	N	Mean (SD)
Functional scales		
Physical score	150	75.27 (23.34)
Role score	150	81.88 (20.06)
Emotional score	149	70.07 (23.67)
Cognitive score	149	85.79 (19.88)
Social score	149	83.44 (26.02)
Symptoms scales		
Financial score	149	32.21 (30.85)
Fatigue score	150	32.11 (25.84)
Nausea vomiting score	150	6.77 (18.22)
Pain score	150	17.77 (24.01)
Dyspnea score	150	7.77 (19.84)
Insomnia score	150	32.44 (33.87)
Appetite loss score	149	21.25 (32.23)
Constipation score	150	15.55 (28.02)
Diarrhea score	150	7.11 (17.94)
Global health score	149	33.05 (24.41)
QOL total functional	150	79.29 (16.22)
QOL total symptoms	150	17.58 (16.40)

No statistically significant relationships were reported between the type of cancer and the women's quality of life (P=0.89). Also, no statistically significant relationships were reported between the dimension of function and age (P=0.38), marital status (P=0.52), educational level (P=0.54), occupation (P=0.47), the time passed from the diagnosis of cancer (P=0.55) and the type of cancer reatment like chemotherapy (P=0.82), radiotherapy (P=0.96), surgery (P=0.81) and other types of treatment (P= 0.34) (Table 2).

With regard to the relationship between the symptoms dimension and the socio-demographic characteristics, no statistically significant relationships were reported with the type of cancer (P=0.85), age (P=0.17), marital status (P=0.62), educational level (P=0.44), occupation (P=0.55), the time passed from the diagnosis of cancer (P=0.28) and the type of cancer treatments including chemotherapy (P=0.60), radiotherapy (P=0.59) and surgery (P=0.52), except for the other types of treatments (P=0.03) (Table 3).

Discussion

The majority of participants in this study were diagnosed with breast cancer and were over 40 years of age. Our findings are consistent with the results of Shahsavari et al., Mohadethi et al., and Mardani et al.[15,20,21] In this study, most participants were housewives and married and were consistent with the results of other studies.[22,23]

In the functional scales, the patients had an appropriate quality of life. In all domains of the functional scales the quality of life was high and the highest score was for the cognitive domain. The cognitive domain consisted of two items regarding concentration and remembering things. The results of the Safaee's study confirm our findings showed,[19] but Mohaddesi's study found that the least score was for the cognitive domain.[20] Another study also reported high and low scores for the quality of life in social and emotional functional scales, respectively.[24] This controversy in findings could be due to the type of cancer which was studied in these researches. In addition, it shows that more studies especially with qualitative approaches need to be done in order to investigate patients' perception and feelings regarding to cancer. In our study, a lower score in the emotional functional scale was reported compared to other domains. Although this was an acceptable score considering the overall score of quality of life, it indicates depression, anxiety and stress in these patients. Other studies also reported that depression, anxiety and stress had statistically significant associations with the quality of life so that the patients with the above-mentioned symptoms had lower quality of life.[10,14,23,25]

The quality of life was in an acceptable level in the symptoms scales. The highest score was for insomnia that had a negative impact on quality of life. The results of Fortner's study showed that women with breast cancer suffered from insomnia[26] and another study also found a reverse relationship between insomnia and quality of life.[27]

In the study by Safaee et al., patients mostly complained from insomnia, but diarrhea was stated as the symptom with the least influence on quality of life.[19]

Several studies have shown the relationship between cancer-related fatigue and quality of life with a greater prevalence in women with cancer[23] and a reverse correlation with quality of life.[27] According to other similar studies, fatigue had the highest score and a profound impact on the quality of life in patients with cancer. Conversely constipation had the least effect on the patients' quality of life.[20] The different types of cancer that were studied in the present study and, choosing women as the only participants of the study might have brought about different results, with insomnia as the most effective factor in the patients' quality of life. The financial burden of cancer reduced the women's quality of life. According to the finding of a study on the financial burden of cancer in the USA, the financial burden of cancer immediately after the diagnosis of cancer was very high and remained high for several years thereafter.[28] Meanwhile, the estimated cost for breast cancer treatment in Iran was lower immediately after diagnosis and increased for several years thereafter.[29] Since for most participants in this study 1-3 years had passed from the diagnosis of cancer and the results of the studies on the financial burden of cancer treatment, patients receiving cancer treatment are under financial pressures and need help to get through this stage. The lowest score of the symptoms dimension was for the symptom of nausea that

had the least impact on the quality of life. Our result is confirmed by the finding of Torkzahrani et al., indicating a low score of nausea and minimum impact on the quality of life. However, the financial burden of cancer treatment had the highest negative impact on the quality of life.[24] Global health status/ quality of life subscale received lower scores than other two subscales in this study. Although the results indicated an appropriate quality of life, the samples did not evaluate their general health and quality of life in an appropriate level. Other studies reported a high level of global health status/ quality of life.[20,24,30] Perhaps this finding of current study is due to contextual factors of Iran which have influenced participants perception of their global health.

In confirmation of this statement, the study of Afshari et al., on the happiness of Iranian people, showed that Iranian people had the most negative feelings[31] and another study on Iranian's quality of life in different states reported weak and intermediate scores.[32] This finding indicates the cause for the low scores of the global health status/ quality of life in the past week reported by women with cancer.

We found no statistically significant correlation between the dimensions and the type of cancer, age, marital status, educational level, occupation, the time passed from cancer diagnosis and the type of cancer treatment. The findings of Northhouse et al., also showed no statistically significant correlations between socio-demographic data and the quality of life.[33]

Similarly, Mohaddesi's study found no such relationships, except for those women who had children that indicated the effect of family and society support on physical and psychological symptoms.

Table2. Functional scales of quality of life in women with cancer and its influencing factors

Variables	N (%)	Mean (SD)	95% CI for mean		P
			Lower bound	Upper bound	
Cancer type					0.89[£]
Gastrointestinal cancer	17 (11.41)	80.37 (13.38)	73.49	87.25	
Brest	57 (38.26)	76.73 (17.89)	71.98	81.48	
Blood	44 (29.53)	80.33 (17.46)	75.02	85.64	
Lung	3 (2.01)	84.55 (1.01)	82.02	87.08	
urogenital	16 (10.74)	81.47 (12.98)	74.55	88.40	
skin	1 (0.67)	80.00 (0)	0	0	
other cases	11 (7.38)	80.51 (13.54)	71.41	89.61	
Total	149 (100)	79.18 (16.21)	76.55	81.80	
Age					0.38[£]
21-30	16 (10.74)	81.84 (18.10)	72.19	91.49	
31-40	36 (24.16)	75.80 (16.43)	70.24	81.36	
41-50	47 (31.54)	81.27 (15.00)	76.87	85.68	
51-60	24 (16.11)	81.72 (15.10)	75.34	88.09	
over 60	26 (17.45)	76.30 (17.89)	69.07	83.53	
Total	149 (100)	79.22 (16.24)	76.59	81.85	
Marriage status					0.52[£]
Single	18 (12.08)	75.56 (23.95)	63.65	87.48	
Married	116 (77.85)	80.03 (14.88)	77.30	82.77	
Widow	15 (10.07)	77.75 (16.05)	68.86	86.64	
Total	149 (100)	79.26 (16.27)	76.63	81.90	
Education level					0.54[£]
Illiterate	46 (31.29)	81.15 (14.88)	76.73	85.57	
Primary	57 (38.78)	79.67 (15.69)	75.50	83.83	
Diploma	29 (19.73)	77.33 (16.66)	70.99	83.67	
Collegiate	15 (10.20)	74.70 (22.01)	62.50	86.89	
Total	147 (100)	79.29 (16.22)	76.68	81.91	
Job					0.47[£]
Free	1 (0.68)	78.33 (-)	-	-	
Employee	8 (5.44)	87.91 (11.23)	78.52	97.31	
Unemployed	3 (2.04)	89.40 (10.66)	62.90	115.90	
housewife	134 (91.16)	78.87 (16.32)	76.08	81.66	
Student	1 (0.68)	80.33 (-)	-	-	
Total	147 (100)	79.58 (16.01)	76.97	82.20	
Disclosure time duration					0.55[£]
1-3	105 (71.43)	80.27 (13.11)	77.74	82.81	
4-6	20 (13.61)	76.51 (23.56)	65.49	87.54	
7-10	9 (6.12)	75.88 (18.90)	61.35	90.42	
Over 10	13 (8.84)	83.33 (21.26)	70.48	96.18	
Total	147 (100)	79.76 (15.97)	77.16	82.37	
Chemotherapy history					0.82[ß]
Yes	134 (89.33)	79.39 (16.38)	-7.56[€]	9.44[€]	
No	16 (10.67)	78.45 (15.24)			
Radiotherapy history					0.96[ß]
Yes	46 (30.67)	79.37 (18.72)	-5.58[€]	5.80[€]	
No	104 (69.33)	79.26 (15.07)			
Surgery history					0.81[ß]
Yes	69 (46)	78.95 (17.63)	-5.90[€]	4.63[€]	
No	81 (54)	79.58 (15.02)			
Other case treatment					0.34[ß]
Yes	51 (34)	81.05 (13.59)	-2.85[€]	8.19[€]	
No	99 (66)	78.39 (17.41)			

[€]95% confidence interval of the Mean difference, [£]Kruskal-Wallis Test was used, [ß] Mann–Whitney U-test was used.

Table 3. Symptom scales of quality of life in women with cancer and its influencing factors

Variables	Mean (SD)	95% CI for mean Lower bound	95% CI for mean Upper bound	P
Cancer type				0.85[£]
Gastrointestinal cancer	17.97 (14.14)	10.70	25.24	
Brest	18.94 (18.61)	14.00	23.88	
Blood	15.79 (14.77)	11.30	20.28	
Lung	7.17 (3.13)	-0.60	14.95	
Urogenital	20.31 (15.94)	11.81	28.80	
Skin	20.83 (0)	0	0	
Other cases	16.16 (18.79)	3.53	28.79	
Total	17.62 (16.45)	14.95	20.28	
Age				0.17[£]
21-30	11.97 (16.81)	3.01	20.93	
31-40	21.33 (16.94)	15.59	27.06	
41-50	15.30 (14.73)	10.98	19.63	
51-60	15.91 (15.56)	9.33	22.48	
over 60	21.50 (18.47)	14.04	28.96	
Total	17.58 (16.46)	14.91	20.24	
Marriage status				0.62[£]
Single	19.79 (22.64)	8.53	31.05	
Married	16.95 (15.61)	14.08	19.83	
Widow	20.50 (14.58)	12.43	28.58	
Total	17.65 (16.43)	14.99	20.31	
Education level				0.44[£]
Illiterate	16.90 (14.83)	12.50	21.31	
Primary	16.17 (15.25)	12.12	20.22	
Diploma	20.04 (19.51)	12.61	27.46	
Collegiate	21.20 (20.46)	9.86	32.53	
Total	17.58 (16.40)	14.94	20.23	
Job				0.55[£]
Free	13.88 (-)	-	-	
Employee	13.19 (11.23)	3.80	22.58	
Unemployed	4.62 (4.24)	-5.91	15.17	
Housewife	17.75 (16.48)	14.93	20.57	
Student	5.55 (-)	-	-	
Total	17.12 (16.10)	14.50	19.75	
Disclosure time duration				0.28[£]
1-3	16.55 (13.64)	13.91	19.20	
4-6	22.95 (24.73)	11.37	34.52	
7-10	13.19 (15.70)	1.12	25.26	
Over 10	14.15 (16.13)	4.40	23.90	
Total	17.01 (15.92)	14.41	19.60	
Chemotherapy history		-10.86[€]	6.32[€]	0.60 [ß]
Yes	17.34 (16.55)			
No	19.61 (15.48)			
Radiotherapy history		-4.18[€]	7.32[€]	0.59 [ß]
yes	18.67 (19.22)			
No	17.10 (15.07)			
Surgery history		-3.59[€]	7.04[€]	0.52 [ß]
Yes	18.51 (18.22)			
No	16.79 (14.75)			
Other case treatment		-10.33[€]	-0.38[€]	0.03 [ß]
Yes	14.05 (12.59)			
No	19.40 (17.84)			

[€]95% Confidence Interval of the Mean Difference, [£]Kruskal-Wallis Test was used, [ß] Mann–Whitney U test was used.

Also, having no children had statistically significant correlations with the feeling of pain, fatigue and nausea.[20]

Shahsavari's study showed a significant correlation between the physical domain of quality of life and age, age at diagnosis, background diseases, religious beliefs, radiotherapy, mastectomy and chemotherapy, but the findings did not show any statistically significant relationship between income level and duration of diseases, number of children, residence, occupation and having social support, and any of the quality of life's dimensions.[15] The results of Saleha et al., and Blair et al., showed that the patients older than 50 years old had a higher quality of life compared with the women younger than 50 years old. Also, the women with breast cancer had a higher quality of life.[22,34] It sounds as if the diversity of findings in these studies could be due to the type of samples and cancers which were investigated in these studies.

This study has some limitations which researchers were aware of. The impact of the cultural background, religion and residence of the women with cancer on their quality of life was not considered. It is possible that those women who live in urban areas and villages use different methods for adaptation to cancer, which can influence their quality of life. Religious traditions such as praying may be effective in coping with cancer and improve quality of life.

Therefore future studies are needed with the consideration of the above-mentioned factors on their relationships with the quality of life. Another limitation of the study was not random sampling due to limitation of available women with different types of cancer so the findings must be generalized with caution.

Conclusion

Since sleeplessness and fatigue reduce the quality of life in women with cancer, nursing interventions are required to relieve cancer-related symptoms. The financial burden of cancer treatment is high. Therefore, governmental and insurance agencies should help with the costs paid by the patients and prevent from reducing their quality of life. In spite of the high score of quality of life, the women in our study showed a low level of general health indicating their negative evaluation of their general health. Therefore, nurses are required to assess the reasons for such a negative evaluation of general health and devising appropriate strategies. Also, a low score in the emotional domain due to depression and anxiety indicates the need for psychological support to the patients by nurses. The focus of care in the Iranian healthcare system is on physical symptoms and medication therapy. Therefore, the psychological needs of patients with cancer are mainly ignored. It is suggested that a psychologist becomes involved in the healthcare team and help them with the adaptation with cancer and its treatment process.

Increasing the number of nursing staff and providing opportunities for nurses to communicate with patients can help with the recognition of patients' needs with regard to their quality of life and provision of appropriate care.

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Ethical issues

None to be declared.

Conflict of interest

The authors declare no conflict of interest in this study.

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