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Quality of Life of Iranian Cancer Patients

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Abstract: Many patients with cancer have multiple symptoms affecting their sense of well-being and this has become an increasingly prominent topic in oncology research. The purpose of this study was to evaluate the Quality of Life (QOL) in Iranian cancer patients undergoing chemotherapy. A total of 118 cancer patients who underwent chemotherapy and had inclusion criteria were enrolled in the study. Researchers conducted a cross-sectional analytical study including consecutive Iranian patients at Qom Chemotherapy Center from January, 2009 to June, 2010. The participants completed an Iranian version of the brief form of the WHOQOL assessment instrument and a demographic checklist. Data were analyzed using SPSS-PC software, descriptive analysis, independent sample t-tests, one way ANOVA models, Tukey's post hoc test and linear regression. The mean age of patients was 52.11±1.57 years. Majority of them were married (83.9%). Most patients were housewives (32.2%) and 27.1% were unemployed. A total of 36.4% were uneducated, 52.5% had an educational level of less than a diploma and only 8.4% received academic education. The mean time from cancer diagnosis was 16.76±2.32 months. As for the site of cancer, the largest proportion had breast cancer (34.7%) followed by bowel (16.9%) and lung (10.2%) cancer. Most patients had a relatively average level of overall QOL. QOL scores were low in older and less educated patients but these scores were not affected by the marital status or types of cancer. No significant regression was observed between duration of disease and treatment and mean QOL scores. The results emphasize that older and less educated patients have lower QOL scores. These patients may require a greater level of support and education to improve their QOL. Overall, patients in the present study had a relatively average level of global QOL.

Key words: Quality of life, cancer, chemotherapy, WHOQOL-BREF, patients, Iran

INTRODUCTION

Cancer is the third most common cause of death after cardiovascular and lung diseases in Iran; 70,000 new cases of cancer are recorded annually (Karimi *et al*., 2010). In 2005, the 20 years prevalence of cancer in the Netherlands was estimated to be >450,000 persons (2.8%); this figure is expected to increase to 692,000 in 2015. Predictions suggest that by 2050, there will be a further 40% increase in the number of people living with cancer (Johnson *et al*., 2010).

Due to early detection and progress in anti-cancer treatment, the survival rate of cancer patients is growing. Many cancer patients have multiple symptoms affecting their sense of well-being and physical and social functioning. Several investigations have shown that these symptoms are associated with poor patient outcome. The impact of disease and treatment on the sense of well-being and functioning of a patient has become an increasingly prominent topic in oncology research (Le *et al*., 2007). With the growing realization that well-being of patients is just as important a consideration as their treatment and cure, Quality of Life (QOL) has come to the forefront in health care. Although, there is no universally agreed definition of QOL, this term is now widely used and is recognized as a multidimensional, subjective and dynamic concept (Yana and Sellickb, 2004). QOL refers to the perception of effects of disease and its impact on the daily functioning of a patient. It is a multidimensional issue, incorporating physical, psychological, social and environmental domains and it must be self-reported based on the patient's own experiences (Fang *et al*., 2010). Studies on QOL have several benefits. They provide information that can

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indicate where more efficient treatment of cancer patients can be achieved. In addition, it has been shown that QOL assessment in cancer patients may contribute to improved treatment and could even be of prognostic value (Montazeri , 2009). Therefore, it is important to explore the QOL of cancer patients in order to provide valuable information on patient perception of QOL and on factors that may prevent or moderate the negative effects of cancer on patients (Yana and Sellickb, 2004).

A variety of QOL assessment tools have been developed. Some are disease-specific measures for cancer patients while others are generic and can be universally applied. Although, specific measures are more sensitive to changes in a particular condition using generic instruments has the advantage of allowing comparisons between disease groups and can inform decisions, such as on resource allocation (Phungrassami *et al*., 2004). WHOQOL (World Health Organization Quality of Life) is a generic instrument initiated by WHO as an international QOL assessment suitable for obtaining a cross-cultural perspective. Its development and psychometric properties have been collaboratively established in 15 different centres worldwide (Phungrassami *et al*., 2004).

WHOQOL is currently available in major languages and is further developing in various other languages. The 26 item abbreviated version of the WHOQOL-100 instrument (WHOQOL-BREF) has been shown to be a valid and reliable brief assessment of QOL. WHOQOL-BREF is being developed for use in situations where time is restricted, respondent burden must be minimized and facet-level detail is unnecessary such as in large epidemiological surveys and in some clinical trials (Skevingto *et al*., 2004).

The Iranian version of WHOQOL-BREF has been tested for its psychometric properties in a large population against WHOQOL-100 and was found to be shorter more convenient and easily comprehensible. The validity and reliability of WHOQOL-BREF has been tested and confirmed (Montazeri, 2009). Regarding the importance of QOL in relation to the outcome among cancer patients, the present study aimed to assess the QOL of patients with different types of cancer who were undergoing chemotherapy.

MATERIALS AND METHODS

Design: A cross-sectional analytical study was designed to assess QOL of cancer patients.

Settings and subjects: The study was conducted at the Qom Chemotherapy Centers related to Qom University of Medical Sciences, Iran from January, 2010 to June, 2011.

Consecutive patients with cancer undergoing chemotherapy during the study period were selected. Patients with mental or psychomotor disorders that prevented their participation in the interview, those who had communication problems and those who refused to provide an informed consent were excluded from the study. Of the 130 patients who met the inclusion criteria, 12 were excluded because they incorrectly answered the questionnaire. The final sample consisted of 118 patients, all of whom were willing to participate in the study. The mean age of patients was 52.11±1.57 years (range: 10-83 years). Majority of patients were married (83.9 %) and only 3.3 % were separated. Most of them were housewives (32.2%) and 27.1% were unemployed. A total of 36.4% were uneducated, 52.5% had an education level less than a diploma and only 8.4% received academic education. The mean time from cancer diagnosis was 16.76±2.32 months (range: 1-156 months). As for the site of cancer, most patients had breast cancer (34.7%), followed by bowel (16.9%) and lung (10.2%) cancers.

Instrumentation: Patientinformationwas collected during chemotherapy using a questionnaire that included socio-demographic (age, level of education, employment, marital status, site of cancer, duration of disease and treatment and receipt of educational material related to the physical and psychological complications of cancer) and QOL data. QOL was measured using the Iranian version of WHOQOL-BREF.

The WHOQOL-BREF SF-26 questionnaire has previously been tested on the Iranian general population (Montazeri, 2009). It consists of 26 items providing scores for the following four domains related to QOL: physical health (7 items), psychological health (6 items), social relationships (3 items) and environmental health (8 items). It also includes a global subscale of QOL (2 items).

Scores range from 1 (very poor) to 5 (very good) (Drabe *et al*., 2008). The four subscale scores are calculated by summing up scores of the corresponding items in each subscale. The overall score is the summation of all subscale scores and the two global item scores.

Study variables: Independent variables analysed were age, level of education, employment, marital status, site of cancer and duration of disease and treatment. Dependent variables included the subscale and overall QOL scores.

Data collection: Standardized instructions for answering the WHOQOL-BREF questionnaire were provided by a research assistant. Patients who were willing to participate in the study completed the questionnaire alone or with the help of assistant. Patients were asked whether they understood each item question but were not asked to explain their answers provided for each question.

Statistical analysis: Statistical analysis of the data was performed using SPSS Version 16.0 (SPSS Inc.). $p<0.05$ was considered statistically significant. The Kolmogorov Smirnov Test was used to determine the normal and abnormal variables. Qualitative variables were expressed as mean±standard deviation and percentage. An independent sample t-test, one-way ANOVA and Tukey's post hoc test were used to compare the different groups of quantitative variables because of their normal distribution. Linear regression was used to assess the effects of related factors on QOL scores.

RESULTS AND DISCUSSION

Patient characteristics: Demographic and clinical characteristics of subjects are shown in Table 1. Table 2 shows the number of educated patients with regard to the physical and psychological complications following cancer treatment.

Table 1: Demographic and clinical characteristics of patients

Patient characteristics	No.	Percentage
Marital status		
Married	99	83.9
Single	13	11.0
Separated/divorced	4	3.3
Level of education		
Primary school	43	36.4
Secondary school	28	23.7
High school graduate	17	14.4
Technician	3	2.5
Professional	7	5.9
Religious	2	1.7
Job		
Staffer	11	9.3
Tradesman	4	3.4
Worker	14	11.9
Religious	2	1.7
Unemployed	32	27.1
Student	1	0.8
Housewife	38	32.2
Farmer	1	0.8
Driver	1	0.8
Retired	1	0.8
Site of Cancer		
Bowels	20	16.9
Lung	12	10.2
Breast	41	34.7
Liver	6	5.1
Hodgkin's disease	6	5.1
Stomach	7	5.9
Mouth	1	0.8
Ovarian	5	4.2
Pancreas	2	1.7
Kidney	1	0.8
Bladder	1	0.8
Neck and face	1	0.8
Larynx	2	1.7
Leukemia	6	5.1
Testis	2	1.7
Prostate	3	2.5

Age (range): Years (mean±SD) = 10-83 (52.11±1.57); Duration of disease: Month (mean±SD) = 1-156 (16.76±2.32); Treatment length: Month (mean±SD) = 1-36 (4.33±4.87)

Patient QOL: Subscale and overall QOL scoring criteria for WHOQOL-BREF are shown in Table 3. Mean±SD and the percentage of patients in each category of each subscale as well as the overall QOL scores are shown in Table 4. Most patients in the present study had a relatively average level of overall QOL and its domains.

Factors associated with QOL: The following are some additional findings related to the average QOL scores. As shown in Table 5, the overall QOL scores ($p = 0.03$) and the physical ($p = 0.02$) and psychological ($p = 0.02$) domains were significantly high in patients aged <60 years. Patients with an academic education also had high overall ($p = 0.005$), psychological ($p = 0.01$) and environmental ($p = 0.04$) QOL scores. On Tukey's post hoc test, this difference was significant among patients with a professional degree, those who were uneducated and those going to primary schools. QOL scores were not affected by marital status or types of cancer. Moreover, no significant regression was observed between the duration of disease and treatment and mean QOL scores. Despite advances in cancer treatment and improvements in methods for dealing with common symptoms and side

Table 2: Receipt of educational material on physical and psychological complications of cancer therapy

Education	No.	Percentage
Physical complications		
Yes	33	28.0
No	84	71.2
Psychological complications		
Yes	28	23.7
No	89	75.4

Table 3: Subscales and overall QOL scoring criteria of WHOQOL-BREF

Subscales	Items	Bad	Average	Good
Physical health	7	7-16	17-26	27-35
Psychological well-being	6	6-14	15-22	23-30
Social relationships	3	3-7	8-11	12-15
Satisfaction with the environment	8	8-18	19-29	30-40
Overall*	26	26-60	61-95	96-130

*Another 2 global subscales for overall QOL and general health status are included in overall scores

Table 4: The QOL scores and levels of the 118 patients

		QOL levels (No. of patients (%))		
Subscale	Score*	Bad	Average	Good
Physical health	19.73±3.20	18 (15.3)	96 (81.40)	4 (3.4)
Psychological well-being	17.91±3.54	22 (18.6)	88 (74.60)	8 (6.8)
Social relationships	9.26±2.16	24 (20.3)	74 (62.70)	20 (16.9)
Satisfaction with the environment	22.70±5.13	23 (19.5)	81 (68.63)	14 (11.9)
Overall	75.50±12.52	14 (11.9)	100 (84.70)	4 (3.4)

*Values are defined as Mean±SD

Table 5: Clinical and socio-demographic factors affecting QOL scores

Parameters	No.	Physical health	Psychological well-being	Social relationships with the environment	Satisfaction	Overall
Age						
≤60	85	20.28±3.44	18.25±3.92	9.32±2.35	19.86±4.75	67.45±12.97
>60	31	18.64±2.71	16.64±2.75	8.75±2.27	19.14±4.34	61.48±7.86
p-value (t-test)	-	0.02	0.02	0.28	0.48	0.03
Level of education						
None	43	18.85±3.33	16.62±3.78	8.66±1.99	18.70±4.53	62.85±1.13
Primary school	28	20.43±3.44	16.43±4.58	8.68±2.75	17.87±4.57	23.43±1.25
Secondary school	17	21.50±2.71	20.90±2.92	10.2±2.25	21.2±3.76	73.8±9.49
High school graduate	17	20.10±4.35	17.90±1.66	9.3±2.05	20.20±5.49	67.5±1.13
Technician	3	20±1.41	18±2.82	9.7±1.01	18.5±2.12	67.5±3.53
Professional	7	20.33±1.52	24±4.35	11±1.73	25.66±0.57	81±3.46
Religious	2	20±1.41	17±1.41	8.5±0.7	24±2.82	65.5±4.94
p-value (ANOVA)	-	0.46	0.005	0.42	0.01	0.04
Marital status						
Married	99	19.8±3.29	17.77±3.57	9.26±2.27	19.71±4.51	66.27±11.33
Single	17	20.90±3.01	19.23±3.87	9.87±1.88	21.27±3.84	71.71±11.38
p-value (t-test)	-	0.29	0.17	0.46	0.27	0.23
Site of cancer						
p-value (ANOVA)	-	0.51	0.83	0.73	0.83	0.73
Employment status						
Employed	46	17.80±6.57	17.23±4.65	9.30±2.61	18.89±5.08	64.82±12.79
Unemployed	68	19.07±4.7	16.60±5.44	9.13±2.02	20.42±4.02	67.47±11.07
p-value (t-test)	-	0.28	0.53	0.72	0.10	0.37
Duration of disease						
p-value (regression)	-	0.64	0.62	0.73	0.059	0.24
Treatment length						
p-value (regression)	-	0.95	0.94	0.60	0.51	0.70

effects, most cancer patients experience considerable suffering, undergoing profound changes in their QOL because of the diagnosis itself, the stage of cancer and the administration of chemotherapy (Akin *et al*., 2010). Researchers believe that chemotherapy has a considerable effect on the QOL of cancer patients. Therefore, the side-effects of chemotherapy on the QOL of cancer patients have been a topic of many investigations (Montazeri, 2008). This study aimed to assess QOL in Iranian cancer patients undergoing chemotherapy and found different dimensions of QOL that were negatively affected.

Some studies have suggested that mean QOL scores in cancer patients differ depending on the site of cancer, treatment duration and socio-demographic factors (Tazaki *et al*., 1998). In this study, the overall QOL scores ($p = 0.03$) and physical ($p = 0.02$) and psychological ($p = 0.02$) domains were significantly high in patients aged <60 years.

However, Maria found that there was no difference among QOL domains between patients older and <60 years (Browall *et al*., 2008). Watters *et al*. (2003) found that younger women (≤64 years) receiving chemotherapy showed a decrease in physical function than older women (Watters *et al*., 2003). Arora *et al*. (2001) reported that physical well-being declined in a sample of younger women (≤60 years). Yana and Sellickb (2004) reported a significant difference in symptom distress and depression by age group in patients aged ≥70 years. Akin *et al*. (2010) compared the health and functioning subscale of patients by age and found that patients aged 50-59 years were less negatively affected than those aged 30-39 years. QOL scores were not affected by the marital status in the study whereas in Akin *et al*. (2010)'s study, a greater negative impact on the overall QOL index was observed among unmarried patients compared with those who were married ($p<0.05$). The results of this study indicated that patients with a professional degree had higher overall ($p = 0.005$), psychological ($p = 0.01$) and environmental ($p = 0.04$) QOL scores compared with patients who were uneducated and those going to primary schools.

In Akin *et al*. (2010)'s study, patients with basic literacy had lower social and economic subscale scores than university graduates, thereby supporting the findings. Researcher found no difference in QOL between employed and unemployed patients but in the study by Akin *et al*. (2010), patients with lower income levels experienced greater symptom distress and relatively lower mean QOL scores. In the Yana and Sellickb (2004)'s study, significant differences were found for symptom distress and QOL ($p = 0.01$) based on the site of cancer and liver cancer patients had higher symptom distress and lower QOL scores than gastric, colorectal or oesophageal cancer patients. However in the study, similar QOL scores were observed among patients with cancer at different sites. In addition, no significant regression was observed between duration of disease and treatment and mean QOL scores. Casso *et al.* (2004) reported that the time from diagnosis was not associated with QOL outcome. However, the duration of disease was related to overall QOL by Lee *et al.* (2007). These findings are difficult to interpret without a disease-free control group. However, the current study found that older and less educated patients had low QOL scores, suggesting that these groups of patients may require a greater level of support and education to improve their QOL.

Overall, patients in the present study had a relatively average level of global QOL. These results are in line with the emphasis of Iranian culture on family cohesion or religious beliefs. Many patients who participated in this study stated that they did not receive any education or information on the physical and psychological complications of cancer and chemotherapy (71.2 and 75.4%, respectively). It is important that clinicians plan for improvements in this regard. There is still a considerable amount of unexplained variance associated with the prediction of QOL, reaffirming the need for further studies to identify factors that may contribute to QOL of Iranian cancer patients. The findings of this study can be used to develop empirically based interventions that can potentially improve QOL.

LIMITATIONS

This study had several limitations. One of the most obvious limitation was that patients were recruited at any stage of chemotherapy and QOL data were only available for each patient at one point of time. Therefore, it is not possible to show any trend between cycles and it may be important that QOL differences were lost because these groups were combined in the analysis. Other limitations of this study include the sample size and the cross-sectional design. In the absence of a control group, we cannot be certain that any correlation between specific covariates and QOL is specific to cancer survivors. The strengths of the present study include the use of standardized QOL measures and the high response rate.

CONCLUSION

The findings may have considerable implications for the treatment and counselling of cancer patients. Moreover, the results emphasize that young cancer patients have a high QOL across several standardized measures. It seems that the QOL data provide scientific evidence for clinical decision-making and convey helpful information concerning the experiences of cancer patients during therapy. However, more qualitative research is needed for obtaining a better understanding of the topic.

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