

**Research Article****The Relationship between Cancer-related Fatigue and Quality of Life in Patients Undergoing Chemotherapy****Raziye Sadat Bahador<sup>1</sup>, Seyedeh Sara Afrazandeh<sup>2\*</sup>, Fatemeh Bahador<sup>3</sup>,****Farhad Arefi<sup>1</sup> and Fariba Asadi<sup>4</sup>**<sup>1</sup>MS in nursing ,jiroft nursing and midwifery school,  
jiroft university of medical sciences, Jiroft,Iran<sup>2</sup>MS in nursing ,ferdows paramedical school,  
Birjand university of medical sciences,Birjand,Iran<sup>3</sup>MS in health information technology,ferdows paramedical school.  
Birjand university of medical sciences ,Birjand,Iran<sup>4</sup>MS in Biostatistics,ferdows paramedical school,  
Birjand university of medical sciences,Birjand,Iran

Corresponding author: email address:afrazandehsara@bums.ac.ir Phone number:09156641725

[Received-05/03/2016, Accepted-17/03/2016, Published-29/03/2016]

**ABSTRACT****Introduction:** Cancer patients suffer from more physical, mental and social problems that these problems can cause confusion in their quality of life that one of the most these is fatigue problems. This study aimed to determine the relationship between fatigue and quality of life in cancer patients undergoing chemotherapy were hospitalized in oncology unit of Martyr Bahonar Hospital of Kerman.**Method:** This is a descriptive correlation study. 124 people participated in the study among cancer patients undergoing chemotherapy hospitalized in oncology unit of Martyr Bahonar Hospital of Kerman were selected by convenience sampling. Information using two standard questionnaires FAS (fatigue) and EORTC-QLQ-C30 (quality of life for cancer patients) were collected. Spss software version 18 was used to analyze the data.**Results:** The mean score of overall quality of life  $23.24 \pm 68.98$  was in average level. The mean score of fatigue  $13.54 \pm 35.81$  was also in average level. The relationship between the two variables of quality of life and fatigue were negative and significant ( $p = 0.001$ ,  $r = -0.38$ ).**Discussion and conclusion:** Generally, fatigue in patients with cancer is a common and important problem that affects their quality of life significantly. Therefore, doing necessary interventions to reduce fatigue by doctors and nurses to improve quality of life is effective.**Keywords:** fatigue, quality of life, cancer patients**INTRODUCTION:**

Cancer is one of the major and important health issues in Iran and all over the world(Safaei A, Zeighami b, Tabatabaee HR, & B., 2010). In the United States more than five hundred thousand people each year are diagnosed with metastatic and recurrent cancers (Overview, 2009)and in Iran as the third leading cause of

death each year more than 30 thousand victims(Karami O, Falahatpisheh F, JahaniHashemi H, & N, 2010) .Cancer is very unpleasant and unbelievable experience for each person. Cancer causes disturbances in the economic, social, occupational and family life of patients and the impact on various aspects of

quality of life such as mental, psychological, social, economic and genderual function. Since this disease threatens the lives of patients and the risk of death for these patients is higher, so it can be psychological and physiological stress factors (Cehregosha M, Dastorpor M, Sanago A, & A, 2015) . Fatigue is the most common and most noticeable symptom reported by cancer patients such as those who have been following the chemotherapy and radiation treatment(Luthy C, Cedrasdi C, Pugliesi A, & al, 2011). Cancer-related fatigue (CRF) is a serious complaint in cancer patients, which has been widely reported and has a major impact on the quality of life of these patients. CRF is characterized by subjective feelings of fatigue, weakness, or lack of energy that affects the activities of daily living and quality of life. In healthy people, fatigue is a function response and protection to physical and mental stress. Fatigue in patients with cancer loses its protective function and does not improve with rest(Jean-Pierre P, Morrow GR, Roscoe JA, & al, 2010). National Comprehensive Cancer Network, CRF is defined as follows: An uncomfortable subjective feeling and persistent physical fatigue, emotional or associated with cancer or cancer treatment that is not proportional to recent activity and interferes with normal function (Network, 2013).CRF is sometimes described as a group of symptoms associated with anorexia, depression and pain. Although this is essentially the analysis of a cluster of symptoms mentioned in articles is done and it is as yet unproven clinical relevance (Kirkova J, Aktas A, Walsh D, & al, 2011). Other symptoms of fatigue in these patients, more than throughout the course and treatment of cancer are reported and as usual, the most severe symptoms have been reported (Yanez B, Pearman T, Lis CG, Beaumont JL, & D, 2013)and due to the persistence and interferes with many aspects of daily life is filled with painful symptoms (Wang X SH et al., 2014) even without any evidence of active disease in cancer survivors(Pachman DR, Barton DL, Swetz KM, & CL., 2012). More than 33 percent of cancer survivors, persistent fatigue

of unknown origin to experience significant impairment in their quality of life is created(Cella D, Davis K, Breitbart W, & G., 2001). Quality of life or the feelings of people of their ability about the work physically, emotionally and socially more than a decade which is considered as an important issue in health care, especially in patients with chronic diseases (Safae A et al., 2010). Quality of life of patients with chronic diseases such as cancer is important and assess the impact of cancer treatment is very helpful (Rezaei R, Saatsaz S, Haji Hosseini F, SharifniaSh, & R, 2011). The importance of quality of life and health status is such that the focus of health care experts to improve the quality of life and health status century have suggested (Darvishpoorkakhaki A, Abed Saeedi Zh, SaeedO, & M, 2010). Since a major goal of treatment is to maximize the quality of life in cancer patients, in the first step, health providers and researchers must acquire extensive information about the factors affecting the quality of life such as fatigue and how to promote it. This study was conducted to determine the effect on cancer-related fatigue and quality of life of cancer patients were hospitalized in oncology unit of Martyr Bahonar Hospital of Kerman

#### **METHOD:**

This study was a descriptive - correlation. The study population included all patients with cancer were hospitalized in oncology unit of Martyr Bahonar Hospital of Kerman. Using statistical formula, 124 patients eligible for the study were selected by convenience sampling. Inclusion criteria included diagnosed cancer, non-chronic disease and mental illness, are willing to participate in the study and were older than 18 years. A questionnaire was used to collect data. After communication with patients and explaining the purpose of their study and obtaining verbal consent from their completed questionnaires to a self and for those who did not have sufficient literacy, explained orally. The questionnaire included the following:

**The first section includes:** Personal information: age, gender, educational level, marital status, economic status, place of residence, for cancer, where the cancer and so on.

**The second section includes:** Questionnaires QLQ-C30 quality of life of cancer patients in this study to assess the quality of life of cancer patients' quality of life questionnaire was used for the third edition which was built by the European Organization for Research and Treatment of Cancer (1995). This questionnaire is multidimensional and consists of 30 questions. This questionnaire is multidimensional and consists of 30 questions and quality of life in cancer patients in various functional scale (physical, emotional, cognitive, and social functioning), which is the realm of signs and symptoms of the disease and its treatment domains of quality of life, gives assessed. Rating 2 items related to the quality of life in general, according to Likert rating scale of 1 to 7, but other questions with four point "in no way", "low", "high" and "very high" rating, and then any questions 1, 2, 3 and 4 will be graded. Scoring inquiries from the 100-0. About the performance and overall quality of life score higher the score, the better a person's status in certain areas, but in areas where higher scores indicating more symptoms of the patients' symptoms in the individual. After data collection, scoring the domains of the questionnaire according to the designer Organization (EORTC) was performed. This inventory in Iran by Safai, Moghimi Dehkordi and Tabatabai (2007) is implemented and validated on 132 people who were diagnosed with breast cancer. In order to determine the validity and reliability, third edition of quality of life questionnaire was conducted on a sample of breast cancer patients referred to chemotherapy unit of Namazi Hospital of Shiraz. Reliability was evaluated by using determine internal consistency (Cronbach's alpha) fields a few questions. Pearson correlation coefficient was used to determine the validity (validity of convergence and differentiation). Clinical validity by comparing

the known groups were determined using ANOVA and Kruskal-Wallis tests. In the analysis of reliability, most areas had good reliability (Cronbach's  $\alpha > 0.7$ ), except for three areas of fatigue, pain, nausea and vomiting, which proved to be reliable, were diagnosed. All fields of some questions has good convergent validity ( $r > 0.4$ ) The validity of distinction on all questions except for question 4 areas of physical function were observed. A comparison of known groups also showed that patients with a higher degree, poor performance more and more symptoms of the disease were reported by questionnaire (Safaei A et al., 2010).

**The third section includes:** Fatigue assessment questionnaire FASS: This scale consists of 10 items. The test is scored on Likert, from the first to score 5 to never forever. And overall fatigue score in the 10-50 scale is determined. Obviously, a higher score indicates a higher level of fatigue studies have shown that this scale had acceptable reliability and validity coefficients (Derries J, Van der Steeg A.F, & F, 2009). Cronbach's alpha coefficient for this test 0.90 reported. Exploratory factor analysis has shown that this test measures a single agent (fatigue). The correlation coefficient FAS with other fatigue questionnaires, from 0.61 – 0.71 has been reported shows that the FAS questionnaire has high validity and reliability. Validity in the role of trait anxiety, depression and fatigue in breast cancer in the predictions were evaluated by Shirin Zeinali and colleagues in 2010 with test – retest method And Pearson correlation coefficient  $r = 0.87$  is obtained. Scores were categorized in three whole of the low fatigue rate (10-23.3); the average fatigue rate (23.3-36.6) and the high fatigue rate (36.6-50). The analysis was done based on the objectives of the study by SPSS software (version 18). Data distribution was normal. Data analysis was performed using descriptive statistics (frequency distribution, mean and standard deviation) and analytical (T, ANOVA tests and Pearson correlation coefficient). The significant level of 0.05 was considered.

**Findings:**

Of the 124 patients participating in the study, 56 of them were men (45.2%) and 68 of them were women (54.8%). The mean age was 15.79 ± 45.85 years and the majority were married (50.8%) and educational level was below high school diploma (43.6%). Other demographic characteristics of patients are shown in Table 1.

**Table 1.** Frequency distribution of demographic variables of patients participating in the study

Variable	Items	Frequency	Mean
Job	Housewife	31	25
	Worker	17	13.7
	Employee	29	23.4
	Self-employed	28	22.6
	University student	11	8.9
Location	Kerman	54	43.5
	City	70	56.5
Monthly income	Low	54	43.5
	Average	58	46.8
	Good	12	9.7
Type of cancer	Breast	35	28.2
	Digestion	15	12.1
	Head	18	14.5
	Genital	6	4.8
	Lung	21	16.9
Level	Other	29	23.4
	One	30	24.2
	Two	37	29.8
	Three and four	57	46

Mean fatigue score (35.81) was at a moderate level. Also quality of life score (68.98) was at a moderate level. Descriptions of the three sub-indices related to quality of life (overall quality of life, functional scale, and symptoms scale) and fatigue in cancer patients studied have been shown in Table (2).

**Table 2.** Descriptive statistical analysis of variables such as quality of life and fatigue in subjects

Variable	Domains	Mean	SD
Quality of Life	Functional Scale	32.42	11.27
	Symptoms Scale	37.57	9.62
	Overall quality of life	68.98	23.24
Fatigue		35.81	13.54

The relationship between fatigue and quality of life was negative and significant (P = 0.001). The relationship between fatigue score and quality of life domains are presented in Table 3.

**Table 3.** The relationship between fatigue and quality of life domains in subjects

	Functional Scale	Symptoms Scale	Overall quality of life	Test
Fatigue	p = 0.001	P = 0.001	p = 0.001	Pears on
	r = -0.36	r = 0.35	r = -0.38	

There was a significant relationship between the mean score of quality of life with individual characteristics age (P = 0.001), marital status (P = 0.004), education level (P = 0.004), job (P = 0.001), time of onset (P = 0.001), type of cancer (P = 0.001), stage of the disease (P = 0.001) and location (P = 0.001) but there was no significant relationship with gender, family history of cancer and revenue.

There was a significant relationship between the mean score of fatigue and individual characteristics age (P = 0.001), marital status (P = 0.004), education level (P = 0.002), job (P = 0.001), monthly income (P = 0.001) and stage of the disease (P = 0.001) but there was no significant relationship with gender, type of cancer, time of onset and family history of cancer.

**DISCUSSION:**

The results showed that the mean score of fatigue is in moderate level (13.54 ± 35.81). In Ghafari and colleagues, the mean score of fatigue was 13.2 ± 35.68 and the severity of fatigue was at moderate level(Ghaffari F, Fotokian Z, Karimi M, Keihanian SH, & H., 2009). In Littlewood study, the mean score of fatigue was 10.8 ± 30.9 and 40% of patients had moderate level of severity of fatigue(Littlewood TJ, Kallich JD, Jesus SanMiguel J, & al., 2006). In the study of Safai and colleagues, mean score of fatigue was 26.91 ± 74.41 and 78% of patients had experienced fatigue with varying degrees(Safae A et al., 2010). In the face opening and colleagues mean fatigue score was slightly higher than average (Cehregosha M et al., 2015) that this discrepancy may be due to the different questionnaires are used. In the present study the quality of life in functional scale in patients was 32.42 and in terms of

symptoms domains was 37.57 that generally, the average quality of life that was in moderate level. In Hassanvand study also 89.5 percent of samples has the moderate level of quality of life (Hasanvand SH, Ashk Torab T, Jafari Z, Salmani N, & Z., 2014) In a study of Ghafari and colleagues, most people had a relatively good quality of life. And the score of quality of life was  $8.6 \pm 31.2$  (Ghaffari F et al., 2009). In Littlewood study, the mean score of quality of life in subjects was  $10.8 \pm 30.9$  (Littlewood TJ et al., 2006) The results showed that there is a significant and inverse relationship between fatigue and quality of life scores ( $r = -0.38$ ,  $p = 0.001$ ). The results were consistent with the study of Ghafari and colleagues as the relationship between anemia-related fatigue and quality of life of cancer patients and there was a statistical significant relationship between fatigue caused by cancer and quality of life (Ghaffari F et al., 2009). In the study of Zeighami Mohammadi and also in the study of Hassanvand and colleagues, there was a negative and significant relationship between severity of fatigue and quality of life scores (Hasanvand SH et al., 2014; Zeighami SH, Hoshmand P, Koshiar M, & H, 2009). The study of Cella and colleagues also showed that increased levels of hemoglobin causes the reduction of physical fatigue patients and improving physical function, positive changes in mood state and ultimately helps to improve the quality of life of patients (Cella D et al., 2001). In the study of Safai and colleagues was shown that among the functional scale of quality of life, fatigue had a huge impact on social functioning. Generally, it was shown that fatigue in breast cancer patients is a common and important problem which significantly affect their quality of life (Safae A et al., 2010). The results showed that among demographic information age, marital status, education, occupation, monthly income and stage of the disease significantly correlated with fatigue but other variables including location, family history of cancer, cancer type, time of onset and gender were not associated with fatigue status in patients. In the study of

Hasanvand, there was no significant relationship between individual characteristics and the severity of fatigue (Hasanvand SH et al., 2014). In the study of Haghghat and colleagues also found no relationship between fatigue and demographic information (Haghghat SH, Montazeri A, Akbari A, Holakoe K, & A., 2009). In the study of Safai and colleagues, in between demographic information, marital status was the only variable that was significantly associated with fatigue (So that the mean score of fatigue in singles people was more than married ones) but there was no significant relationship between age, education, occupation with fatigue (Safae A et al., 2010). Some studies also showed that young patients feel more tired than older people (Chan CWH & A, 2000; JR, 1991; Payne DK, Hoffman Rg, Theodoulou M, & al., 1999). There is a significant relationship between the mean score of overall quality of life and individual characteristics such as age, marital status, education, occupation, time of onset, type of cancer, stage of disease and location but there was no significant relationship with gender, family history of cancer and revenue. In the study of Mohadesi and in the study of Agha Barari found no relationship between demographic characteristics and quality of life aspects (Agha barari M, Ahmadi F, Mohammadi E, Hagizadeh E, & A., 2007; Mohaddesi H, Aiatallahi H, Hasanzadeh G, & M, 2013). Likely the reason for this discrepancy is the difference in statistical society and small sample size of this study.

#### **CONCLUSION:**

The results showed that the severity of fatigue and quality of life of most patients was at a moderate level that this finding confirms the results of many studies. The significant and inverse correlation was observed between fatigue and quality of life. Physical and psychological consequences of abuse and disability in daily activities subsequently reduced quality of life, the need for more attention to mental health, emotional and financial demands of patients undergoing

cancer treatment. Because nurses play an important role in improving patient care, attending them to the fatigue and its effect on quality of life is very important. Therefore, attending them in order to carry out interventions to reduce fatigue can improve the quality of life of these patients be useful.

#### REFRENSSES:

1. Agha barari M, Ahmadi F, Mohammadi E, Hagizadeh E, & A., V. (2007). Physical, Emotional and social dimension of quality of life among breast cancer women under chemotherapy. *IJNR*, 1(3), 55-65.
2. Cehregosha M, Dastorpor M, Sanago A, & A, M. (2015). Cancer-related Fatigue and its Relationship with Demographic and Clinical Characteristics. *Journal of Student Research Committee University of Medical Sciences*, 1(2), 24-31.
3. Cella D, Davis K, Breitbart W, & G., C. (2001). Cancer-related fatigue: prevalence of proposed diagnostic criteria in a United States sample of cancer survivors. *J Clin Oncol*, 19, 3385-3391.
4. Chan CWH, & A, M. (2000). The impact of fatigue on Chinese cancer patients in Hong Kong. *Support Care Cancer*, 9, 18-24.
5. Darvishpoorkakhaki A, Abed Saeedi Zh, Saeed O, & M, z. (2010). Tools for measurement of health status and quality of life of elderly people. *Journal of Research in Medical Sciences*, 33(3), 162-173.
6. Derries J, Van der Steeg A.F, & F, R. J. (2009). Trait anxiety determines depressive symptoms and Fatigue in woman with an abnormality in the breast. *British Journal of Health Psychology*, 14, 143-157.
7. Ghaffari F, Fotokian Z, Karimi M, Keihanian SH, & H., K. (2009). The relationship between anemia-related fatigue and quality of life in canceric patients. *Journal of Qazvin University of Medical Sciences and Health Services*, 13(1), 34-41.
8. Haghghat SH, Montazeri A, Akbari A, Holakoe K, & A., R. (2009). Factors affecting fatigue in breast cancer patients. *Journal of Breast Disease*, 1(1), 17-24.
9. Hasanvand SH, Ashk Torab T, Jafari Z, Salmani N, & Z., S. (2014). Cancer-related fatigue its relationship with health-related quality of life and functional status of patients with cancer. *Journal of School of Nursing-Midwifery, Shahid Beheshti University*, 24(85), 21-30.
10. Jean-Pierre P, Morrow GR, Roscoe JA, & al, e. (2010). A phase 3 randomized, placebo-controlled, double-blind, clinical trial of the effect of modafinil on cancer-related fatigue among 631 patients receiving chemotherapy. *Cancer*, 116, 3513-3520.
11. JR, H. (1991). Depression and chronic fatigue in cancer patients. *Journal of Primary Care*, 18, 327-339.
12. Karami O, Falahatpisheh F, JahaniHashemi H, & N, B. (2010). Quality of life in cancer patients in Qazvin. *Journal of Qazvin University of Medical Sciences and Health Services*, 4(3), 80-86.
13. Kirkova J, Aktas A, Walsh D, & al, e. (2011). Cancer symptom clusters: Clinical and research methodology. *J Palliat Med*, 14, 1149-1166.
14. Littlewood TJ, Kallich JD, Jesus SanMiguel J, & al., e. (2006). Efficacy of darbepoetin alfa in alleviating fatigue and the effect of fatigue on quality of life in anemic patients with lymphoproliferative malignancies. *J Pain Symptom Manage*, 31(4), 317-325.
15. Luthy C, Cedrasdi C, Pugliesi A, & al, e. (2011). Patients' views about causes and preferences for the management of cancer-related fatigue— a case for non-congruence with physicians. *Support Care Cancer*, 19, 363-370.
16. Mohaddesi H, Aiatollahi H, Hasanzadeh G, & M, Y. (2013). SURVEY OF Quality of life in patients with breast cancer treated at hope Cancer Center hope in

- Uromia. *Journal of breast disease*, 5(4), 35-43.
17. Network, N. C. C. (2013). Clinical Practice Guidelines in Oncology. Cancer Related Fatigue version 1. Available at: <http://www.nccn.org>. Accessed February 21, 2013.
  18. Overview, A. C. S. (2009). Advanced Cancer. [Accessed February 4 2009]. Available.
  19. Pachman DR, Barton DL, Swetz KM, & CL., L. (2012). Troublesome symptoms in cancer survivors: fatigue, insomnia, neuropathy, and pain. *J Clin Oncol*, 30(30), 3687–3696.
  20. Payne DK, Hoffman Rg, Theodoulou M, & al., e. (1999). Screening for anxiety and depression in women with breast cancer. *Psychiatry and medical oncology gear up for managed care. Psychosomatics*, 40, 64-69.
  21. Rezaei R, Saatsaz S, Haji Hosseini F, SharifniaSh, & R, N. (2011). Quality of life in gynecologic patients before and after chemotherapy. *Journal of Babol University of Medical Sciences*, 13(4), 78-84.
  22. Safaee A, Zeighami b, Tabatabaee HR, & B., M. (2010). Quality of life and related factors in breast cancer patients under chemotherapy. *Iranian Journal of Epidemiology*, 3(3,4), 61-66
  23. Wang X SH , Zhao F, Fisch MJ, O'Mara AM , Cella D , & TR, M. (2014). Prevalence and characteristics of moderate-to-severe fatigue: a multicenter study in cancer patients and survivors. *Cancer. February 1*, 120(3), 425–432.
  24. Yanez B, Pearman T, Lis CG, Beaumont JL, & D, C. (2013). The FACT-G7: a rapid version of the functional assessment of cancer therapy-general (FACT-G) for monitoring symptoms and concerns in oncology practice and research. *Ann Oncol*, 24(4).
  25. Zeighami SH, Hoshmand P, Koshiar M, & H, E. (2009). Survey of quality of life in cancer patients undergoing chemotherapy. *Journal of School of Nursing and Midwifery, Hamedan*, 16(1), 5-10.