A Comparison of Quality of Life, Anxiety and Depression in Children with Cancer and Healthy Children, Kermanshah-Iran

Babak Nazari[1], Saeedeh Bakhshi[2], Marziyeh Kaboudi[3], *Fateme Dehghan[3], Arash Ziapour[4], Nafiseh Montazeri[5]

[1]Department of Radiology, Kermanshah University of Medical Sciences, Kermanshah, Iran. [2]Department of Internal Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran. [3]Department of Midwifery, School of Nursing and Midwifery, Kermanshah University of Medical Sciences, Kermanshah, Iran. [4]Research Center for Environmental Determinants of Health (RCEDH), Kermanshah University of Medical Sciences, Kermanshah, Iran. [5]Department of Cardiology, Kermanshah University of Medical Sciences, Kermanshah, Iran.

Abstract

Background
Cancer is a major public health problem in many parts of the world. The present study aimed to compare the quality of life, anxiety and depression in in children with cancer and healthy children.

Materials and Methods
In this descriptive and causal-comparative study, the statistical population consisted of cancer patients visiting Mohammad Kermanshahi Hospital based in Kermanshah, Iran, in the summer of 2016. Moreover, 60 samples were selected through the convenience sampling. For data collection, three questionnaires were utilized: WHO Quality of Life-BREF (WHOQOL-BREF), Children's Depression Scale (CDS), and the Revised Children's Manifest Anxiety Scale (RCMAS). Furthermore, data were analyzed through the descriptive (frequency, mean, and standard deviation) and inferential statistics (multivariate analysis of variance (MANOVA)) using the SPSS Statistics Software Version 23.0.

Results
The results of the present study demonstrated that there were significant differences between the cancer and healthy children in terms of all coping styles. The results also revealed that the mean scores of depression and anxiety of cancer children exceeded those of healthy children, while the mean score of cancer children's quality of life was lower than that of healthy children.

Conclusion
According to the results of the present study, it can be concluded that emotional-behavioral changes are the strongest and most stable elements that make a difference in cancer and healthy children. Hence, giving full consideration to Factors is of special importance.

Key Words: Anxiety, Cancer, Children, Depression, Quality of Life.

Corresponding Author:

Fateme Dehghan, Department of Midwifery, School of Nursing and Midwifery, Kermanshah University of Medical Sciences, Kermanshah, Iran.

Email: fateme.dehghan1368@gmail.com

1- INTRODUCTION

In recent years, the incidence of cancer has witnessed an unprecedented growth in the world. Due to the prevalence of this disease and its adverse effects on the psychological, physical and social aspects of cancer patients, it has been introduced as one of the major problems of health in the twentieth century (1). Cancer victims are estimated to be more than seven million people per year. The researchers also predict that the number of cancer patients will increase from 10 million to 15 million by 2020 (2). Moreover, cancer is known as the major cause of human mortality after cardiovascular diseases and accidents in the world (3).

Cancer is seen as one of the health problems in developed and developing countries. The number of cancer children and adults is gradually on the rise. Further, cancers in children constitute 0.5 to 1% of all cancers, and this rate varies depending on the age range. According to the new cases among the American children aged 0-14 years old, there were an estimated 11,630 cases of cencer children (4). Cancer, as a debilitating and common disease, is known as one of the leading causes of death in children in both developed and developing countries. Cancer accounts for four percent of deaths in children under five years of age and 13% of deaths in children aged between five to 15 years of age in Iran's population (5). The cancer prevalence is the same in both genders prior to puberty, and the ratio of this prevalence in females to males is 2:1 during adolescence (6).

Among the raised psychological issues relating to cancer, depression is known as one of the most common psychiatric disorders (7). Although depression has long been known as one of the major mental problems, the importance of this disease has received lots of attention in terms of the suffering that patients should endure as well as the burden that this disease imposes on the medical sources of nations (8). Research has shown that 50 to 80 percent of cancer patients suffer from a psychiatric disorder, too. Adjustment disorder and depression have been identified as the most common psychiatric disorder and the second most common psychiatric diagnosis, respectively (9). Together with cancer, depression is seen as a risk factor for shorter survival in cancer patients and is a major factor in the rejection of treatment on the part of these patients (10, 11). Depression affects the function of the immune components of the body and consequently the treatment of cancer. So, it can predict cancer progression and the resultant mortality (6).

Generally speaking, the simultaneous occurrence of depression with cancer brings about various adverse effects on one's personal and social life, mental and physical health, disease treatment and progression. Additionally, well-timed prevention, diagnosis and intervention are of prominent importance when it comes to the incidence of depression in cancer patients. Young patients suffering from cancer may also experience multiple stressors resulting from the disease itself and their normal developmental tasks (12). Therefore, given the characteristics of depressed people, it can be claimed that this factor can act as one of the underlying causes of the differences between cancer and healthy childrenpeople.

Anxiety disorders are the most abundant of childhood psychiatric disorders. Moreover, diagnostic symptoms associated with anxiety in childhood may be viewed in different ways. A prime example is a kind of behavioral inhibition which is defined as a mood characteristic in which the child responds to new and unfamiliar people, situations and events with fear and avoidance and he/she is generally reserved (13). Some of the causes of anxiety in cancer patients lies in the implications of diagnosis within the minds

of patients and their families, including the possibility of deformity, pain, financial and social losses, dependence, and death (9, 14). Accordingly, it can be concluded that one of the factors that can make a difference between cancer and non-cencer patients is anxiety. With the development of science, cancers in children and adolescents have gradually changed from severe and fatal diseases to a chronic ones, an indication that appropriate coping strategies have been found against this disease in children and adolescents. Today, more than 50 percent of children with cancer can live five more years (15).

Research and theoretical evidence indicate that behavioral-emotional changes and quality of life are the strongest and most stable factors that make a difference in cancer and healthy childrenpatients (16).
It was demonstrated that adolescents suffering from cancer are more likely to experience psychological problems (17). Therefore, adolescents are more in need of special care and attention compared to other age groups. In a study conducted by Bektas and Demir (2016) about anxiety, depression and quality of life of patients with gastrointestinal cancer, it was revealed that male patients with poor economic conditions experienced more symptoms than others. It was also shown that the patient's general health was reduced with the increase of the duration of the disease. In addition, the anxiety scores went up with young ages, while both anxiety and depression scores increased in line with the increased duration of the disease (18).

In this study, quality of life, anxiety and depression were considered as factors that could make a difference in cancer and healthy childrenchildren and adolescents. Hence, it appears that the emotional and behavioral causes of cancer patients vary in cancer and healthy childrenpeople. In addition, these factors have not been addressed in previous literature thoroughly. Therefore, the present study aimed to compare the quality of life, anxiety and depression in children with cancer and healthy children in Kermanshah, Iran.

2- MATERIALS AND METHODS

2-1. Study Design and Population

In this descriptive and causal-comparative study, the statistical population consisted of children with and without cancer residing in Kermanshah-Iran, in 2016. The samples of cancer children were selected from cancer patients visiting Mohammad Kermanshahi Hospital based in Kermanshah- Iran, while the samples of normal children were chosen from normal students in schools across Kermanshah through convinience sampling.

2-2. Methods

The statistical population consisted of children with cancer and healthy children in the 10-16 age range visiting Mohammad Kermanshahi Hospital based in Kermanshah, Iran, in the summer of 2016. Moreover, 60 samples were selected through the convinience sampling (30 patients with leukemia and 30 healthy children). To collect the resquired data, three questionnaires were utilized.

Since the smallest sample size was suggested by Delavar (1995) to be 15 for each group in causal-comparative studies (19). Accordingly, 30 samples (15 boys and 15 girls) were selected from cancer patients visiting Mohammad Kermanshahi Hospital based in Kermanshah- Iran; and 30 normal samples (15 boys and 15 girls) were chosen from normal students in schools across Kermanshah.

2-3. Measuring Tools: Validity and Reliability

2-3-1. WHO Quality of Life-BREF (WHOQOL-BREF)

This questionnaire was developed by the European Organization for Research and Treatment of Cancer (20), and it was revised by Ravens-Siebere and Bullinger in (1998) to determine the general quality of life of children with chronic diseases such as cancer (21). The Cronbach's alpha coefficient for the questionnaire measured 0.71 (22). The reliability and validity of the Iranian version of this instrument were confirmed by Nejat et al. (23) and Usefy et al. (24). In addition, this questionnaire has been translated and validated in more than 40 countries (21). The Cronbach's alphas for the dimensions of physical health, psychological health, social relationships and environmental health measured 0.81, 0.78, 0.82, and 0.80, respectively.

The reported internal consistency of different aspects of the instrument measured between 0.52 and 0.84 for healthy and sick people using Cronbach's alpha (24). The questionnaire included a total of 26 questions. The dimension of physical health consisted of seven questions (mobility, activities of daily living, work capacity, energy and fatigue, pain and discomfort, and sleep and rest). The dimension of psychological health consisted of six questions (bodily image and appearance, negative feelings, positive feelings, self-esteem, thinking, learning, memory and concentration, and spirituality/religion/personal beliefs).

As for the dimension of social relationships, it consisted of three questions (personal relationships, social support, and sexual activity). The dimension of environmental health consisted of eight questions (financial resources, physical safety and security, health and social care, home environment, physical environment (pollution/noise/traffic/climate), opportunities for acquiring new information and skills, participation in and opportunities for recreation/leisure activities, and transport). Furthermore, the health status and quality of life are generally evaluated by two separate questions in this questionnaire (25). Each dimension has a score ranging from 4 to 20. A score of four denotes the worst quality of life as opposed to a score of 20 denoting the best quality of life. In the present study, the Cronbach's alpha coefficients measured 0.70, 0.69, 0.55 and 0.85 for the subscales of physical health, psychological health, social relationships and environmental health, respectively.

2-3-2. Children's Depression Scale (CDS)

This 66-item scale was developed by Kovacs (1992) to assess the depression of children aged between seven and 17 years old (26). This scale has five subscales: negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self-esteem. The reliability coefficient of this questionnaire has been assessed through internal consistency by many researchers (0.80 and higher) (27-29). Additionally, the validity of this questionnaire has been confirmed in various studies (27, 30). The psychometric properties of the questionnaire was examined by Dehshiri et al. (2009) in Iran, and its test-retest reliability and internal consistency measured 0.82 and 0.83, respectively (31).

The 66 items are divided into 48 depressive items and 18 positive items. Furthermore, the questions of this scale were on five-point Likert scale (one=absolutely false, 2=false, 3=no idea, 4= correct, 5=absolutely correct). The difference between the total score and the sum of scores of subscales parental expectations (PE) and Multidimensional Perfectionism (MP) determines the total score of depression. The minimum and maximum scores are 66 and 330, respectively. The Cronbach's alpha coefficient of the questionnaire measured 84% (32).

2-3-3. The Revised Children's Manifest Anxiety Scale (RCMAS)

This scale was developed by Reynolds and Richmond (1997) to assess the children's anxiety and included 37 yes/no questions (33). This is a revised form of Children's Manifest Anxiety Scale (CMAS) (34), which was developed by Reynolds and Richmond (35). Moreover, the reliability coefficient of the scale was reported by Reynolds and Paget (36) through test-retest, which measured 0.64. Moreover, 28 items were related to anxiety and the rest were related to lie detecting. Additionally, the sum of the "Yes"answers to the questions formed the final score.

The normalization of this questionnaire was conducted for the students of different levels of education in Iran by Taghavi and Alishahi (37). Additionally, the reliability of this scale was assessed using the test-retest and split-half (measuring 0.67 and 0.66, respectively). The results of a study done by Taghavi and Alishahi in Shiraz showed that this scale has good validity and reliability (0.67) (38).

2-4. Inclusion and exclusion criteria

The inclusion criteria were being in the 10-16 age group, confirmed diagnosis of leukemia, having the symptoms of anxiety and depression according to the criteria of the clinical interview.

2-5. Ethical Consideration

It must be mentioned that principals, students, and parents had been briefed about objectives of the research. Moreover, written consent had been obtained from the students' parents before they were included in the study.

2-5. Data Analyses

Data were analyzed through the descriptive (frequency, mean, and standard deviation) and inferential statistics (multivariate analysis of variance) using the SPSS statistics software version 23.0. In the descriptive statistics section, frequency was used for the analysis of demographic variables, and average and standard deviation were utilized for the variable quality of life, anxiety and depression. As for the inferential statistics, the multivariate ANOVA was used for comparing the two groups of normal and cancer children in terms of the quality of life, anxiety, and depression. P-value less than 0.05 were statistically significant.

3- RESULTS

In total, there were 60 participants in the present study (30 girls and 30 boys). In both groups, 25% of the samples were chosen from the normal children and 25% were selected from cancer children (**Table.1**). The healthy girls had the lowest mean of anxiety (7.84+4.31), while healthy boys had the lowest depression (9.65+5.16). However, girls and boys with cancer had the highest means in terms of depression and anxiety, respectively (**Table.2**).

Before using the multivariate analysis of variance, the Levine's test was used to meet the assumptions of the analysis. The results of this test revealed that the homogeneity condition of variance was observed. Thus, the multivariate analysis of variance was permitted (**Table.3**).

Based on the results of MANOVA test (178.37), the differences between the two groups were significant with a degree of freedom of six at P<0.001. In other words, the two groups were significantly different at least in terms of one of the variables under study. Furthermore, the statistical power of 0.95 indicates that the sample size was sufficient (**Table.4**).

According to the results of the present study, the two groups of children with and without cancer were significantly different from each other in terms of all three variables (quality of life, anxiety and

depression) (P<0.001). Moreover, both groups had significant differences in terms of depression (with a confidence level of 91%), anxiety (with a confidence level of 82%), and quality of life (with a confidence level of 78%) (P<0.001) (**Table.5**).

Table-1: Distribution of children with cancer and healthy children by gender

Status								Total	
Healthy childrensubjects				Cancer subjects					
Female		Male		Female		Male			
Frequency	percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
15	25	15	25	15	25	15	25	60	100

Table-2: The Mean of Depression, Anxiety and Quality of Life among children participating in the study

Variables	Status							
	Healthy childrensubjects				Cancer subjects			
	Female		Male		Female		Male	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Depression	11.34	5.16	9.65	5.03	38.69	4.53	36.25	4.32
Anxiety	7.84	4.31	8.46	6.35	67.57	5.12	51.64	5.28
Quality of Life	107.34	10.37	102.69	10.80	46.81	5.78	43.76	5.17

SD: Standard deviation.

Table-3: The results of Leven Test of Anxiety, Depression and Quality of Life among Cancer and Healthy children Subjects

Variables	F	DF1	DF2	P-value
Depression	3.27	1	58	0.148
Anxiety	1.69	1	58	0.138
Quality of Life	6.57	1	58	0.034

F: ANOVA; 1: Degree of freedom; 2: Error Degree of freedom.

Table-4: Summary of the Results of Multivariate Analysis of Variance of Scores of Depression, Anxiety and Quality of Life among Cancer and Healthy childrenSubjects

Test	Value	F	DF	Error Degree of freedom	P-value	Power of test
Pillai trace	0.953	178.37	6	53	0.001	0.95
Wilks's lambda	0.047	178.37	6	53	0.001	0.95
Hotelling trace	20.194	178.37	6	53	0.001	0.95
Roys largest rot	20.194	178.37	6	53	0.001	0.95

F: ANOVA; DF:Degree of freedom.

Table-5: The Results of Multivariate Analysis of Variance of Depression, Anxiety and Quality of Life among Cancer and Healthy children Subjects

Variables	Sum of squares	DF	Mean Square	F	P-value	Power of test
Depression	11438.25	1	11438.25	472.24	0.001	0.91
Anxiety	11206.50	1	11206.50	634.93	0.001	0.82
Quality of Life	53964.26	1	53964.26	541.36	0.001	0.78

F: ANOVA; DF:Degree of freedom.

4- DISCUSSION

The present study aimed to compare the quality of life, anxiety and depression in cancer and healthy children in Kermanshah, Iran. The results of the present study demonstrated that there were significant differences between the cancer and healthy childrenchildren in terms of all coping styles. The results also revealed that the mean scores of depression and anxiety of cancer children exceeded those of healthy childrenchildren, while the mean score of cancer children's quality of life was lower than that of healthy childrenchildren.

Research has shown that 50 to 80 percent of cancer patients suffer from a psychiatric disorder too. Adjustment disorder and depression have been identified as the most common psychiatric disorder and the second most common psychiatric diagnosis, respectively (9, 39). Research and theoretical evidence indicate that behavioral-emotional changes and quality of life are the strongest and most stable factors that make a difference in cancer and healthy childrenpatients (16). Hence, the results of the present study can be well accounted for.

The results indicated that cancer and non-cencer children and adolescents were significantly different in terms of all coping styles. These results were consistent with the results of studies conducted by Sanjari et al. (40), Ahadi et al. (41), and Vellone (42).

The levels of depression in cancer and non-cencer children and adolescents were different, which was confirmed by the results of the present study. This finding was concurrent with the results of studies performed by Banki et al. (12), Kamangar (43), and Zhao et al. (44). No direct study has ever compared these variables simultaneously in cancer and non-cencer children and adolescents. However, in a study conducted by Banki et al. (2012), the role of cognitive variables in cancer adolescents' depression was investigated (12). The results demonstrated that adolescents' depression positively correlated with health locus of control, emotion-oriented coping and disease perception, while there were significant inverse correlations between the adolescents' depression and each of task-oriented and avoidance-oriented coping strategies. In addition, the emotion-oriented and task-oriented coping strategies and disease perception are more likely to predict depression in adolescents. In a study conducted by Kamangar (2013), the relationship between coping styles against stress and quality of life was investigated in cancer patients (43). The results revealed that with the increase of problem-oriented coping, the cancer patients' quality of life was improved.

Cancer is a major public health problem in many parts of the world (6). Furthermore, in a study conducted by Vellone (2006) on cancer patients and their coping styles, it was revealed that hope was regarded as a key element for coping, disease control and psychological adaptation among cancer patients. In other words, a hopeful person would be able to adopt more positive and more hopeful views about treatment and life and deal with problems and maintain his/her morale (42). Clarke et al. (2006) expressed that cancer patients' self-esteem is damaged due to feelings of rejection and failure to meet one's needs and others' (45). They are also exposed to disappointment, anxiety and depression because of multiple problems and stress caused by high costs of treatment and lack of control over life.

5- CONCLUSION

Based on the findings of the present study, it can be concluded that children suffering from cancer have significantly lower quality of life and significantly higher levels of depression and anxiety in comparison with healthy children. Given

the effects of psychological factors in improving cancers, especially in children, it is recommended that psychological treatments be utilized along with drug therapies with the aim of increasing the quality of life and reducing depression and anxiety in this group of patients.

6- CONFLICT OF INTEREST

There is no conflict of interest to declare.

7- REFERENCES

1. Pourkiani M, Hazrati M, Abbas Zadeh A, Jafari P. Is rehabilitation effective in improving the quality of life in patients with breast cancer? fasl name payesh 2010;9:61-8.

2. Hasanzadeh L. Positive self-talk to increasing the effectiveness of social adjustment secondary school students in the city of Babolsar. Faculty of Education, and psychology Allameh Tabatabaei University, [Master's thesis]. 2008.

3. Stewart CP, Iannotti L, Dewey KG, Michaelsen KF, Onyango AW. Contextualising complementary feeding in a broader framework for stunting prevention. Maternal and child nutrition 2013;9(S2):27-45.

4. Bektas M, Kudubes AA. Developing scales for the assessment of fatigue in Turkish pediatric oncology patients aged 13-18 and their parents. Asian Pac J Cancer Prev 2014;15(22):9891-8.

5. Mehranfar M, Younesi J, Banihashem A. Effectiveness of mindfulness-based cognitive therapy on reduction of depression and anxiety symptoms in mothers of children with cancer. Iranian journal of cancer prevention 2012;5(1):1-90.

6. Siegel R, Naishadham D, Jemal A. Cancer statistics, 2013. CA: a cancer journal for clinicians 2013;63(1):11-30.

7. Matziou V, Perdikaris P, Galanis P, Dousis E, Tzoumakas K. Evaluating depression in a sample of children and adolescents with cancer in Greece. International nursing review 2008;55(3):314-9.

8. Saatchi M, Kamkar K, Asgarian M. Psychological tests, third edition (the first edition). Tehran: afterglow Publications Forozesh. 2013.

9. Akechi T, Nakano T, Okamura H, Ueda S, Akizuki N, Nakanishi T, et al. Psychiatric disorders in cancer patients: descriptive analysis of 1721 psychiatric referrals at two Japanese cancer center hospitals. Japanese Journal of Clinical Oncology 2001;31(5):188-94.

10. Brown RF, Bylund CL, Kline N, De La Cruz A, Solan J, Kelvin J, et al. Identifying and responding to depression in adult cancer patients: evaluating the efficacy of a pilot communication skills training program for oncology nurses. Cancer nursing 2009;32(3):E1-E7.

11. Montazeri N, Kianipour N, Nazari B, Ziapour A, Bakhshi S. Bakhshi Saeedeh. Health Promoting Behaviors among University Students: A Case-Sectional Study of Kermanshah University of Medical Sciences. International Journal of Pediatrics 2017;5(6):5091-99.

12. Banki Y, Abedin A, Monirpour N. Examine the role of cognitive variables in depressed adolescents with cancer. Journal of Health Psychology 2012;1(1):111-34.

13. Ghanbari S, Rabieenejad R, Ganje P, Khoramzadeh S. Psychometric Properties of Preschool Children Anxiety Scale (Teacher Form). Developmental Pschology: Iranian Psychologists 2013;2013(10):29-37.

14. Ziapour A, Khatony A, Jafari F, Kianipour N. Patient satisfaction with medical services provided by a hospital in Kermanshah-Iran. Acta Medica Mediterranea 2016;32(2):959-65.

15. Bassak-Nejad S, Boostani F. An investigation of the relationship between personality traits and coping style among the students of Shahid Chamran University. Jentashapir Journal 2012;3(3):399-407.

16. Fakhri E, Dehghan F, Tatari F, Farnia V, Alikhani M. The Comparison of Depression, Anxiety and Coping Styles inchildren and adolescents with cancer and normal. Der Pharmacia Lettre 2017;9(1):43-9.

17. Rahimi S, Fadakar Soghe R, Tabri R. Related factors with Quality of Life among

preschool children with cancer. Journal of Holistic Nursing And Midwifery 2014;24(1):30-9.

18. Bektas DK, Demir S. Anxiety, Depression Levels and Quality of Life in Patients with Gastrointestinal Cancer in Turkey. Asian Pacific Journal of Cancer Prevention 2016;17(2):723-31.

19. Delavar A. The theoretical and practical basis of research in humanities. Teharan: Roshd Publications; 1995.

20. Santoro A, Tursz T, Mouridsen H, Verweij J, Steward W, Somers R, et al. Doxorubicin versus CYVADIC versus doxorubicin plus ifosfamide in first-line treatment of advanced soft tissue sarcomas: a randomized study of the European Organization for Research and Treatment of Cancer Soft Tissue and Bone Sarcoma Group. Journal of Clinical Oncology 1995;13(7):1537-45.

21. Ravens-Sieberer U, Bullinger M. Assessing health-related quality of life in chronically ill children with the German KINDL: first psychometric and content analytical results. Quality of life research 1998;7(5):399-407.

22. Chie W-C, Yang C-H, Hsu C, Yang P-C. Quality of life of lung cancer patients: validation of the Taiwan Chinese version of the EORTC QLQ-C30 and QLQ-LC13. Quality of Life Research 2004;13(1):257-62.

23. Nejat S, Montazeri A, Holakouie Naieni K, Mohammad K, Majdzadeh S. The World Health Organization quality of Life (WHOQOL-BREF) questionnaire: Translation and validation study of the Iranian version. Journal of School of Public Health and Institute of Public Health Research 2006;4(4):1-12.

24. Usefy A, Ghassemi GR, Sarrafzadegan N, Mallik S, Baghaei A, Rabiei K. Psychometric properties of the WHOQOL-BREF in an Iranian adult sample. Community mental health journal 2010;46(2):139-47.

25. Fotukian Z, Alikhani M, Salman Yazdi N, Roohangiz J. Study of quality of life caregiver close relatives of patient with cancer. Iran Journal of Nursing 2004;38(17):48-56.

26. Kovacs M. Children's depression inventory: Multi-Health System North Tonawanda, NY; 1992.

27. Kovacs M. Children's depression inventory (CDI). Toronto: Multi-Health Systems Inc; 2004.

28. Cole DA, Carpentieri S. Social status and the comorbidity of child depression and conduct disorder. Journal of Consulting and Clinical Psychology 1990;58(6):748.

29. Weiss B, Weisz JR, Politano M, Carey M, Nelson WM, Finch A. Developmental differences in the factor structure of the Children's Depression Inventory. Psychological Assessment: A Journal of Consulting and Clinical Psychology 1991;3(1):38.

30. Sorensen MJ, Frydenberg M, Thastum M, Thomsen PH. The Children's Depression Inventory and classification of major depressive disorder. European child and adolescent psychiatry 2005;14(6):328-34.

31. Dehshiri G, Najafi M, Shikhi M, Habibi Askarabd M. Investigating primary psychometric properties of children's depression inventory (CDI). J Fam Res 2009;5(2):159-77.

32. Jan Bozorgi M, Mostakhdemin Hoseini K. The investigations of prevalence depression in students in Tehran. Pajoohandeh 2006;6:379-83.

33. Reynolds CR, Richmond BO. What I think and feel: A revised measure of children's manifest anxiety. Journal of abnormal child psychology 1997;25(1):15-20.

34. Castaneda A, McCandless BR, Palermo DS. The children's form of the manifest anxiety scale. Child development 1956;27(3):317-26.

35. Reynolds CR, Richmond BO. What I think and feel: A revised measure of children's manifest anxiety. Journal of abnormal child psychology 1978;6(2):271-80.

36. Reynolds CR, Paget KD. National normative and reliability data for the revised Children's Manifest Anxiety Scale. School Psychology Review. 1983.

37.   Taghavi S, Alishahi M. Validity and reliability Children's Manifest Anxiety Scale. Journal of Psychology (RCMAS). 2003;28:342-57.

38.   Taghavi S, Alishahi M. Children's Manifest Anxiety Scale reliability and validity study. Journal of Psychology (RCMAS). 2003;7(3):342-57.

39.   Massie MJ. Prevalence of depression in patients with cancer. JNCI Monographs 2004;2004(32):57-71.

40.   Sanjari M, Jafarppour M, Safarabadi T, Hosseini F. Coping with cancer in teenagers and their parents. Iran Journal of Nursing 2005;18(41):111-22.

41.   Ahadi H, Mahriar A, Nafisi G, Nikofar A, Jahanian S. Comparison of coping with stress and depression Three groups of cancer patients. Thought and Behavior in Clinical Psychology 2011;6(21):35-42.

42.   Vellone E, Rega ML, Galletti C, Cohen MZ. Hope and related variables in Italian cancer patients. Cancer nursing 2006;29(5):356-66.

43.   Kamangar M. Styles cope with stress and quality of life in cancer patients. Professional medical doctoral thesis, Kermanshah University of Medical Sciences. 2013.

44.   Zhao L, Li X, Zhang Z, Song C, Guo C, Zhang Y, et al. Prevalence, correlates and recognition of depression in Chinese inpatients with cancer. General hospital psychiatry 2014;36(5):477-82.

45.   Clarke DM, Cook KE, Coleman KJ, Smith GC. A qualitative examination of the experience of 'depression'in hospitalized medically ill patients. Psychopathology 2006;39(6):303-12.