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# Stressful factors, coping mechanisms and quality of life in hemodialysis patients

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**ABSTRACT**

**Aims:** Level of quality of life in hemodialysis patients change following stressful factors. Patients use different coping mechanisms in order to deal with stressful factors. The aim of this study was to determine stressful factors, coping mechanisms and quality of life among hemodialysis patients.

**Methods:** This descriptive analytic study was done on 113 hemodialysis patients in Babol's Shahid Beheshti hospital in 2010-2011. The data collection tools included questionnaire of hemodialysis stressful factors information (HSS), Jalowice & Powers coping methods and quality of life Index of Parila et al. in order to analyze data, descriptive analytical statistics (Independent T-test, variance and Pearson 's analysis and SPSS 17 software had been used.

**Results:** 50.4% of the patients were male. The age range of the patients was 87-18. The results showed that there was significant relationship between age with physiological stressful factors (p=0.050) and there was significant relationship between residency and psychological stressful factors) and between important activities of life and variables of occupation and marital status (p=0.000 both). In dealing with stressful factors patients mostly used emotion-oriented coping methods, and there was positive and linearly relationship between emotion-oriented coping methods with psycho and social stressful factors (p=0.000 and p=0.009). There was positive and linear relationship between problem–oriented coping methods with aspects of overall quality of life and also there was significant inverse relationship between emotion-oriented coping methods with important activities of life, overall quality of life and physical condition.

**Conclusions:** By identifying the stressful factors in hemodialysis patients, it is possible to have more valuable step through more effective nursing services and producing basic programs such as psychology counseling for strengthening problem-oriented coping mechanisms and improving their quality of life.

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## 1. Introduction

Every year the number of the people suffering from kidney failure is increasingly on the rise and increase in prevalence and appearance of

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this disease has been reported more than some years ago [1], more than one thousand people in the world lost their lives due to this disease and only in United States of America about 300000 people are suffering from this disease. Yearly appearance of this disease is about 242 cases per one million people that about 8% are going to be added to this number every year. According to the present statistics in Iran every year from 1200 to 1600 people are suffering from this disease that about 15% are added to the hemodialysis patients [2].

Hemodialysis patients are dependent on dialysis and their quality of life are affected despite physical and emotional problems, to get dialysis three times a week should be counted as part of their daily life, frequent use of dialysis machines causes loss of freedom and wasting time and high dependence on health care providers and other people [3].

These patients in addition to be encountered with long-term chronic disease should bear several stressful factors related to treatment [4]. Pain, feeling unrest, limitation of food, liquid,, fatigue, weakness, stress, depression, feeling of inadequacy are among these stressful factors [5]. Patients in order to deal with stressful factors use various strategies [6].

Needing special and appropriate coping or adaptive methods is important considering signs and symptoms of disease, because coping methods are defined as purposeful activities, and do not include those habitual behaviors that people do unconsciously. Lazarves and Folkman divided coping methods into two parts of emotion-oriented and problem-oriented, the aim of problem-oriented method is changing position such as; planning an active program and following that, while the aim of emotion-oriented method is controlling emotions and adapting with the opportunity like lack of concentration on that, actually in this method, nothing is done in order to solve the problem [6]. The results of the study about using emotion-oriented and problem-oriented coping methods in dealing with stressful factors in hemodialysis patients is various, in the study of Lok, patients of the study mostly used problem-oriented coping method while in the study of Herobski they used emotion-oriented coping method [5], and it can be said that ability of the patients for coping with stressful factors is dependent on treatment regimens and the level of his/her demand from life, that this issue has important effect on the feeling of well-being and physical and psychological position [4] in this regard, results of the study of Ahangar Davoodi et al. shows that severity of stressful factors have direct relationship with emotion-oriented coping methods, but it has inverse relationship with quality of life [7], and in many studies, quality of life of hemodialysis patients was low [8].

While there are some studies about these subjects in the country, but we need more studies in order to achieve reliable results because based on studies of Mazaire et al. there are clinical clear differences between different centers of dialysis in multiple dimensions of quality of life [9] and cultural factors and the method of experiencing stressful factors is different in different societies [10], finally in order to promote quality of life of hemodialysis patients , exact identification of stressful factors, coping methods and the situation of patients' quality of life are effective infrastructure. According to the above notes and this study with overall aim of determining stressful factors, coping methods and quality of life had been done in hemodialysis patients.]

## 2. Methods

This is an analytic-descriptive study and the statistic population of the hemodialysis patients that had the conditions (lack of sever behavioral and mental disorder, having experience of hemodialysis at least for three months and being satisfied for participating in the study) and they were in the Shahid Beheshti hospital of Babol in 2011. Study had been done on 113



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patients that had the conditions; patients who did not have the conditions were excluded from the study. Sampling had been done through census of all the units in the population of the study.

The researcher in addition to study demographic features of the patients such as; age, gender, job, education level, time duration of hemodialysis treatment in order to assess quality of life, stressful factors and coping methods sued three questionnaires. Questionnaire of stressful factors (HSS) that measured frequency and the severity of stressful factors related to disease and treatment based on physical stressful factors with 13 phrases ( range of scores 13-65), psychological factors with 7 phrases (range of scores 7-35), and social factors with 9 phrases (range of scores 9-45). Collected information was based on Likert scale (never to a lot). HSS stressful factors had been made based on the studies of Baldark et al. in 1982 and its reliability had been proved by Jant in 1999 [9] and also validity of the questionnaire had been contented after its translation to Persian by some respectful professors of validity and its reliability in the present study with the Chronbach's alpha method for physical factors r=0.79, psychological factors r=0.73 and social factors r=0.75 in addition to achieving higher scores shows more stressful factors.

Another used questionnaire is the questionnaire of problem-oriented coping method with 15 phrases (range of the scores is 15-75) emotion-oriented with the score range of (24-120) that had been rating based on Likert's scale (never to a lot) in addition, some questions had been graded reversely based on their negative charge.

Questionnaire of coping methods had been made based on Jalouvis questionnaire and Lazarous eightfold criteria, validity, content and reliability of the questionnaire by Mahmoudi in 2001 with Chronbach's alpha [10] and in the present study, for problem-oriented coping method r=0.79 and for emotion-oriented it is r=0.87. Also in order to assess dimensions of quality of life, questionnaire of quality of life that had been made based on Parila et al. in 1983 had been used that includes overall quality of life with 5 phrases (range of the scores 5-30), physical position with 5 phrases (range of the scores 5-30) and usual activities of life with 4 phrases (range of the scores 4-24), and achieving higher scores shows higher quality of life. Also validity of the questionnaire from the approach of kind of its content and reliability in the present study had been confirmed through Chronbach's alpha method for overall quality of life r=0.73, physical position r=0.78, usual activities of life r=0.81.

The research had been done after achieving permission from head of the college and hospital, patients' satisfaction and their ensure about the confidentiality of information, through completing questionnaire by interview during dialysis and when physically and mentally they had appropriate conditions, analysis of the data had been done by using descriptive and analytic statistics (variance analysis test, independent test and Pearson correlation coefficient) and by the help of SPSS 17 software.

## 3. Results

Results of the study show that the age range of the patients had been 18-87 years old and most of the frequency of the patients was in the age range of 59-68 years old (25.7%). 50.04% of the units of the study were male, 88.5% were married. From the approach of educational status, most of the units of the study were illiterate (55.8%), from the approach of the variable occupation status (25.7%) were jobless and from the approach of residence (54%) lived n countryside. Most of the samples express that the income of all the family does not have enough living expenses (57.5%), most of the units of the study had the experience of dialysis



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less than three years (63 people), results show that most of the units in all the three stressful factors of physical (49.8%), mental (46.5%) and social (47.8%) were in the moderate level. Results of the study showed that physical stressful factors were respectively fatigue (49.8%), mental (46.5%), and social (47.8%), and physical limitation (35%), mental stressful factors were respectively restriction on recreation (42.5%), uncertainty of future (36.3%), fear of being alone (35.4%) and social stressful factor were respectively to be dependent on others (56.1%), treatment cost (57.5%) and transportation to dialysis centers (42.5%). The average and standard deviation of physical and mental stressful factors were

Table 1: Frequency distribution of dimensions of quality of life in hemodialysis patients

| Physical status | Very little | little | Moderate | many | Very much | There was no problem |
|---|---|---|---|---|---|---|
| | (percent)number | (percent)number | (percent)number | (percent)number | (percent)number | (percent)number |
| 1. How much do you feel the pain now? | 11(9.7) | 25(22.1) | 27(23.9) | 32(28.3) | 15(13.3) | 3(2.7) |
| 2. How much is your nausea? | 31(27.4) | 39(34.5) | 27(23.9) | 6(5.3) | 6(5.3) | 4(3.5) |
| 3. How many times do you vomit? | 34(30.1) | 39(39.5) | 22(19.5) | 6(5.3) | 6(5.3) | 6(5.3) |
| 4. How much do you feel strength and vitality? | 22(19.5) | 37(32.7) | 27(32.7) | 10(8.8) | 4(3.5) | 3(2.7) |
| 5. How much is your appetite? | 17(15) | 24(21.2) | 50(44.2) | 18(15.9) | 2(1.8) | 2(1.8) |
| Usual activities of life | (percent)number | (percent)number | (percent)number | (percent)number | (percent)number | (percent)number |
| 1. How much do you have the ability of doing daily activities such as housekeeping or administrative tasks? | 45(39.8) | 36(31.9) | 20(17.7) | 4(3.5) | 2(1.8) | 6(5.3) |
| 2. How much is your ability of eating food? | 16(14.2) | 34(30.1) | 45(39.8) | 11(9.7) | 6(5.3) | 1(0.9) |
| 3. How much are you satisfied with your sexual activity | 35(31) | 28(24.8) | 32(28.3) | 7(6.2) | 1(0.9) | 10(8.8) |
| 4. How much are you satisfied with your sleep? | 28(24.8) | 36(31.9) | 37(32.7) | 3(2.7) | 7(9.2) | 2(1.8) |
| Quality of life | (percent)number | (percent)number | (percent)number | (percent)number | (percent)number | (percent)number |
| 1. How well do you assess the quality of your life? | 22(19.5) | 31(27.4) | 46(40.7) | 7(6.2) | - | 7(6.2) |
| 2. How much do you do recreation and entertainments such as artworks and social activities? | 58(51.3) | 25(22.1) | 18(15.9) | 6(5.3) | 3(2.7) | 3(2.7) |
| 3. How much are you satisfied with your life? | 26(23) | 21(20.4) | 39(39.5) | 17(15) | 4(3.5) | 4(3.5) |
| 4. How much do you have sense of usefulness? | 23(20.4) | 24(21.24) | 34(30.1) | 16(14.2) | 11(9.7) | 5(4.4) |
| 5. How much are you worried about your health care costs? | - | 32(28.3) | 10(8.8) | 8(7.1) | 54(47.8) | 7(6.2) |



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respectively 35.54±8.5, 19.01±5.43 and social one was 27.28±7.03.

By using variance analysis there was significant relationship between the variable of age with physical stressful factors (P=0.050), in a way that people who were in the age group of 56 years old and higher were influenced by most of the physical stressful factors.

By using t-test, there was significant relationship between the variable of residency and mental stressful factors (p<0.02) and the average of the scores in all the stressful factors in the patients who lived in the countryside was higher.

Average and standard deviation of general life quality was 11.32±3.26, usual activities of life was 9.98±3.01 and physical position was 15.67±3.26 that there was significant relationship between usual activities of life with the variable of marital status and job status (both P=0.000).

In a way that the highest average was related to single group and from the approach of occupation status it was related to agriculture group. Also there was significant relationship between physical status with the variable of education level (P=0.026), that the highest score was related to low literate education. While in the other two dimensions, other usual activities of life and the situation of overall quality of life was related to diploma. From the approach of the age, there was significant relationship between the situation of overall quality with age (P=0.031) and the highest average of physical situation and usual activities of life was related to age range of 18-38. From the approach of duration of dialysis in the dimension of physical situation and usual activities of life, the highest average was related to the patients that were on dialysis in the first year. The average of the scores in all the three dimension of quality of life in men was higher than women, but there was no significant difference. Also from the approach of residency, the average of scores in the dimension of general physical status and quality of life among the people who lived in the city was more, but in the dimension of important activities of life among the people who lived in the countryside, it was higher. Frequency distribution of the dimensions of the quality of life among the patients on dialysis had been reported in table 1.

The average and standard deviation of the variables of emotion-oriented coping patterns had been reported 77.5±8.21 and problem-oriented had been reported 47.39±7.96, the highest frequency distribution was related to the variable of emotion-oriented including; pray and recourse (89%), tendency to be alone (76%) and to be hopeful for better situation (51%).

Relationship between the variable of education and coping methods by using variance analysis test shows that there is significant difference between the variable of education with

Table 2: Relationship between coping methods with stressful factors and quality of life in hemodialysis patients

| Coping patterns / Stressful factors And quality of life | Problem-oriented coping patterns | | Emotion-oriented coping atterns | |
|---|---|---|---|---|
| | p | r | p | r |
| Physical stressful factors | Not significant | -0.108 | Not significant | 0.266 |
| Psychological stressful factors | Not significant | -0.178 | =000 | 0.374 |
| Social stressful factors | Not significant | -0.118 | =009 | 0.12 |
| Overall quality of life | =033 | 0.229 | =002 | -0.357 |
| Usual activities of life | Not significant | 0.170 | =002 | -0.378 |
| Physical status | Not significant | 0.164 | =008 | 0.207 |



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problem-oriented coping patterns (P=0.025) and the highest scores were related to low literate and in emotion-oriented coping patterns, the highest score was related to higher than diploma and there was no significant difference with other demographic variables, but in the variable of residency, the average of the scores in emotion-oriented coping method in the city and in problem-oriented in the countryside was higher. In the variable of gender, women mostly used problem-oriented coping method and from the approach of the variable of age, age group of 39-48 years old used mostly problem-oriented coping method and in the age-range of 49-58 years old they mostly used emotion-oriented coping method and problem-oriented coping method was higher among singles, the average of the scores of emotion-oriented coping methods among the people who had the experience of 4-5 years dialysis was higher and among the people who were on dialysis 3-12 months, problem-oriented coping method was higher.

The results of Pearson correlation test shows that there has been linear and positive relationship between emotion-oriented coping methods with social and psychological stressful factors and also there was significant relationship between problem-oriented coping methods with dimensions of overall quality of life and more problem-oriented coping methods led to reporting of higher quality of life and there was significant relationship between emotion-oriented coping methods and overall quality of life and important activities of life (table 2).

## 4. Discussion

Hemodialysis patients are encountered with different kinds of physical, mental and psychological stressors [12]. In the present study social stressful factors had the highest frequency distribution. While in the study of Lok, physical stressful factors had the highest frequency and in the study of Nazemian et al.and Ahangardavoudi psychological and social factors had the highest frequency [13,12,15] and also in the present study cost of treatment and feeling of dependency to others had the highest frequency, that is in consistent with the results of the study of Rahimian et al. but it is not in consistent with the study of Baldree et al. Gurkhs and Menke[14,15], in this study from the approach of severity of stressful factors in all three areas, it was in the moderate level that also in the study of Nouhi et al. it has been indicated that physical stressful factors is in the moderate level but psycho-social factors is in high level [16,17] also in the study of Ahangar Davoodi et al. most of the people were under psycho-social stressful factors with moderate intensity and physiological stressful factors with low intensity [11].

According to the findings of this study with the similar studies, it seems that social and psychological stressful factors like physical stressful factors are important too, treatment costs for the patients that according to the statement of most of them; the family income does not cover living expenses, can be as a basic stressful factor, from one hand, in the present study, fatigue had the highest frequency distribution among physical stressful factors, in other words, fatigue had been reported as a big stressful factor among the patients. Considering that these patients suffer from fatigue, weakness and lack of energy, level of activity and the situation of their function is strongly influenced, studies show that decrease of ability to work and losing job have direct relationship with the amount of income, low income, high treatment costs and imposed costs have bad effect on the family economics [19,20].

Results of this study show that frequency distribution of using emotion-oriented coping methods has been higher than problem-oriented one, that is in consistent with the results of the study of Rahemian, Baldree et al. Gurkhs and Menke[13,14]. While in the study of Nazemian et al. and Lok, patients have used problem-



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oriented coping methods more [13,15] and there was significant difference between the average of the scores of psychological and social stressful factors with emotion-oriented coping methods that was in consistent with the study of Nazemian [13].

According to this relationship, we should help these patients in order to choose an appropriate coping method, studies show that between two problem-oriented and emotion-oriented coping method, problem-oriented coping method by addressing some issues such as achieving more information about disease, choosing the best solution for the problem, using the last experiences for solving the problem, careful and detailed facing with the problem, purposeful follow-up in order to solve the problem, to not be hopeless about finding an appropriate solution for the similar problem has been always counted as the most appropriate and consistent method and using that is in direct relationship with psychological status of the people [13]. From one hand, findings of the present study show that there is significant and direct relationship between problem-oriented coping methods with general quality of life that is in consistent with the results of the study of Ahangar Davoodi et al.[7].

From the approach of gender with the areas of quality of life, results of the study indicate that the average of the scores in all three areas in men was higher than women, that is in consistent with the findings of Rambod, in a way that the quality of life of the women was worse than men, but this relationship was not significant. This finding is also in consistent with the study of Joulios and Ti [21] hemodialysis women because of accepting several roles such as roles of a wife, mother, job, housekeeping and … that each of them need lots of energy and also lots of time for doing dialysis and economic problems that is sometimes out of the person's ability and is in conflict with the family members and totally their emotional reaction is more [11].

In the present study, there is significant relationship between age with overall quality of life and the highest average of the scores in all three levels was higher in low age groups that also in the study of Mokhtari et al. and Abedi et al. there was reverse relationship between age and quality of life, it means that in lower age, quality of life was higher; results of the study of Heidarzadeh show that by increase of age, quality of life decreases and patients with the age less than 39 years old experience higher quality of life in compare with those who had more than 39 years old [22,8].

Considering that younger patients are encountered with less physical problems, it can be expected that they have more appropriate quality of life, from one hand, it seems that attention of the family about this issue can be effective too, considering the age requirements, studies show that there is direct relationship between individual and family interactions with feeling of well-being in the patients and also using more appropriate coping method leads to decrease of the burden of disease and finally increase of patients' function [1].

## 5. Conclusions

According to the above, due to many stressors in these patients, identifying these factors through made checklists can help nurses in taking care of the patient, according to the results of the present study, frequency of using emotion-oriented coping method and interconnected relationship with stressful factors, designing educational program regarding this issue and the way of using appropriate coping for patients seems necessary for the patients and "psychological and psychiatric counseling" should be done and also there should be effective relationship between the above mentioned factors with quality of life and considering individual differences of the patients, individual counseling of the patients can be useful and in addition educational programs and individual consultations should



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be continued and it is recommended that there should be some studies about the role of providing coping pattern programs in the quality of life of the patients and also role of the family in choosing coping patterns.

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