



## Effect of happiness training in depression, anxiety, and quality of life among hemodialysis patients

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*Journal of Research & Health*  
*Social Development & Health Promotion*  
*Research Center*

*Vol. 7, No. 4, Jul & Agu 2017*

*Pages: 935- 943*

*DOI: 10.18869/acadpub.jrh.7.4.935*

**Original Article**

### Abstract

Happiness is one of the most important human psychological needs that plays a key role in the formation of a person's character and mental health. This quasi-experimental study aimed to determine the effect of happiness training in reducing depression and anxiety and improving quality of life among hemodialysis patients. The participants consisted of 30 female dialysis patients that referred to hemodialysis ward in Zahedan city. The participants were placed in two groups, experimental and control, each included 15 members. Afterwards, the Fordyce happiness training was implemented on the experimental group in 8 sessions (a 90-minute session per week). Pretest and posttest were conducted on both groups. In the current study, for gathering data in the pretest and posttest, the Beck Depression Inventory, Katel Anxiety Questionnaire, and 36-Item Short Form (SF-36) Health Survey were employed. The results of the data analysis showed significant differences between the mean scores of the hemodialysis patients placed in the experimental and control groups on depression, anxiety, and quality of life. Accordingly, it can be concluded that the happiness training was effective in reducing the patients' depression and anxiety and enhancing their quality of life.

**Keywords:** Anxiety, Depression, Hemodialysis, Quality of Life

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Received: 17 Mey 2015

Accepted: 9 Sep 2015

How to cite this article: Fard Tabatabaei M, Raghbi M. Effect of happiness training in depression, anxiety, and quality of life among hemodialysis patients. *J Research & Health*2017; 7(4): 935 - 943.

### Introduction

Happiness and vitality are among the most important human psychological needs that have major impacts in shaping one's personality and mental health. Happiness is one of the variables taken into consideration in the field of health psychology in recent years. Various studies have also carried out on happiness, some of which confirmed a direct relationship between happiness and enhancing immune system [1]. The term of "happiness" includes a variety of concepts like vitality, satisfaction, joy, and pleasant; however, it does not contain unfounded optimism, self-deception, denial of the facts,

and disregarding the problems. In this regard, a number of psychologists apply a more general concept, "mental happiness", which includes assessments such as life satisfaction, excitement, positive mode, lack of depression, and anxiety [2].

Various studies have indicated that happy individuals are successful in different spheres including life, marriage, friendship, income, work, and health [3]. Mental happiness is an individual's cognitive and emotional evaluations of his/her life. These evaluations, on one hand, include emotional reactions to the events and on the other hand,

contain cognitive judgments of satisfaction and task accomplishment. Therefore, mental happiness is a broad concept that contains experiences of favorable emotions, low levels of negative emotions, and high levels of life satisfaction. Mental happiness is reflected in individuals' perceptions and evaluations of emotional dimensions and psychological and social functions of their life. Emotional mental happiness consists of two main components of happiness and life satisfaction [4].

When people are happy, their evaluations of themselves and their lives can include cognitive aspects like judging life satisfaction and/or emotional aspects such as mood or emotions when facing with events and their quality of life [5]. Quality of life is a concept that contains a sense of physical and mental well-being. Chronic diseases have negative impacts in health and quality of life. Quality of life and health are closely correlated [6]. Several studies in different countries have shown that patients undergoing the hemodialysis treatment have significantly lower scores in relation to their quality of life compared to normal population [7]. The quality of life of people with chronic diseases is associated with their personal characteristics. In fact, individuals' coping skills in various life situations greatly depend on what they have already acquired about their self-control [8]. The results demonstrated that Fordyce happiness training have a great impact in reducing emotion regulation difficulties and irrational beliefs and enhancing quality of life [9]. The results of previously conducted studies on mental and physical health have confirmed the effect of Fordyce cognitive-behavioral method [10]. The main objectives of rehabilitation of these patients are development and modification of normal or near normal quality of life [11]. Lew and Patel [12] examined the quality of life of kidney patients and concluded that considering patients in the final stage of kidney disease, women, compared to men, expressed more anxiety and depression [13].

An overview on previously conducted studies determined that happiness has a direct correlation with health and also, behavioral interventions can affect the effect of positive emotions [14]. In a study conducted in Kashan, the effect of cognitive-behavioral group therapy in anxiety and depression among hemodialysis patients was examined. The results of this study indicated that cognitive-behavioral group therapy significantly reduced the level of depression and anxiety among dialysis patients. Therefore, in addition to prescribing medications, applying psychological interventions is highly recommended [15].

The cognitive-behavioral method is highly recommended for patients with chronic kidney failure, due to high magnitudes of sufferers, various psychological trauma, and poor quality of life among these patients leading to the incidence of disorders in their families, reduce depression and anxiety, improve their quality of life, create happiness in patients, and aid the society. According to what was mentioned earlier, the current study aimed to examine the effect of Fordyce happiness training in reducing depression and anxiety and improving the quality of life among hemodialysis patients.

### **Method**

The research design used in this study was based on Fordyce happiness training (including eight cognitive elements and 6 behavioral ones) which was conducted through holding eight group sessions. The statistical population included 80 dialysis patients referred to hemodialysis ward of Khatam-Al-Anbia Hospital in Zahedan in 2014. Among them, a sample of 30 female dialysis patients were selected and divided equally into the control and experimental groups using convenience sampling method within the framework of a quasi-experimental design.

In the current study, the quasi-experimental (interventional) design was used in

which, pretest and posttest with a control group were employed. The experimental and control groups became equivalent using convenience sampling method. The difference between the pretest and posttest was assessed for each group. Then, the groups' final means were compared. In this regard, Fordyce happiness training was considered as an independent variable in order to determine its effect on reducing psychological problems and improving quality of life among hemodialysis patients. Inclusion criteria were female hemodialysis patients who were not receiving any other psychological counseling.

Afterwards, Fordyce happiness training was implemented on the experimental group in 8 sessions (a 90-minute session per week). Pretest and posttest were conducted on both groups. In the current study, for pretest and post-test, Beck Depression Inventory, Katel Anxiety Questionnaire, and the 36-Item Short Form (SF-36) Health Survey were applied.

In this study the two groups as experimental and control groups with respect to the independent variables were examined pretest and posttest.

Fordyce Happiness Training Package includes eight group sessions which were implemented as follows [16]:

*First Session:* Introducing the members to each other, talking about the main goals of the program, discussing happiness, and summing up the issue.

*Second Session:* Introducing techniques of increasing happiness and presenting methods to increase physical and general activity.

*Third Session:* Discussing a technique to increase social relations, continue physical mobility, and establish new social relations.

*Fourth Session:* Introducing methods of enhancing optimism and developing and increasing creativity in life.

*Fifth Session:* Presenting techniques of avoiding concerns, introducing methods to cope with stress, and presenting methods of decreasing expectations.

*Sixth Session:* Teaching techniques of increasing intimacy and implementing techniques of having intimate relations.

*Seventh Session:* Presenting techniques to focus on the present and implementing techniques of planning and time managing.

*Eighth Session:* Discussing the significance of happiness in life and overviewing all the eight sessions.

The following questionnaires were used as assessment tools:

*Beck Depression Inventory:* This scale is one of the most common depression self-assessment measures developed by Beck in 1961. This inventory includes 21 items. Each category contains four questions. The scores are ranged from 0 to 3. The score of zero indicates mental health and the score of 3 demonstrates acute major depression. The total score for each individual is the sum of the scores in all categories. In a meta-analysis conducted to determine the internal consistency of this test, Mar nat [17] showed that the obtained coefficients ranged from 0.73 to 0.92 with a mean of 0.86 [17]. Beck, Steer, and Garbin [18] examined the reliability of this inventory in ten studies in which, beck depression inventory was performed as pretest and posttest. They reported that while the correlation coefficients in normal people ranged from 0.60 to 0.90, the correlation coefficients among mental patients ranged from 0.48 to 0.86 [18].

*Katel Anxiety Questionnaire:* In 1929, based on an extensive research, Katel developed a questionnaire for people over 14-15 years old. Katel Anxiety Questionnaire includes 40 items [19]. The total score is a general score of anxiety which indicates the position of the subject in a range of an eleven-part scale related to the group to which the subject is belonged. This questionnaire was initially standardized by Dadsetan and Mansour [19] on a sample of Iranian students. In an investigation, Katel using the sixteen-factor test demonstrated that anxiety can be considered as the

second order. The results of Katel are in line with psychopathology data. According to these investigations, Katel designed this 40-item questionnaire to achieve the following criteria: A general anxiety score that indicates the anxiety and two A and B scores which are consistent with overt anxiety and covert anxiety.

On the other hand, by examining the importance of the first five factors of character in the saturation of the second order anxiety, some information about the etiology of psychopathology of anxiety can be gained. These five factors are: Q3 (-) which contains 8 articles. The score of Q3 (-) indicates the extent to which anxiety is associated with personality constructions that are socially approved. C (-), which contains 6 articles (score), is the evidence of weakness of "I", indicating its basic role in creating anxiety. L includes 4 articles. The L score demonstrates paranoid insecurity. O contains 12 articles, explaining anxiety derived from superego. Q4 includes 10 articles, the score of which indicates the role of "I" drag forces in creating anxiety.

This questionnaire achieved a good empirical validity with regard to mental sorrows and mental incoherence. Although it is mainly applied in clinical situations, it can also be used in other psychological consults in which, the patient suffers from an abnormal high level of anxiety. Overt anxiety, using Purcell, Taylor, and Medellin's scales, indicates correlations at the levels of 0.51, 0.65, and 0.43, respectively. The correlation of general anxiety with Welsh anxiety index was 0.72.

*36-Item Short Form (SF-36) Health Survey:* This survey was developed by Ware & Sherbourne [20] in America. This self-reporting survey mainly examines the quality of life and health and it includes 36 items evaluating 8 areas of physical functioning, social functioning, physical role playing, emotional role playing, mental health, vitality, physical pain, and public health. This survey provides two main assessments. The total score of physical component measures

physical health dimension and the total score of mental component evaluates social-psychological health. The concepts that are measured by this survey are not related to age, group, or a certain disease. The purpose of this survey is to assess health, in both physical and mental directions, through combining the scores obtained in the eight health domains [20]. The lowest score on this scale is zero and the highest score is 100. Higher scores indicate better quality of life. The total score related to each dimension is determined by summing the scores of relevant items in that dimension [20].

Validity and reliability of this survey was confirmed in an Iranian population. Internal consistency coefficients of those eight subscales ranged from 0.70 to 0.85 and their test-retest coefficients in one-week intervals ranged from 0.43 to 0.79. Additionally, this survey can differentiate healthy individuals from patients considering all indicators [20]. In the current study, descriptive statistics including mean, standard deviation, minimum, and maximum of scores was used to present the obtained data. Analysis of covariance (ANCOVA) was applied to evaluate data in SPSS software. Meanwhile, the level of significance was considered for all hypotheses.

## Results

Table 1 indicates frequency distribution of participants based on the demographic variables.

The results presented in Table 2 indicate that F value related to the effect of group (independent variable and training sessions) was obtained as 6.745 and the difference between the mean of the experimental group and the control group was statistically significant ( $p < 0.015$ ). This means that the adjusted mean of the control group ( $M = 29.639$ ) after training sessions (intervention) is higher than that of the experimental group ( $M = 18.494$ ). In other words, happiness training was effective in reducing hemodialysis patients' depression.

**Table 1** Frequency distribution of demographic variables

Group	Demographic variables	Age			Level of education			Economic status		
		Under 30 years old	30-40 years old	40 years old and older	Illiterate	Elementary school	Diploma and higher	Poor	Middle	Good
Control	Frequency	4	3	8	10	3	2	7	7	1
	Percentage	20.0	26.7	53.3	66.7	20.0	13.3	46.7	46.7	6.7
Experimental	Frequency	1	1	13	14	1	0	7	6	2
	Percentage	6.7	6.7	86.7	93.3	6.7	0	46.7	40.0	13.3

**Table 2** Results of ANCOVA on the effectiveness of happiness training in reducing patients' depression

Source	Sum of square	Degree of freedom	Mean squares	F	p-value
Pretest	497.704	1	497.704	3.632	0.067
Posttest	924.389	1	924.389	6.745	0.015
Error	3700.30	27	20.020		
Total	22630.000	30			

Happiness training has an impact in reducing depression among hemodialysis patients.

The results presented in Table 3 show that F value related to the effect of group (independent variable and training sessions) was calculated as 36.070 and the difference between the mean of the experimental group and the control group was statistically significant ( $p < 0.000$ ). This means that the adjusted

mean of the control group ( $M=45.146$ ) after training sessions (intervention) is higher than that of the experimental group ( $M=30.373$ ). In other words, the results demonstrated that happiness training was effective in reducing hemodialysis patients' anxiety.

**Table 3** Results of ANCOVA on the effectiveness of happiness training in reducing patients' anxiety

Source	Sum of square	Degree of freedom	Mean squares	F	p-value
Pretest	25.520	1	25.520	0.593	0.448
Posttest	1551.007	1	1551.007	36.070	0.000
Error	1161.014	27	43.001		
Total	45517.000	30			

Happiness training has an impact in reducing anxiety among hemodialysis patients.

The results presented in Table 4 indicate that F value related to the effect of group (independent variable and training sessions) was obtained as 20.811 and the difference between the mean of the experimental group and the control group was statistically significant ( $p < 0.000$ ). This means

that the adjusted mean of the experimental group ( $M=74.930$ ) after training sessions (intervention) is higher than that of the control group ( $M=50.785$ ). In other words, happiness training was effective in improving hemodialysis patients' quality of life.

**Table 4** Results of ANCOVA on the effectiveness of happiness training in improving patients' quality of life

Source	Sum of square	Degree of freedom	Mean squares	F	p-value
Pretest	1304.726	1	1304.726	20.811	0.000
Posttest	3365.659	1	3365.659	53.683	0.000
Error	1692.71	27	62.695		
Total	128905.675	30			

Happiness training has an impact in improving quality of life among hemodialysis patients.

**Table 5** Adjusted means and standard errors of the variables under study in the experimental and control groups

Variables	Group	Adjusted mean	Standard error
Depression	Experimental	18.494	3.028
	Control	29.639	3.028
Anxiety	Experimental	30.373	1.716
	Control	45.146	1.716
Quality of life	Experimental	74.930	2.192
	Control	50.785	2.192

The results presented in Table 5 indicate that after holding the training sessions (intervention), the adjusted mean of the control group on depression ( $M=29.639$ ) is higher than that of the experimental group ( $M=18.494$ ). Moreover, after holding these sessions, the adjusted mean of the control group on anxiety ( $M=45.146$ ) is higher than that of the experimental group ( $M=30.373$ ) and the adjusted mean of the experimental group on quality of life ( $M=74.930$ ) is higher than that of the control group ( $M=50.785$ ). In other words, happiness training was effective in reducing hemodialysis patients' depression and anxiety and improving their quality of life.

In the current study, both descriptive statistical methods (mean and standard deviation) and inferential methods (analysis of covariance) were applied to analyze the obtained data. In the covariance analysis, the impact of the control variable (pretest) was eliminated and then, the experimental and control groups were compared based on their posttest scores. When using pretest and posttest, the best method of data analysis is analysis of covariance, since it neutralizes the effect of pretest and it quite indicates the effect in the posttest.

### Discussion

Paying attention to happiness has a long history since people always look for a method to relieve pain and suffering and change a bad status to the good one. The present study aimed to identify factors affecting happiness and determine the effect of Fordyce happiness training in hemodialysis patients.

The results of the present study indicated that happiness training was effective in reducing depression and anxiety and improving quality

of life among patients with chronic kidney failure compared to the control group. This demonstrated that there was a significant difference between these two groups. The results of data analysis showed that there was a significant difference between the mean depression scores of hemodialysis patients placed in the experimental and control groups in the pretest and posttest ( $p<0.015$ ,  $F=-6.745$ ). Accordingly, it can be stated that happiness training reduced hemodialysis patients' depression and the first hypothesis claiming that Fordyce happiness training is effective in reducing hemodialysis patients' depression, was confirmed. This finding is in line with the results of Farzadfar, Molavi, and Atashpour [21] who revealed the effect of Fordyce happiness training in reducing depression among unaccompanied women in Isfahan [21]. Moreover, this result is consistent with the results of a study conducted by Yousefi Loie, Salehi, Nafisi, and Raeesi [22] to examine the effect of Fordyce happiness training, which indicated that Fordyce happiness training could affect general health and emotional intelligence among university students [22] and is in line with the results of a study carried out by Pahlavan Sadegh and Nasrabadi [23] to evaluate the effect of Fordyce happiness training in increasing happiness among martyrs' families [23].

The second hypothesis related to the effect of Fordyce happiness training using cognitive-behavioral method in hemodialysis patients' anxiety was examined. The obtained results indicated that there was a significant difference between the mean anxiety score of hemodialysis patients in the pretest and posttest ( $p<0.000$ ,  $F=36.373$ ). In other words,

this finding demonstrated that happiness training reduced anxiety of patients in the intervention group. Hence, the second hypothesis claiming that Fordyce happiness training is effective in reducing hemodialysis patients' anxiety was confirmed. This finding is consistent with the results of Ahmadvand, Saeed, Sepehrmanesh, and Ghanbari [15] demonstrating that Fordyce happiness training was effective in reducing anxiety in hemodialysis patients in Kashan [15], and is in line with the results of Masoudi Olovi, Sharifi, and Aliakbarzadeh [13] indicating the effect of Fordyce happiness training in patients undergoing renal replacement therapy in Kashan [13].

The obtained results demonstrated that the difference between the experimental and control groups was statistically significant ( $p < 0.000$ ,  $F = 74.930$ ). This indicates the effect of happiness training in improving quality of life of hemodialysis patients and hence, the third hypothesis, claiming that Fordyce happiness training is effective in improving quality of life of hemodialysis patients, was confirmed. This finding is in line with the results of Narmashiri, Raghibi, and Mazaheri [9] who examined the effect of Fordyce happiness training in decreasing emotion regulation difficulties and irrational beliefs and enhancing quality of life [9].

Considering the statistical population, in the current study, there were various limitations in holding training sessions. In addition to psychological problems with which hemodialysis patients are faced, other limitations including the location of holding training sessions, time of holding the training sessions, the physical conditions of the sample group, the financial status and ability of subjects to participate in the training sessions, the level of education, culture, and the time spent on dialysis sessions can be mentioned. Therefore, to conduct similar studies, the mentioned limitations should be considered. This study examined a small number of hemodialysis patients; hence, when generalizing these results to other groups of patients, great caution should be taken.

Given the applicability of Fordyce happiness

training by counselors and therapists, using this training program is highly recommended. Applying this program aids patients to take advantage of the environment and tools which help them to express their thoughts and feelings without any concerns. Therefore, considering the results of the current study, it is recommended to propel happiness training programs into two dimensions of increasing patients' skills and changing their attitudes. This means that if a training program is designed and implemented by applying systematic and scientific evaluations through examining patients' needs and problems and using a scientific model by professionals, it will be very effective.

The main objective of treating and taking care of patients with chronic diseases, including chronic kidney failure, is improving their level of health and quality of life. However, studies showed that the level of health, performance, and quality of life of patients treated with dialysis was lower than expectations. Hereupon, attempting to apply effective training methods that can reduce patients' psychological problems and improve their quality of life is essential.

Physical and psychological problems related to kidney failure can lead to lower social functioning, feel guilty, fatigue, lack of hope in life, and feel embarrassed. Based on previously conducted studies, depression is more prevalent among hemodialysis patients resulting in a poor quality of life. Psychological problems (depression and anxiety) in these patients may even lead to the withdrawal of dialysis which has consequences including increased mortality rate [24]. In the current study, unwillingness was considered as an important factor and the need for psychological interventions was emphasized. Therefore, after holding each session and teaching fourteen components of Fordyce happiness training and proposing the main objectives of this training, participants gained the ability to discuss and explain their own and their family members' problems. They were more willing to survive and indicated

some improvements such as increasing social activity, participating in art classes, declaring feeling of joy, controlling sadness and anxiety, transferring their happiness to others, being hopeful about future, understanding the need for training and transferring the trained items to friends, acquaintances, and family members.

### Conclusion

With regard to the obtained results and what was observed in subjects during 8 training sessions, it can be concluded that Fordyce happiness training was effective in reducing depression and anxiety and improving quality of life of hemodialysis patients. It can be stated that this method by providing training in the cognitive fields is effective in enhancing the level of happiness using personal factors and increasing self-control skills, and as a net result, increasing happiness among hemodialysis patients.

### Acknowledgments

At the end, all professors and those who have been helpful in conducting the current study, especially dialysis patients are greatly appreciated.

### Contribution

Study Design: MR, MFT

Data Collection and Analysis: MFT

Manuscript Preparation: MFT

### Conflict of Interest

"The authors declare that they have no competing interests."

### Funding

The author (s) received financial support for the research from the research deputy of Tarbiat Modares University.

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