Original Article

The effects of resilience training on self-efficacy, empowerment, and social adjustment of renal transplant patients

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Abstract

Context: Chronic kidney disease refers to one of the chronic diseases highly affecting the quality of life (QoL) of patients.

Aim: The present study investigated the effectiveness of resilience training on self-efficacy, empowerment, and social adjustment of renal transplant patients.

Setting and Design: This study was a quasi-experimental interventional pre-test-post-test research with control group conducted at Shahid Modarres Hospital in 2020.

Materials and Methods: From all kidney transplant patients admitted to Shahid Modarres Hospital and Shohada Tajrish Hospital who underwent kidney transplant surgery in 1398, 30 people were selected and randomly divided into two experimental groups (15 kidney transplant patients in Shahid Modarres Hospital in Tehran) and Witnesses (15 kidney transplant patients were admitted to Shohada Tajrish Hospital in Tehran). The experimental group participated in 12 sessions of 45 minutes in the resilience training program. Both groups completed the Scherer and Maddox (1982) self-efficacy questionnaires, the Spritzer (1995) psychological empowerment questionnaire, and the Wissman and Pickel (1974) social adjustment questionnaires before and after the intervention.

Statistical Analysis Used: Data were analyzed using Kolmogorov–Smirnov test, t-test, and paired t-test using SPSS software version 18.

Results: Resilience training was effective on self-efficacy, social adjustment, as well as the empowerment of renal transplant patients.

Conclusion: The findings showed that resilience training in renal transplant patients enhances self-efficacy, empowerment, and social adjustment, thus promoting their physical, general, and psychological health. Also, it seems that the designing andresilience training can facilitate the process of empowerment, accompanied by increasing self-efficacy and social adjustment of patients.

Keywords: Empowerment, Renal transplant, Resilience training, Self-efficacy, Social adjustment

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INTRODUCTION

The increasing spread of chronic diseases as well as their increasing burden are among the health systems' biggest challenges all over the world in the 21st century.[1] Chronic kidney disease refers to one of the chronic diseases highly affecting the quality of life (QoL) of patients.[2] The disease is greatly spread all over the world, affecting 11%–13% of people.[3] The overall chronic kidney disease prevalence in Iran is reported 15.14%, which is 1.7 times higher in female patients than in male patients (18.80% vs. 10.83%).[4] Renal transplant is regarded to be an alternative therapy for patients with end-stage renal disease and the most effective treatment strategy for enhancing patient's survival in end-stage renal failure in many cases.[5] The best advantage of renal transplant is the release of the patient from continuous dialysis as well as the possibility of freely living.[6] Although renal transplant provides complete physical rehabilitation, patients need frequent visits to the clinic for monitoring their health because of various side effects after renal transplant and they may constantly need care and medical attention given the consequences of immunosuppressive drugs, affecting their psychological, economic, social situation, general abilities, and physical health.[7]

Self-efficacy is one of the psychological dimensions playing role in the long-term treatment process in renal transplant patients.[8] According to Bandura, self-efficacy is people's belief in their ability for successfully performing a specific task.[9] Self-efficacy is positively associated with physical role limitations as well as mental health in these patients, so that enhanced self-efficacy declines the psychological symptoms of these patients such as somatization, obsessive–compulsive disorder, depression, phobia, interpersonal sensitivity, hostility, anxiety, paranoid fantasy, besides psychosis, and aphasia.[8] Based on studies, self-efficacy in renal transplant patients is correlated with social support and medical knowledge.[10]

In addition, emotional self-efficacy (ability to manage negative emotions) promotes these patients' QoL.[11] Hence, self-efficacy stands for one of the variables needed to be regarded in these patients. According to Bandura, self-efficacy and capability can be enhanced through creating an appropriate field for acquiring the needed skills and knowledge and succeeding in such skills. Based on Bandura's theory, the individual's perception of his/her own ability results in the use of self-care behaviors to obtain the results he desires.[12] Self-efficacy is defined by terms like empowerment index, predisposing factor, and necessary skills obtained for the empowerment process.[13] Empowerment refers to the process of empowering oneself to strengthen self-confidence and overcome the feelings of helplessness, leading to the mobilization of inner motivations.[14] Empowerment requires recognition, promotion, as well as increase in patients' abilities to face their needs, so that they feel they can control their lives and care.[15] Empowerment allows the individual to obtain the required resources for realizing their needs as well as improving their health with authority, confidence, hope, besides a sense of self-worth.[16,17] Chen used the concept of empowerment in treating hemodialysis patients. His objective results indicated the improvement in the knowledge and ability of self-care, reduced stress, happier morale, higher self-confidence, organization of new life, improved own health responsibility, better cooperation with the medical team, in addition to better compliance with hemodialysis and increased motivation to face society.[18] Hence, it seems necessary to study and promote this variable due to the importance of chronic patients' empowerment.

Social adjustment is another variable affecting chronic patients, i.e. adapting to the demands, limitations, and customs of society, the ability to live and work with others in harmony, as well experience difficulties in many aspects of life such as social relationships, and loss of the contact, and support from their family and social networks.[19] Disease may isolate people, affect their social adjustment, and limit their social activities. Some patients even avoid speaking with others about their disease and concerns.[20] Social isolation and loneliness decline even medication adherence in chronic patients.[21] Hence, since in chronic patients, social interaction is related to health-oriented behaviors and important in interventions for chronic diseases,[22] the promotion of social adjustment may affect these patients' health. Besides, resilience is one of the components related to the field of positive psychology and increasingly used to prevent and cure mental health problems. In addition, resilience is described as a dynamic and complex structure, the adaptation process in the face of adversity, trauma, traumatic event, and threat sources.[23] Resilience refers to coping strategies with conditions, particularly stressful ones, and it occurs when a person overcomes a highly negative and traumatic event positively.[24] Moreover, resilience shows the ability to maintain a stable path to mental health and physical function over time.[25] There is a negative significant relationship between resilience and psychological problems. This structure may be employed as a mediator between mental health and many other variables and enhanced an individual's resistance to the factors causing many psychological problems.[26] The resilience rate in people with chronic diseases is less than that in healthy

people; thus, it seems necessary to improve resilience in these patients.[27]

Based on previous studies, resilience can significantly forecast psychological health[34-36] and is associated with lower psychological distress in renal transplant patients. Furthermore, psychological distress may be overcome by resilience-focused interventions.[23] Among people with chronic kidney disease, those with more resilience show more health-promoting behaviors.[37] Resilience in hemodialysis patients may decrease the effects of severe depressive symptoms[38] besides increasing the likelihood of following a treatment regimen.[39] Moreover, the patients with higher resilience at the end-stage renal disease are less depressed, having higher life satisfaction.[40] Resilient people have more effective coping strategies for stress, higher self-esteem, and higher physical, mental, as well as general health.[41] More resilient people exhibit lower levels of psychopathological symptoms[42] and have higher happiness besides lower aggression.[43] Given the abovementioned evidence, it may be claimed that resilient people have higher capabilities. On the other hand, self-efficacy and empowerment are closely associated with each other, i.e. empowerment is the consequence of obtaining self-efficacy, and based on the evidence, empowerment and self-efficacy are both introduced as prerequisites for intervention programs effective in diabetes;[44] thus, the effect of resilience on self-efficacy is considered as an effect on empowerment.[45,48]

Moreover, the studies on the resilience training effectiveness indicate that resilience skills training programs improve the self-efficacy of patients with type 2 diabetes[49] and the psychological well-being of these patients.[50] Furthermore, resilience training has been concluded to decline anxiety in patients with burn deformity[51] and enhance the QoL of patients with MS[52] and patients with thalassemia major;[53] however, the resilience training effectiveness on the renal transplant patient group's psychological components is highly limited, both in external studies as well as internal interventions. Hence, the present study aimed at experimentally investigating the resilience training effectiveness on self-efficacy, empowerment, as well as social adjustment as important components affecting the psychological health of kidney receivers.

MATERIALS AND METHODS

This study was an applied study in terms of objective and a quasi-experimental study with the control group with pretest and posttest in terms of data collection. Independent variables included resilience training, and dependent variables were self-efficacy, empowerment, and social adjustment.

Participation

Statistical population

The statistical population included all renal transplant patients hospitalized in Shahid Modarres and Shohadaye Tajrish Hospitals in Tehran undergoing renal transplant surgery in 2019.

Research sample

A number of 30 subjects from the statistical population (15 subjects in the experimental group hospitalized in Shahid Modarres Hospital and 15 subjects in the control group hospitalized in Shohadaye Tajrish Hospital) were voluntarily and randomly selected and then randomly assigned to two experimental and control groups.

Research tools

General self-efficacy scale

This scale was developed by Sherer *et al.* in 1982. It has 23 items, 17 of which are related to general self-efficacy and the others are related to self-efficacy experiences in social situations. The answers are scored on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). High overall score in the questionnaire indicates the high general self-efficacy. Sherer *et al.* obtained Cronbach's alpha of this scale equal to 0.86.[54] In a study by Barati Bakhtiari, the test's reliability was 0.76 and its validity of structure was reported 0.61 through correlation with the self-esteem scale.[55] In a study by Nikougftar and Mirzaei, Cronbach's alpha was 0.92 and a study by Riahi *et al.*, the internal consistency of the materials was equal to 0.74 using Cronbach's alpha.[56,57] In the present study, the scale's reliability was 0.86 using Cronbach's alpha.

Psychological empowerment questionnaire

This questionnaire was developed by Spreitzer in 1995, with four subscales including meaning, competence, autonomy, and effectiveness. The questionnaire has 12 items and three materials are considered for each subscale. Each item is scored on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). High score means the high psychological empowerment. The reliability of the questionnaire was obtained 0.92 by Spreitzer by Cronbach's alpha method and retest method.[58] Dousti *et al.* reported the reliability coefficient of 0.84 using Cronbach's alpha.[59] In the present study, the reliability was calculated 0.81 through Cronbach's alpha, indicating the high internal consistency of the items in this questionnaire for measuring the empowerment index.

Social adjustment scale

Social adjustment scale was developed by Weissman and Paykel in 1974. This scale evaluates interpersonal

relationships in a variety of roles, including emotions, satisfaction, differences, and performance. The test structure shows two separate dimensions including six role domains (occupational, family, etc.) and five adaptation dimensions selected for each domain (appropriate to the role). The scale includes 52 questions. The scale in the Likert scale is scored from 1 to 5 with a high score in each subscale, indicating low social adjustment in that area. Moreover, a high overall score indicates the unfavorable Social adjustment scale. Reliability was calculated by Weissman and Paykel and the mean correlation of all questions was 0.83, indicating the acceptable reliability of scoring.[60] In a study by Zemestani *et al.*, the reliability of the social adjustment scale was calculated by Cronbach's alpha and bisection methods which were 0.81 and 0.79, respectively.[61] In the current study, the reliability of the scale was 0.71 using Cronbach's alpha, indicating the high internal consistency of the items in this scale for measuring social adjustment.

Resilience training package

Resilience training was performed by a clinical master for twelve 45-min sessions in the experimental group [Table 1].

Research methods

After obtaining permission from Shahid Modarres and Shohadaye Tajrish Hospitals in Tehran, the objectives of this study were explained to the authorities. Subsequently, a number of thirty patients from renal transplant patients in these hospitals were randomly selected and assigned to experimental and control groups. After explaining the research objectives, self-efficacy, empowerment, and social adjustment scales were completed by both the groups. Then, the resilience training program was performed on the experimental group in Shahid Modarres Hospital. After completing the training sessions, posttest (recompletion of self-efficacy, empowerment, and social adjustment scales) was performed by both the experimental and control groups.

Data analysis method

Data were analyzed in two descriptive and inferential parts. The normality of data distribution was assessed using Kolmogorov–Smirnov test. The difference between the scores of the experimental and control groups in pretest and posttest was specified by multivariate ANOVA, and Levin test was used to assess the homogeneity of variance. Statistical calculations were conducted in SPSS 24 software (IBM Crop, Released 2016. IBM SPSS Statistics for windows, Version 24. Armonk, NY: IBM Crop.) at a significance level of $P \leq 0.05$.

Ethical consideration

After obtaining permission from Payame Noor University Ethics Committee (Approval No. IR.PNU.REC.1398.108), the purpose of this study was explained to the kidney transplant patients of Shahid Modarres Hospital and they were told that they could be excluded whenever they wanted. All participants were assured that the information obtained would remain confidential, and the oral and written informed consent was obtained from them.

RESULTS

The mean age of participants was 37.80, with a standard deviation of 18.67. The mean age of the experimental group was equal to 34.80 and that of the control group was 40.80. In addition, 46.7% of the study sample included women while 53.3% included men, of whom 46.7% were single, 46.7% were married, and 6.7% were in the other group. The educational level of 26.7% of the sample was under diploma, 33.3% was diploma, and 40% above diploma. Further, 80% had their first renal transplant and 20% had their second renal transplant. Moreover, 40% had a history of another disease.

Given that the value of Kolmogorov–Smirnov test was between +1.96 and −1.96 with 95% confidence in the scores of empowerment, self-efficacy, and social adjustment, the normality distribution of the statistical population can be accepted. According to the *F*-value

Table 1: Resilience training package

Session	Subject
First session	Communicating with the audience and getting them familiar with resilience and the rules of participating in the group
Second session	Awareness of one's abilities
Third session	Strengthening self-esteem
Fourth session	Promoting people's communication ability
Fifth session	Establishing social relationships and making friends
Sixth session	Determination of goals and how to achieve them
Seventh session	Decision-making
Eighth session	Problem-solving
Ninth session	Responsibility
Tenth session	Management of anger, anxiety, and stress
Eleventh session	Growing a sense of spirituality and faith
Twelfth session	Concluding sessions

obtained from Levin test, no significant difference was observed at the level of 0.05 among the variance of resilience training on self-efficacy, empowerment, and social adjustment; thus, the null hypothesis is accepted, i.e. the hypothesis of homogeneity of variances.

The results of Table 2 indicate that the mean scores of empowerment and social adjustment are almost the same and the experimental group declines in the posttest in the two control and experimental groups in the pretest. It is worth noting that the low score of empowerment scale indicates desirable empowerment and the low score of the social adjustment scale shows a high social adjustment. Although the mean score of self-efficacy is almost the same in both experimental and group, it has been enhanced in the posttest of the experimental groups. Ultimately, the mean score of self-efficacy is almost the same and the experimental group enhanced in the posttest in the control and experimental groups in the pretest.

Based on the results of Table 3, the hypothesis of homogeneity of variances is accepted since the significance level is more than 0.05.

Table 2: Descriptive findings of empowerment, self-efficacy, and social adjustment scores in experimental and control groups in pretest and posttest

Variable	Group	Pretest		Posttest	
		Mean	SD	Mean	SD
Empowerment	Control	20.53	3.15	19.66	3.45
	Experimental	22.13	3.02	19.26	4.02
Self-efficacy	Control	24.80	3.83	21.66	4.99
	Experimental	26.13	4.01	33.53	5.65
Social adjustment	Control	93.60	25.37	89.73	23.33
	Experimental	91.06	20.78	79.73	18.47

SD: Standard deviation

Based on the *F*-value obtained in Table 4, there is a significant difference among the mean posttest scores of the empowerment, self-efficacy, and social adjustment scales between the experimental and control groups, indicating that the experimental group performs better than the control group.

DISCUSSION

This study aimed at assessing the effectiveness of resilience training on self-efficacy, empowerment, and social adjustment in renal transplant patients. The results revealed that the implementation of resilience training program significantly affects the increased self-efficacy of the experimental group compared to the control group, i.e. the promotion of resilience has a positive effect on increasing patients' self-efficacy. This finding is in line with the results of previous studies, indicating a positive correlation between self-efficacy and resilience as well as the effective role of resilience on self-efficacy.[29-33] Moreover, it is consistent with a study by Torabizadeh, indicating the effectiveness of resilience training on improving self-efficacy.[49] Confidence in abilities and capabilities to handle situations and apply control over life events and effectively face problems are among the characteristics of self-efficient people, and since they expect success in overcoming problems, they are in high endurance in tasks. They consider problems as challenges, instead of threats and fears of failure, and they have a high ability to solve problems and think analytically; hence, self-efficacy enhances when the resilience training program emphasizes the awareness of one's abilities, setting goal, and how to obtain it and solve the problem. Since the individual becomes aware that he has the capabilities and tools, he

Table 3: Summary of Levin test to examine the homogeneity of variances

Variable	F ratio	Degree of freedom 1	Degree of freedom 2	Significance level
Empowerment	3.62	1	28	0.06
Self-efficacy	2.04	1	28	0.16
Social adjustment	3.56	1	28	0.07

Table 4: Results of multivariate ANOVA scores of empowerment, self-efficacy, and social adjustment components

Change resource	Dependent variable	Sum of squares	Degree of freedom	Mean squares	*F*	Significance level	Eta square
Empowerment	Need for change	20.93	1	20.93	23.73	0.000	0.55
Self-efficacy	Motivating for new oneself	15.44	1	15.44	24.51	0.000	0.48
Social adjustment	Independency and activity	78.41	1	78.41	16.29	0.000	0.39
Empowerment	Self-control	17.71	1	17.71	33.08	0.000	0.57
Self-efficacy	Concerns and interests	165.83	1	165.83	22.33	0.000	0.47
Social adjustment	Occupational area	24.82	1	24.2	15.19	0.001	0.36
	Social activities of leisure time	32.77	1	32.77	13.16	0.001	0.32
	Wider communications with family	10.93	1	10.93	12.33	0.002	0.40
	Spouse role	15.21	1	15.21	18.42	0.001	0.55
	Parental roles	6.97	1	6.97	13.59	0.004	0.55
	United member in the family	3.03	1	3.03	6.43	0.032	0.41

can plan for the purpose and correctly deal with problems. Furthermore, resilience emphasizes adapting well to events and adopting effective coping strategies, an essential part of self-efficacy, since the individual believes in his ability to succeed in tasks. Hence, when proper adaptation enhances, the individual will have successful experiences reinforcing his belief in competence.

Another finding of the study revealed that resilience training significantly affects the increase of the experimental group's empowerment compared to the control group, i.e. improving resilience positively affects promoting empowerment. This finding is in line with the results of the studies reveling that resilience is significantly declined with less psychological distress, increased health-oriented behaviors, decreased depression, more life satisfaction, higher general physical, mental, health, less pathological psychological symptoms, higher happiness, more effective coping strategies with stress, higher self-esteem, and generally higher psychological health.[23,34-43] Furthermore, this finding is in line with the studies indicating the effectiveness of resilience training on improved psychological well-being, higher QoL, and reduced anxiety in patients with chronic diseases.[50-53] The concept of empowerment can be mentioned in explaining this finding. Empowerment stands for a concept including a set of different factors such as less stress, better adaptation to the situation, responsibility, self-care ability, high self-confidence, sense of self-control, and sense of self-worth. When the resilience education program emphasizes awareness about self-abilities, self-esteem, communication skills, decision-making, problem-solving, responsibility, anger and anxiety and stress management, and growing a sense of spirituality and faith, a set of skills are simultaneously provided, playing a role in empowerment. All of these skills will enable the person to manage his stress, find appropriate strategies to cope with problems, and use his abilities, so that he acts more empowered and has better mental health. In addition, training resilience skills will empower the person to overcome feelings of helplessness and find a sense of control over his life and self-care instead, empowering him to take action to improve his health.

The final finding of the study revealed that resilience training significantly affects the increased social adjustment of the experimental group compared to that in the control group. In other words, increasing resilience positively affects social adjustment. This result is in line with the results of previous studies on the existence of a significant association between resilience and social relationships, social networks, and social support.[31,45-48] In explaining this result, it can be again referred to the components related to resilience training. The promotion of people's ability to communicate and establish social relationships and friendships are among these components. Therefore, upgrading these components will increase social adjustment, since social adjustment consists of satisfactory interactions and relationships, coordination with society, as well as harmonious communication with others. Accepting help from others and using social support are among the characteristics of resilient people. Thus, the patient will be more involved in social interactions and have this significant source of support with increasing resilience.

In general, the results of the present study revealed that increased resilience affects empowerment, self-efficacy, and social adjustment of individuals and may be employed as an effective intervention by health professionals and policymakers to improve patients' physical and psychological health. The lack of follow-up test to assess the duration of the effect of treatment program and the use of self-report questionnaires was one of the restrictions of the present study. It is recommended to use it in future research to assess the duration of the effect of follow-up treatment plan. Future research could focus on increasing the capabilities and improving the mental and social health dimensions of these patients. In addition, emphasis on resilience training to increase self-efficacy and empowerment of renal patients is suggested.

CONCLUSION

The results showed that resilience training has empowered and increased self-efficacy and social adjustment of kidney transplant patients.

Conflicts of interest

There are no conflicts of interest.

Authors' contribution

In this article, the first and second authors were responsible for data collection, contributing to the writing of the article, supervision of the research process, and analyzing the data and editing the article, respectively.

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