

Effect of stress inoculation program on self-esteem of Iranshahr hemodialysis patients

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Abstract

Introduction and Objective: Hemodialysis is a stressful process that negatively affect patient's health and reduces their self-esteem; therefore, the use of preventive and efficient stress management approaches is essential. The aim of this study was to determine the effect of stress inoculation program on self-esteem of Iranshahr hemodialysis patients.

Methods: This randomized clinical trial was carried out on 60 hemodialysis patients in Iranshahr Khatamolania hospital who were selected using purpose-based sampling method. Data Collection tools were demographic characteristic questionnaire, and Eysenck's standard self-esteem questionnaire that were completed in two stages, before and one month after the intervention. Intervention included stress inoculation program, consisting of a 2-day 8-hour workshop (including stress conceptualization, acquisition and skills practice stages) that was administered for the intervention group with one week interval.

Results: Results showed that average of self-esteem score in stress inoculation group significantly increased from 8.92 ± 49.2 score at the stage before intervention to 14.13 ± 56.1 score in the stage one month after the intervention ($p < 0.005$). In the control group, self-esteem score in the stages before and one month after the intervention was not significantly different ($p > 0.005$).

Conclusion: The findings of this study showed that stress inoculation program is a functional, safe and affordable method to improve self-esteem in hemodialysis patients.

Keywords: stress inoculation, self-esteem, Hemodialysis

INTRODUCTION

Chronic renal failure is a life-threatening disease in which a person needs a long-term treatment such as hemodialysis kidney replacement to save his life (1). Although hemodialysis can increase a patient's life, it cannot alter natural course of the underlying disease and is not considered as a complete replacement for kidney function (2); hence, problems in patients with kidney failure have not been resolved and the patient is exposed to numerous complications and problems and has to make changes in diet, food and medicinal supplements, restrictions on fluid

intake and frequent hemodialysis sessions. These patients not only confront various physiological changes, but they face with numerous psychological stresses that each of which can in turn impair their mental and personality, such that most of them do not become compatible with difficulties and tensions and experience numerous behavioral changes such as isolation, anxiety, depression, disease denial and lack of self-esteem (3, 4 and 5). One factor that plays an important role in individuals' mental health is the benefit from self-esteem (6 and 7) that undergoes change in hemodialysis patients under the influence of multiple stressors. Self-esteem implies acceptance and worthiness that a person feels about himself. A person who has a high self-esteem, evaluates himself positively and has an appropriate behavior towards himself and others. In fact, self-esteem is the value that an individual gives himself (7 and 8). The results of various studies show that a damaged self-esteem makes it impossible to tolerate difficult situations that people, whether or not, encounter in their everyday life and brings a lot of mental and physical

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www.ijss-sn.com

Month of Submission : 06-2017
Month of Peer Review : 06-2017
Month of Acceptance : 07-2017
Month of Publishing : 07-2017

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consequences for them (6 and 7 and 8). Self-esteem is the fourth level of Maslow's needs and this need gives people confidence and independence (9).

Since stress and the rate of coping with this disease can affect self-esteem of patients undergoing hemodialysis, stress management programs can probably be used to improve patients' self-esteem and consequently be helpful to enhance their mental health. One of the methods that is very important in reducing stress and anxiety caused by the disease and its treatment is immunization stress which was innovated by Meichenbaum et al (1986) (10 and 11). Stress inoculation training is predicated to therapeutic model composed of semi-structured and clinically sensitive training program. This training was designed to develop coping skills and includes three stages: conceptualization, acquisition and training of skills (12). In the first phase, the main focus is on the establishment of a collaboration-based communication with people and helping them for a better understanding of the nature of stress and its effects on excitement and performance (12 and 13). In the second phase, individual's coping skills are strengthened and new skills are taught to him. The training has a wide range which includes relaxation training, cognitive exercises, problem solving, behavioral exercises and cognitive-behavioral techniques (11, 12, and 13). In the third phase, individual applies his skills to increase his ability to cope with any stress as well as more strong ones (12,13, and 14). The results of Shihi and Horan (2004) showed that inoculation improves stress, anxiety and irrational beliefs in law freshmen (15) So far, many studies have shown the effectiveness of this method in reducing pain, anxiety and depression and improving professional performance (16 and 17); It was also reported that stress inoculation methods such as cognitive behavioral therapy and support group are more effective in controlling the stress (18).

But given the extensive search that was done, no study was found which could measure the impact of inoculation on self-esteem in hemodialysis patients. Researchers plan to study whether stress inoculation program in hemodialysis patients is effective on self-esteem or not?

MATERIALS AND METHODS

This was a clinical trial study carried out in 1394 on hemodialysis patients in Iranshahr Khatamalanbi hospital. Inclusion criteria for this study were willingness to participate in research, being under hemodialysis for at least 6 months ago, lack of consuming drugs affecting the psyche, and its exclusion criteria were: unwillingness to continuation of presence at this study, absence of more than 10% of the time in the workshop, participating in

other stress management workshops, patient death and exposure to major stress (death of someone close, divorce, etc.) when running the study. The sample size of this study, with confidence coefficient of 95%, accuracy of 50% and test power of 80%, was obtained 30 patients in each group (60 patients in total) selected randomly and using objective-based sampling. They divided into two groups namely control (n = 30) and experiment (n = 30) based on the registration number. The instrument used in this study included demographic characteristic form and the 30-item Eysenck self-esteem questionnaire. Demographic characteristics questionnaire contained 12 questions about demographic characteristics and disease which had been prepared according to research objectives and study of the latest related articles and resources.

Self-esteem questionnaire contains 30 phrases and scoring of each phrase is by the phrases No (1), I do not know (2), and Yes (3). In this Self-Esteem questionnaire, minimum score is 30 and the maximum is 90; in this questionnaire, phrases of the numbers 28,27,26,25,24,21,20,19,18,17,15,14,13,12,8,7, 6,4,3 are scored reversely. The higher the score obtained from the questionnaire indicates the better self-esteem situation.

The validity of the questionnaire was approved by 10 professors of the Medical University of Zahedan in Sistan and Baluchestan University. Hormozinejad (1380) used construct validity method to determine validity of the test. He has reported calculated validity equal to 0.74 and 0.79 for female and male students respectively. The reliability coefficient of the test has been reported equal to 0.88 and 0.87 using Cronbach's alpha and split-half methods respectively (19).

Data collection was performed simultaneously for both groups in two stages: before intervention and one month after intervention. After approval of Research Council of University and approved by the ethics committee, intervention was conducted according to stress inoculation process during two sessions (each session lasting 4 hours) with one week of interval from each other, by a researcher and in collaboration with a clinical psychologist using lecture, question and answer, group discussion and mental imagery methods for the intervention group and two months after the end of the study for control group in order for moral considerations. The first session included an explanation regarding the nature and consequences of stress, identifying participants' common coping skills and relaxation training. At the end of the first session, participants were given practical assignments to do during the week. Participants were asked to say the difference between stress and anxiety. They were also asked to find the best image which represents stress and record stressful factors that

they encounter during the week, and practice relaxation technique daily. In the second session, participants were taught cognitive restructuring and relaxation techniques. Then, using mental imagery, participants were confronted with a stressor; at this stage, subjects were asked to imagine that they are in dialysis ward and feel fatigue. Then, they were asked to use their best coping skill in the face of this situation. Subjects were followed up for a period of one month after the intervention. During this period, researcher also telephoned the participants in the intervention group by every two weeks and did the necessary following-up and boost regarding following training program.

For data analysis, SPSS software version 14 was used. The means and standard deviations were calculated for quantitative variables. Pre- and post- comparison of control group in terms of self-esteem (intragroup comparison) was done using paired t-test. The independent t-test was used in order to compare the self-esteem between the two groups. In carried out tests, the confidence degree of 95% and significance level of $\alpha = 0.05$ was considered.

RESULTS

50% of subjects in both groups were male and 50% were female with a mean age of 3.35 years of old. In terms of education, 50% of subjects were in the intervention group and 56.7 of them were in the control group with an academic degree. The mean of hemodialysis history in the intervention and control group was 7.9 and 6.5 years respectively. There was no significant difference between the two groups in terms of all underlying variables (Table 1).

Table 2 shows intergroup comparison of self-esteem mean score in two group. The average of self-esteem in intervention group was changed from 8.92 ± 49.2 score at the stage before intervention to 14.3 ± 56.1 score at the stage after intervention that these changes were significant

($p = 0.000$). Based on paired t-test results, the hemodialysis patients' self-esteem score average in stress inoculation program group at the stage after intervention increased significantly compared to the stage before intervention and this increase continued until one month after the intervention.

In the control group, the average of self-esteem score changed from 5.08 ± 47.2 score at the stage before intervention to 8.73 ± 0.47 score after the intervention that this was not significant ($p < 0.05$). Table 3 shows inter-group comparison of the average of self-esteem score in two groups. Independent t-test results showed that the average of self-esteem score before the intervention in control and experimental groups had no significant difference ($p = 0.290$); while, the difference was significant after the intervention ($p < 0.05$). According to results of the test, the average of self-esteem score in hemodialysis patients in the stress inoculation program groups significantly increased after the intervention compared to control group.

Two-way ANOVA test results showed that the rate of change in self-esteem score in pre-test and post-test in two groups has no significant difference in terms of underlying variables under study.

DISCUSSION

According to the study, the average self-esteem score in group of stress inoculation program was significantly increased at the later stage. This reflects the impact of stress inoculation program on hemodialysis patients' self-esteem. This intervention will not only lead to individual's beneficial confrontation with problems and stress, but also they will have a more positive cognitive assessment of themselves for successful behavior in dealing with these factors and consequently they will experience more positive emotions and their self-esteem and self-confidence will increase (10 and 18).

Table 1: Compare the background variables in the intervention and control groups

Background variable	Groups n (%)		Test result (P)
	Intervention	Control	
Gender			
male	15 (50)	15 (50)	063.0
female	15 (50)	15 (50)	
Age (Mean±SD)	65.8±5.38	45.7±4.34	687.0
marital status			
single	12 (0.40)	11 (7.36)	000.1
married	18 (0.60)	19 (3.63)	
Hemodialysis history (Mean±SD)	18.6±9.7	27.5±5.6	885.0

Table 2: Within group comparison of the mean score of self-esteem in the intervention and control groups at the stages pre-intervention and post-intervention

	variable groups stage (n=30)		Depended t test result
	(Mean±SD)		
	Post-intervention	Pre-intervention	
Self-esteem			
Intervention	3.14±1.56	92.8±2.49	$P=0.879$ $t=0.154, df=29$
Control	73.8±0.47	08.5±2.47	$P=0.008$ $t=2.859, df=29$

Table 3 : Comparison between groups the mean score of self-esteem in the intervention and control groups, at the stages pre-intervention and post-intervention

Stage	Groups						Independent t test
	Control		Intervention		Total		
	n	(Mean±SD)	n	(Mean±SD)	n	(Mean±SD)	
Pre-intervention	60	3.7±2.48	30	92.8±2.49	30	08.5±2.47	t=1.068- df=58 P=0.290 F=2.870
Post-intervention	60	6.12±5.51	30	3.14±1.56	30	73.8±0.47	t=2.932 df=58 P=0.005 F=3.236

The results of studies carried out by Darban et al showed that stress inoculation program improves the quality of life and public health of nurses working in the mental ward (12 and 20). Since anxiety and stress negatively affect a person's quality of life and general health over time and leads to mental and emotional problems, stress inoculation program leads to decrease of these problems, and consequently, by increasing satisfaction and worthiness, it rehabilitates and improves patients' self-esteem (11 and 13). The stress inoculation program, by strengthening coping skills, causes an individual to be aware of cognitive, emotional elements as well as his capabilities in relation to others, and by having mental balance, can overcome daily stress more than ever and consequently individuals' self-esteem increases (11 and 14). Given the above, it can be concluded that the more patients control over their stress management skill, the better their self-esteem will be; because, the stress control skill is a skill that a person applies considering location as well as serious and detailed assessment of his feelings (15).

Lazar & Folkman believe that people who believe that they have subsidiary resources in coping with stress, they will be less vulnerable to stress (21) and stress inoculation program strengthens this belief in the individual. In the follow-up period that patients had the opportunity to apply the skills learned in their real-life environment and to stabilize this program in their daily performance with the follow-up and continuous training, their self-esteem increased meaningfully. The study findings of Folkman & Bend (2010), Kawaharada, et al (2009), Rahgoy, et al (2006), Shihi & Hooran (2004), Darban, et al (2016) also show that stress inoculation program causes public health improvement, commitment and receptivity increases, performance improvement, improvement of faulty attitude, increasing mental flexibility, and improvement of their problem-solving skills (22, 23, 24, 15, 13). The stress inoculation program subjects a person to movements that have enough power to motivate but the movements are

not powerful enough to defeat them (25). In this way, the person can make a sense of competence learned through successful experiences in coping with his manageable stress-levels and can take prospective defense mechanisms including positive skills and expectations in effective and useful coping with stressful situations (26) and eventually, it causes improvement in sense of self-efficacy and increases self-esteem in individual.

O'Donnell, et al in their study found that the higher self-esteem, has a relationship with the lower levels of stress (27). The study findings of Pruessner also showed that people who have higher self-esteem and source of internal control, the secretion of Cortisol is significantly lower in stressful situations (28). The study findings of Campbell & Lavalee, Houston, Mantzicopoulos, and Johnson, et al showed positive correlation between the self-esteem and ability to cope with stressful situations that is consistent with our study (29, 30, 31, and 32). People who use active and effective problem solving and stress management skills, have higher self-esteem, while patients who use passive and avoidant emotion-focused coping methods, have lower self-esteem (30). Hall et al in a clinical trial found that improving ability of people to cope with stressors, boost patient's self-esteem and plays a significant role in protecting people against experiences gaining from anxiety and threats (33).

Limitations of this study include the following: 1. since all subjects were selected from one hospital and the sample size was small, the results of this study can be generalized only to this environment. 2. Patients' individual differences in perception of self-esteem and impressionability from the workshop that was attempted groups become equal partly in this term by random allocation of control and intervention groups. 3. Lack of full control over the exchange of information between intervention and control groups that experimental group was also asked to refrain disseminating information until end of the study to reduce dissemination of information and control group was assured for holding stress inoculation program workshop

after the intervention, and through which exchange of information was controlled as far as practicable.

CONCLUSION

According to the findings of this study, it can be concluded that implementation of stress inoculation program creates a significant difference in hemodialysis patients' self-esteem such that implementation of this program is accompanied with increased self-esteem in hemodialysis patients. Hence, it can be said that by implementing larger studies in other clinical environments and in hemodialysis patients, the application of stress inoculation program could have positive results on their clinical and psychological state.

ACKNOWLEDGMENT

Authors of this study appreciate cooperation of all patients who sincerely helped us and thank hemodialysis ward nurses working in Iranshahr Khatamalanbia (p) hospital.

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How to cite this article: Mehri K, Fatemeh D, Enayatollah S, Farhad K, Maryam G. Effect of stress inoculation program on self-esteem of Iranshahr hemodialysis patients. *Int J Sci Stud* 2017;5(4):6-10.

Source of Support: Nil, **Conflict of Interest:** None declared.