



The effectiveness of structured education based on prered on adherence of self-care behaviors in hemodialysis patients

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General Note

 Article is recommended to print as color digital version in recycled paper.

ABSTRACT

Background: Dialysis is enforcing physical and mental disorders to patients. The study aimed the investigation of the application of the educational intervention to the promotion of the self-Care behaviors. **Method:** In this study, 86 patients of two educational hospitals were allocated and studied. Data collected by a researcher-made questionnaire that consisted of demographic and specific

questions. The validity and reliability of the questionnaire by an expert panel and Cronbach's Alpha test were verified. At first, baseline data were attained and analyzed. The educational intervention was applied in the intervention group and two months later the data in both groups recollected and using descriptive Statistics and Statistical tests were surveyed. *Results:* In demographic variables between two groups no differences were seen ($P>0.05$). The mean ages of the intervention and control groups were 43.98 ± 12.47 and 45.52 ± 13.99 respectively. After the intervention, the mean scores of the PRECEDE in the intervention and control groups increased significantly ($P<0.05$). *Conclusion:* Theoretical intervention along social support increases the self-care behaviors among dialysis patient.

Keywords: precede, Dialysis, Self-Care, Intervention, Behavior

1. INTRODUCTION

Chronic renal failure disease affecting about 5 to 10 percent of the world's people, and it is estimated that about 50 million people worldwide suffer from them. Chronic renal failure disease affecting about 5 to 10 percent of the world's people, and it is estimated that about 50 million people worldwide suffer from them (D'Onofrio et al., 2016). Chronic renal failure (CRF) due to rising non-communicable diseases such as hypertensive nephropathy, glomerulonephritis, diabetic nephropathy, and malignancies is constantly increasing (Czyżewski et al., 2012; Aradhey et al. 2020). More than 593,000 people in the U.S require hemodialysis or peritoneal dialysis or kidney transplant. Today dialysis technique used only for carrying out the fluid and waste from the human body. Dialysis is severely ordered to patients that established with end-stage renal illness (Czyżewski et al., 2012; Horigan et al., 2013). Hemodialysis is the most common kind of dialysis. Both types of peritoneal dialysis and hemodialysis enforce a significant burden on both patients and their relations (Helou et al., 2016).

The HD patients are more affected by cardiovascular, endocrine, skeletal, inflammatory, neoplastic and psychological problems. Also, some important limitations impact their social status include significant limits in social and recreational activities, freedom, and capacities to work and travel. These limitations are associated with poorer general health status and survival (D'Onofrio et al., 2016; Eriksson et al., 2016). Depression, Sleep and mood disorders are common among these patients and meaningfully related to poorer survival and unfavorable health-related quality of life (Eriksson et al., 2016; Kaur et al., 2018; Sabetgadam et al., 2016). It is believed that non-adherence to drug treatments, nutrition, and physical activities are the main cause of the diseases and their complications (Clark et al., 2014; Ibrahim et al., 2015). Self-care behaviors are decisions or actions that individuals can take to remove health problems for improving his or her health. Reading books or pamphlets about a disease, joining a self-help group, seeing a physician on a steady basis, lifestyle changes, following of low fat and calorie diets, vital signs monitoring are some examples of self-care behaviors (Sabetgadam et al., 2016; Song et al., 2016; Shad et al. 2018).

In Iran as a traditional country, people closely adhere to the conventions and robust emotional relations between family members. In dangerous situations, such as the onset of a disease, family members are severely influenced by each other (Sajadi et al., 2016). Today, the influence of social relations on physical and mental health has approved. In Iran considering the regional conditions, cultural and social differences such as language, we created a structured educational intervention based on the constructs of precede model and family support process (Hansen et al., 2017).

2. MATERIAL AND METHOD

Study design and sampling method

This study was a semi-experimental study conducted in Zahedan, the capital of Sistan and Baluchistan province. The study was started in 2014 but designing the educational intervention, data collection, implementation of the intervention, data analyzing, and preparing the manuscript was extended to 2018. The sampling method was multistage sampling method. At first, among Zahedan University Hospitals two Ali-Ibn Abi Talib and Khatam-al-Anbia hospitals randomly were allocated to intervention and control groups. Then 90 dialysis patients considering inclusion criteria and simple sampling methods were included in the study. The approval for the study has been gained from the University of Zahedan Medical Sciences (Ethical number: IR.ZAUMS.REC.2014.1135). Zahedan is the biggest city in this province and has extensive border with Pakistan and Afghanistan.

Sampling

Selection Criteria: Voluntarily participation, treating with hemodialysis at least once a week, history of hemodialysis over 6 months, those had an appropriate physical condition like visual and hearing ability were inclusion criteria. Also, those who had the kidney

transplant operation or unwillingness to continuing participating in the study were excluded. We received the ethic committee approval and permission from the Zahedan University of Medical Sciences and two teaching hospitals that participated in the study.

Data collection tool

The data collecting tool was a researcher-made questionnaire contained demographic and specific questions. In socio- demographic questions age, education, sex, and employment of participants were surveyed. Specific items were designed based on the PRECEDE model, included predisposing factors [knowledge (11items) and attitude (6 items)], behavior (13 items), enabling factor (5 items), and reinforcing factors (11 items).

The content validity and reliability of the questionnaire were approved by the viewpoint of a ten expert panel and Cranach's alpha coefficient test, respectively. All questions validity and reliability were higher than 80% and 70% respectively. For measuring the responses of the knowledge questions, for correct incorrect and I don't know answers, 2, 0, 1 scored, respectively. The attitude questions were designed based on the three levels Likert scales including "agreeing", "I haven't an idea" (Neutral) and "disagree" that were scored in 3, 2 and 1 scores respectively.

The responses of enabling factors questions were designed in three types answers with 2, 1 and 0 points for yes, somewhat and no answers. The questions of reinforcing factors and behaviors were responded on three-level answers. They were scored, 2, 1 and 0 points to Always, sometimes, and never answers, respectively.

Framework

This study aimed to investigate predictive factors of adherence of self-care behaviors in hemodialysis patient based on PRECEDE model as a theoretical framework (Wang et al., 2017; Emdadi et al., 2015; Sharifirad et al., 2011).

Predisposing

They are associated with knowledge, attitudes, existing skills, and opinions toward a behavior (Emdadi et al., 2015). Individuals with Lower knowledge and education or undesirable attitude are less likely to engage in health behavior change (Mazloomymahmoodabad et al., 2014; Dizaji et al., 2014).

Reinforcing factor

Considering to the educational framework, a family member (Reinforcing factor) of every participant for cooperating in the study was selected. Then educational goals and family responsible regarding the support of patients in household cares physical activity, social support, urine output, and weight measurement, medication adherence, fluid intake, blood pressure measuring, were explained to them (Sharifirad et al., 2011; Dizaji et al., 2014).

Enabling factors

Resources, social supports, and skills like drugs providing, ability to sporting such as biking and walking, ability to determine and control 'dry weight that facilitates a behavior's occurrence are some of the most important enabling factors (Sharifirad et al., 2011; Dizaji et al., 2014).

Procedures

After achieving the approval by the Ethics Committee of Zahedan University of Medical Sciences, the agreement of the two educating hospitals was attained, and 84 patients, were recruited into the study. At first, the primary data of all participants through an established questionnaire were attained. In this stage considering illiteracy or low level of education of individuals, the questions were asked by the interviewer in a simple and clear process and their responses were entered into the study tools. After completing the questionnaires, the data were interned to SPSS 19 software and through descriptive statistics and Statistical tests were analyzed.

Educational intervention

After the need assessment, the educational program contains educational content, media, and method based on the constructs of the precede model were designed. Then the educational program for the interventional group was conducted. In this study, face to face approach was used. Training sessions were conducted simultaneously along with dialysis sessions. Two, 30 to 45-minute sessions were designed and accomplished. In the first session, the aim of the study was explained, and the importance of the self-care behaviors in dialysis patients, such as dietary fluid and drug regimen, concept and importance of dry weight, water and salt restriction, prevention of hypertension and cardiovascular disease, in a simple way was discussed with participants. Also, considering

the condition of Iran as a traditional country, for strengthening the reinforcing factors, a teachable family member for every patient who interested to cooperate in the study as a reinforcing factor was selected. In this study for the sustainability of training, an educational movie about self-cares among intervention group was distributed. Two months after the educational intervention, the data were recollected and analyzed. To describe and analyses the data, descriptive (Mean and standard deviation) and statistical tests (independent t-test, Mann-Whitney U test, Pearson correlation coefficient test, linear Regression test) were used. At the end of the study considering to the ethic issue, the educational program for control group was implemented.

3. RESULTS

In this semi-experimental study 86 dialysis patients in two control and intervention groups participated. The baseline results revealed that among terms of sex, age, marital and education level between research groups no significant differences were seen. 50% and 45.5% of participants in the intervention and the control groups were illiterate, 16.7 and 15.9% of them were married respectively. The mean age of participant's in intervention and control groups were 43.98 ± 12.47 and 45.52 ± 13.99 respectively and no differences among them were seen ($p > 0.05$). Also, The results showed that after the intervention, the mean scores of the knowledge, attitude, enabling factors, reinforcing factors and, self-care behaviors in the intervention group comparison the control group increased significantly, and mean differences among them were seen ($P < 0.05$), (Table 1 & figure 1).

Table 1 Comparison of Mean scores of precede model constructs in study groups in before and after educational intervention

Constructs variables	Before education			After education		
	Case Mean(SD)	Control Mean(SD)	p-Value	Case Mean (SD)	Control Mean (SD)	p-Value
knowledge	27.92 (5.53)	27.63(3.58)	0.77	49.35(3.26)	31.38(3.52)	$P < 0.001$
Attitude	10.1(2.22)	9.97(1.91)	0.75	15.28 (1.86)	10.75(2.02)	$P < 0.001$
Reinsfactos	15.88(2.56)	15.88(2.03)	0.99	21.52(2.08)	17 (2.1)	$P < 0.001$
Enabling factors	10.23(1.32)	10.29(1.37)	0.84	14 (1.37)	10.93 (1.67)	$P < 0.001$
Self-care behavior	18.64 (1.93)	18.86 (2.35)	0.74	31.84(1.93)	22.38 (2.49)	$P < 0.001$

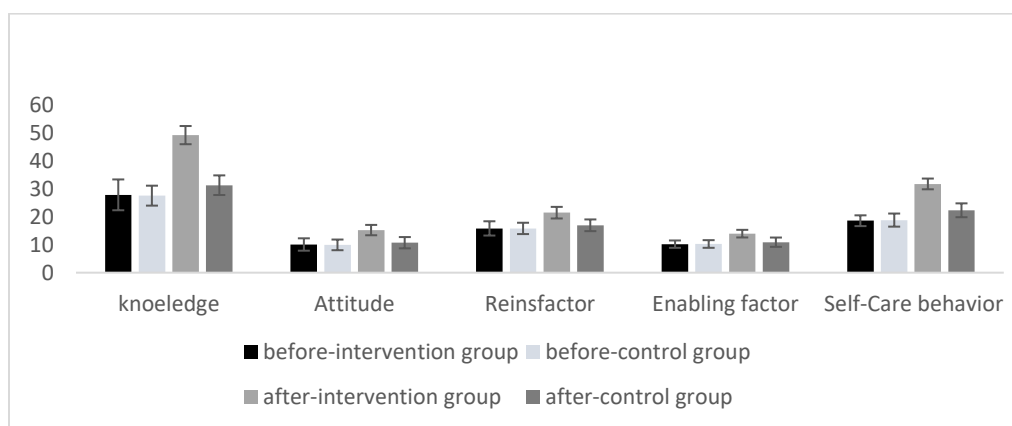


Figure 1 Mean scores distribution of TPB framework in before and after intervention.

The data shows that a significant increase after the intervention has seen. After the intervention, the relationships between self-care behaviors and other constructs of the precede were examined and found that attitude, reinsfactos and, knowledge of the patients considering to signify level had positive correlations with self-care behaviors ($P < 0.05$) (Table 2).

Table 2 Matrix of correlation between Precede Model components in case group after education.

	Behavior	Attitude	Reinsfactos	Enabling factors	Knowledge
Behavior	1	0.207	0.160	0.394**	0.047
Attitude	0.207	1	0.340*	0.275	0.123
Reinsfactos	0.168	0.340*	1	0.17	-0.279
Enabling factors	0.394**	0.275	0.17	1	-0.119
Knowledge	0.047	0.123	-0.279	-0.119	1

Table 3 linear regression analysis between the mean score of self-care behaviors and mean scores of the precede constructs

Model	R ²	Adjusted	Std. Error	
1	0.228	0.145	1.76	

Structure	B	Standard Error	t	P
knowledge	0.083	0.090	1.122	0.361
Attitude	0.188	0.167	0.925	0.269
Reinsfactos	0.243	0.148	1.646	0.108
Enabling factors	0.499	0.214	2.331	0.025

4. DISCUSSION

Our study results showed that a structured theoretical training intervention based on the structures of the precede model increased the self-care behaviors among dialysis patients. Educational interventions based on the precede model constructs have been used to promote the self-care behaviors in a variety of diseases that have been in line with the present study (Kutlu et al., 2018; Borhani et al., 2015). Also, in this study, results showed that family member support promotes self-care behaviors such as physical activity and increases the adherence of the medicine and nutrition regimes as a proper strategy for promoting the health and quality life of dialysis patients. These results have been confirmed in various studies that aimed to promote the self-care behaviors in patients with different diseases (Borhani et al., 2015 –Tiitinen et al., 2014).

As well as, in this study considering the sociocultural status of participants such as age and illiteracy, for promoting healthy self-care behaviors, face to face education and educational movie presentations were used. This method was similar to the results of a previous study conducted by Maslakpak (Maslakpak et al., 2015). Moreover, based on our findings, the mean score of the knowledge in the intervention group after the educational intervention was increased and a significant mean difference between research groups after the intervention was seen. This result is compatible with the same findings of similar studies (Parmier et al., 2016; Azar et al., 2018). Also, results showed that the mean score of the attitude in the intervention group after the education increased and a meaningful difference between intervention and control groups after intervention in this variable was seen. This finding is similar to some studies that verifying the framework of the educational intervention (Mazloomymahmoodabad et al., 2014; Parmier et al., 2016; Azar et al., 2018). Because the constructs of knowledge and attitude in the precede framework are considered as predisposing, and predisposing factors theoretically induce the patient's motivation to undertake the behavior, it can be concluded that the intervention program in promoting the self-care behaviors in participants was successful (Mazloomymahmoodabad et al., 2014; Parmier et al., 2016; Azar et al., 2018).

Study strengths and limitations

The structured design of the study and the consideration of environmental conditions, especially the local language, and using family support for behavioral changes were the most important points of the program, which played an important role in addressing the limitations of the study.

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Author Contributions

Study concept and design: Gholamreza Masoudy and kobra poudineh, Analysis and interpretation of data: Hossain Ansari. Drafting of the manuscript: Gholamreza Masoudy and Hosein Ansari. Consultant: Iraj Zareban, Maryam seraji

Disclosure statement

The authors express no conflict of interest. The results presented in this manuscript have not been published previously in whole or in part.

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Informed consent

Conscious written and oral consent was received from all participants in the study. Additional informed consent has been obtained from all individual participants to identify information in this edition.

Ethical Approval

This research was approved by the Medical Ethics Committee of Zahedan University of Medical Sciences (Ethical Approval Code: IR.ZAUMS.REC.2014.1135).

Data and materials availability

All data associated with this study are available upon request to the corresponding author.

Peer-review

External peer-review was done through double-blind method.

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