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The online version of this article can be found at
http://ebcj.mums.ac.ir/article_11587.html

Evidence Based Care Journal 2018 08:35 originally published online 01 October 2018
DOI: 10.22038/ebcj.2018.29148.1723

Online ISSN: 2008-370X

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Evidence Based Care Journal

Original Article

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Comparison of the Effects of Using Self-regulation Theory and self-care Education on Medical Adherence in Patients Receiving Peritoneal Kidney Dialysis

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Received: 01/03/2018
Accepted: 25/09/2018

Evidence Based Care Journal, 8 (3): 35-45

Abstract

Background: Medical adherence is critical to peritoneal dialysis (PD) success. Accordingly, the self-regulation approach plays a crucial role in disease management and treatment progress through the formation of an organized pattern of beliefs in patients.

Aim: The purpose of this study was to compare the effects of self-regulation theory (SRT) and self-care training on medical adherence in patients on PD.

Method: This randomized clinical trial was conducted on 60 patients receiving PD admitted to Imam Reza and Ghaem Dialysis Centers in, Mashhad, Iran, 2017. They were assigned into two groups of SRT and self-care training using a drawing method. Both groups received SRT or self-care training in two 25-30-min sessions during 2 weeks. Medical adherence was measured by the End-Stage Renal Disease Adherence Questionnaire at the pre-intervention phase, as well as 3 and 6 weeks later. Data analysis was performed using repeated measures analysis of variance in SPSS software, version 25.

Results: Both groups were homogeneous considering demographic variables. The mean scores of medical adherence at the pre-intervention phase and 3 and 6 weeks later in the SRT group was 99.0±16.0, 83.9±14.9, and 80.8±15.0, respectively. These values were 87.4±8.6, 79.4±7.6, and 78.3±7.1 in the self-care training group, respectively. There was a significant difference between the groups regarding these ($P<0.001$).

Implications for Practice: Both SRT and self-care training could improve medical adherence in patients receiving PD.

Keywords: Medical adherence, Peritoneal dialysis, Self-care training, Self-regulation theory

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Introduction

Patient adherence (PA) is one of the behaviors that can predict successful treatment and reduce its adverse effects and severity. Most patients ignore PA recommendations due to the frustration resulted from long courses of treatment (1). Adherence to diet suggestions and fluid restriction is of major parts of treatment in end-stage renal disease (ESRD) (2). According to the literature, the rate of non-adherence in patients receiving peritoneal dialysis (PD), medications, and food and fluid restrictions ranged from 2.6-53%, 3.9-85%, and 4.14-67%, respectively (2).

Therefore, patient non-adherence is considered as one of the important problems for healthcare providers (3). In Iran, the mortality rate of dialysis is 10%, and out of 15000 patients, 1500 individuals die annually (4). Despite the mortality decline, the long-term survival of patients undergoing PD is still a worrying issue (5). Treatment methods cannot be effective and bring about desired outcomes without patient participation and self-care activities (6).

Due to the fact that PD patients give themselves treatment at home, they are at risk of various complications compared with those undergoing hemodialysis. Peritonitis is a leading complication (71.25%) associated with inappropriate catheter placement, catheter withdrawal, and mechanical complications during catheter insertion or leakage at the exit site (7, 8).

Therefore, peritonitis remains a major reason for the discontinuation of PD and switching to hemodialysis. Moreover, ongoing PD leads to minimized adverse effects (9, 10). Accordingly, there are efforts to improve illness perceptions in this group of patients and to help them in self-management at home to decrease PD complications. As a result, various educational methods have been used by researchers to promote self-care in these patients (11).

Numerous studies with different levels of effectiveness have been conducted among patients on PD using different educational methods and interventions to enhance PA (12). For example, a study was carried out into the effect of a nursing-led disease self-management education program in PD patients on PA to fluid restrictions and medication regimen. Regarding the results of the mentioned study, no significant difference was observed between intervention (self-management education) and control groups (13).

In addition, Joboshi and Oka in 2017 conducted a clinical trial and reported the significant effect of a selective self-enrichment education program in patients with chronic kidney disease on the promotion of perceived self-efficacy and self-management behaviors (14). However, in the mentioned study, the reinforcement of PA was not declared. The key principles in self-care are patient involvement and acceptance of responsibility to control complications by self-care behaviors; and the passing of time can affect such behaviors (15, 16).

Therefore, education alone is not sufficient for long-lasting behavioral change. Accordingly, the implementation of recent interventions requires attention to educational aspects and types of psychological techniques, such as the development of healthy behaviors, as well as the elimination of unhealthy ones and emotional distress (2). Moreover, identifying patient's insight into the disease and its treatment can help to understand adaptive responses to an illness (17).

Leventhal's Self-Regulatory Model is one of the theoretical models representing the influence of illness perceptions on health-related behaviors and consequences (18). Leventhal et al. believed that individuals suffering from a disease could develop a cognitive model aimed to perceive the illness. Patients could establish an organized pattern of beliefs about their own status after their diagnosis.

Such beliefs could be the key determinants of directed behaviors in the domain of disease management (19). Based on this model, those having positive illness perceptions were able to correctly understand and analyze other disease symptoms and aspects. In fact, such impressions could affect health-related behaviors. The results of a study conducted on patients with coronary artery disease showed that positive perceptions about disease enable patients to understand and analyze disease symptoms and dimensions in a realistic and correct manner. These perceptions might even affect health-related behaviors, PA, and ultimately disease outcomes (20, 21).

The positive effect of this technique on patients with multiple sclerosis or those receiving hemodialysis is confirmed (22, 23). Nevertheless, no study was conducted to investigate the effect of this method on the rate of PA in patients on PD. Furthermore, it is not well-defined whether there was a difference in the rate of PA or not if only self-care training was given to these patients and their illness perceptions were not reinforced.

The PD is performed by patients; therefore, one of the important objectives of nursing for these

individuals is patient rehabilitation and their return to maximum efficiency and a minimum level of dependency. Considering the specific conditions of PD patients including an active role in dialysis procedure and continuous existence of fluids in the peritoneum, the purpose of this study was to compare the effects of self-regulation theory (SRT) and self-care training on the rates of PA in PD patients.

Methods

This randomized clinical trial was conducted among 60 patients receiving PD assigned into two groups of SRT and self-care training with a pre- and post-test design from October to December 2017. The study population consisted of patients undergoing PD admitted to Imam Reza and Ghaem Dialysis centers affiliated to Mashhad University of Medical Sciences, Mashhad, Iran.

The patients referred to the Imam Reza Dialysis Center were allocated to the SRT group, while those in the Ghaem Dialysis Center were considered as self-care training one. Moreover, the sample size was estimated by comparing two independent population means. To obtain the mean scores of PA, a pilot study was conducted among 20 patients (10 individuals per group). The sample size was estimated with 95% confidence interval and 80% test power by 26 patients in each group.

Considering sample attrition, 30 individuals were allocated to each group. In this study, the inclusion criteria entailed the age of equal or older than 18 years old, PD was used for at least 3 months, ability to participate in training sessions, and lack of verified psychological disorders. The exclusion criteria included being absent in more than one training sessions, participation in another training program in this domain during the study, and unwillingness to continue to participate in the study.

Data were collected using demographic characteristics and clinical records form, revised peritoneal dialysis adherence questionnaire (PDAQ) developed by the research team based on the End-Stage Renal Disease Adherence Questionnaire, and the review of various articles on the components associated with PA in hemodialysis patients. This questionnaire consisted of 41 items scored from 1 to 5 based on Likert-scale, and the total obtained score ranged from 41 to 205.

The items focused on four domains of PD (11 items), medication use (9 items), diet (17 items), and hand hygiene and infection control (9 items). It is noteworthy that higher scores indicated poorer PA. The items of this questionnaire were revised by the researchers based on the existing studies. The items related to hemodialysis were replaced by those had a more significant role in assessing PA.

In addition, the face validity and content validity of the questionnaire were determined. The score of this questionnaire was as the same as that of the standardized instrument. Additionally, the face validity of the questionnaire was confirmed because the score obtained for all the items was 1.5. To evaluate the content validity for both questionnaires, content validity index (CVI) and content validity ratio (CVR) were set and submitted to seven experts for calculation.

The CVR score was computed for each item about 0.42 to 1; furthermore, the content validity of the questionnaire items was approved. Moreover, CVI for the questionnaire items was from 0.83 to 1, and the content validity with a mean score of CVI (0.91) was consequently confirmed.

The reliability of the PDAQ was evaluated by internal consistency method. For this purpose, a questionnaire was completed by 10 volunteers in one turn in a pilot study. Then, the reliability of the questionnaire was confirmed with the Cronbach's alpha coefficient of 0.86.

To collect the data, demographic characteristics and clinical records form was completed at the onset of the study after explaining the objectives. Thereafter, the PDAQ was completed in both groups at the pre-intervention phase and 3 and 6 weeks after the completion of the fourth training session. It is worth mentioning that in the dialysis centers of Mashhad, a complete training package including five educational compact disks containing a brief explanation about PD, definition of solubility and dressing procedure in PD, and diet in PD patients, a brochure associated with fluid balance in PD, and a tutorial including cases such as patients and PD, and principles of PD care (including hand washing steps, solution and dressing change, and nutrition in patients) are provided to all patients.

Further, a notebook for PD, which included common problems in PD and ways to resolve them are typically available for the patients undergoing PD. It should be noted that in this study, both groups received routine training services provided in such centers. In the self-care training group, the PDAQ was initially completed by the patients. Then, four 25-35-minute training sessions were held

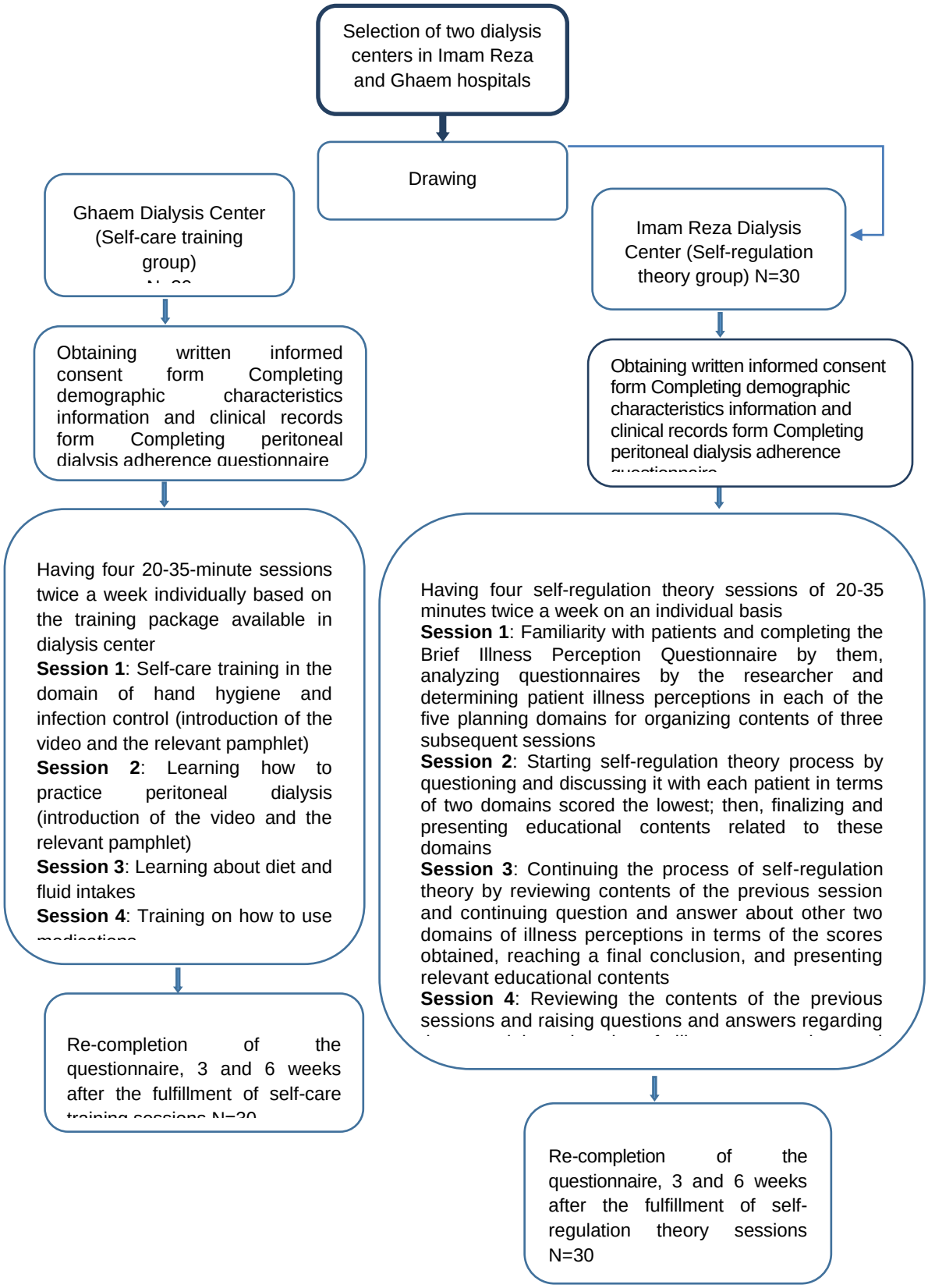

Figure 1. The process of adherence during the research in self-regulation and self-care groups

during two weeks (two sessions per week) by the researcher based on the educational content available in the center.

Thereafter, 3 and 6 weeks post-intervention, the questionnaires were re-completed by the patients. In the SRT group, the PDAQ was primarily completed by the patients. Then, four 20-35-minute sessions were held during two weeks (two SRT question and answer sessions per week) by the researcher for each patient individually. In the first session, the Brief Illness Perception Questionnaire (Brief IPQ) was completed by the patients.

This questionnaire consisted of nine items evaluating the levels of emotional and cognitive response of patients to an illness. In addition, the items could measure the patient perceptions of illness outcomes and duration, as well as its personal control, knowledge of the nature, causes, symptoms, and treatment of the disease. The score of the first eight items ranged from 1 to 10, while the ninth item had an open-ended response and was about three major causes of the disease.

After assessing the patient perceptions using Brief IPQ, the researcher arranged the domains of perceived illness in individuals from the lowest to the highest. The SRT sessions were planned for patients considering their level of renal failure perception, disease duration, their method of disease control (sustaining a diet, taking medications, and observing hand hygiene and infection control), degree of illness curability with emphasis on PD, and recognition of symptoms of the disease and infections, as well as PD complications.

In the three subsequent sessions, two domains with the lowest scores were discussed and asked in the second session. In the third session, the next two domains were discussed, and eventually, the contents were discussed, asked, and wrapped up in the fourth session. Thereafter, the questionnaires were re-completed by the patients 3 and 6 weeks later (Figure 1). It is worth mentioning that although self-care training package was provided to patients in both groups, the researcher arranged the contents of the training sessions according to a pre-determined program and taught the patients in the self-care training group. In the SRT group; patient perceptions were determined individually using brief IPQ by the researcher; then, the fourth training session was set based on their level of perception.

This study was approved by the Ethics Committee of Mashhad University of Medical Sciences. The participants were ensured of confidentiality regarding their personal information. Additionally, a written informed consent was obtained from all the subjects; and they could withdraw from the study whenever they wanted. In the present study, the process of patient care and treatment was fulfilled as usual and no patient was excluded from routine treatments.

Data analysis was performed using the Mann-Whitney U test, t-test, and repeated measures analysis of variance (ANOVA) in SPSS software, version 25. In all the measurements, P-value less than 0.05 was considered statistically significant.

Results

The mean ages of the patients in the SRT and self-care training groups were 45.7±15.5 and 38.4±15.7 years old, respectively (P=0.081). The results of the Chi-squared test and Fisher's exact test showed the homogeneity of both groups in terms of other demographic variables and clinical records (Table 1). Moreover, the results revealed that the total mean scores of PA in the SRT and self-care training groups were 99.0±16.03 and 87.4±8.6 at the pre-intervention stage, respectively.

Therefore, there was a significant difference between the groups in terms of pre-interventional PA score (P=0.003). Accordingly, the comparison of means method was used to compare the study groups considering the changes in PA mean scores. Regarding the results, the mean difference before the intervention and 3 weeks later was -15.1±4.5 that was -18.1±7.2 before the intervention and six weeks later.

This value was -3.03±5.4 at 3 and 6 weeks post-intervention in the SRT group. Nonetheless, such values were equal to -8.0±2.9, -9.1±4.3, and -1.1±3.9 in self-care training group before the intervention and 3 weeks later, before the intervention and 6 weeks later, and 3 and 6 weeks post-intervention, respectively. Moreover, the results of the repeated measures ANOVA indicated a significant difference between the study groups in terms of the difference between the three measurements (P<0.001).

Table 1. Demographic characteristics of patients in self-regulation theory and self-care training groups

Variables	Categories	Self-regulation theory group	Self-care training group	Test results
		Frequency (%)	Frequency (%)	
Gender	Male	17 (56.7)	12 (40.0)	*P=0.196
	Female	13 (43.3)	18 (60.0)	
Level of education	Illiterate	7 (23.3)	2 (6.7)	*P=0.166
	Junior high school degree	9 (30.0)	8 (26.7)	
	High school diploma	9 (30.0)	9 (30.0)	
	Higher education	5 (16.7)	11 (36.7)	
Marital status	Married	24 (80.0)	26 (86.7)	**P=0.191
	Single	2 (6.7)	4 (13.3)	
	Divorced	2 (6.7)	0 (0.0)	
	Deceased spouse	2 (6.7)	0 (0.0)	
Peritoneal dialysis duration	3-6 months	7 (23.3)	8 (26.7)	*P=0.761
	6-12 months	7 (23.3)	10 (23.3)	
	12-24 months	8 (26.7)	6 (20.0)	
	more than 24 months	8 (26.7)	6 (20.0)	
Patient's main caregiver	Self-care	15 (50.0)	16 (53.3)	**P=0.785
	Spouse	8 (26.7)	6 (20.0)	
	Parents	0 (0.0)	2 (6.7)	
	Children	7 (23.3)	6 (20.0)	

* Chi-squared test, **Fisher's exact test

As well, the mean score of PA in the SRT group changed from 99.0±16.0 at the pre-intervention phase to 83.9±14.9 and 80.8±15.0 at 3 and 6 weeks after holding the sessions, respectively. Given the results, significant differences were observed in the PA mean scores in the SRT group (P<0.001). Furthermore, the PA mean scores in the self-care training group was 87.4±8.6 at the pre-intervention stage, which reached 79.4±7.6 and 78.3±7.1 at 3 and 6 weeks after the intervention, respectively. There was a significant difference in the SRT group in terms of PA scores (P<0.001).

In addition to the total mean score of PA in the patients, the rate of PA in four domains of practicing PD, medication use, diet, and hand hygiene and infection control was analyzed based on the PDAQ. Three main research questions included

1) Had the rate of patient PA changed significantly over time?
2) Did the simultaneous interaction effect of the intervention vary in three different measurements over time?
3) Was there any significant difference in the rate of PA in two study groups?

In the domain of practicing PD, the intragroup comparison of the results suggested a significant increase in PA over time in patients undergoing PD with the test power of 1 and the effect size of 0.78 (P<0.001). Additionally, the significant effect of the simultaneous interaction of the intervention over time was reported with the test power of 1 and the effect size of 0.26 (P<0.001). The results showed no significant difference between the two study groups in terms of PA (P=0.081; Table 2).

In the domain of medication use, intragroup comparison revealed the significant effect of time passing on PA with the test power of 1 and the effect size of 0.3 (P<0.001). However, the effect of the simultaneous interaction of the intervention over time was not significant (P=0.30). Moreover, no significant difference was observed between the two study groups (P=0.85). In terms of diet, intragroup comparison reflected the significant effect of time passing on dietary adherence with the test power of 1 and the effect size of 0.6 (P<0.001). Considering the significant effect of the simultaneous interaction of the intervention over time, the test power was equal to 0.9 and the effect size was 0.14. In this respect, no significant difference was observed between the study groups in terms of dietary adherence (P=0.053).

In the domain of hand hygiene and infection control, the intragroup comparison showed the significant effect of time passing with the test power of 1 and the effect size of 0.6 (P<0.001). Given the significant effect of the simultaneous interaction of the intervention over time (P<0.001), the test power was 1 and the effect size was 0.2. There was a significant difference between the groups in

Table 2. Comparison of mean scores of patient adherence domains and its total mean scores in self-regulation theory and self-care training groups measured in three phases

Domains	Patient adherence	Groups		Inter-group repeated measures analysis of variance
		Self-regulation theory	Self-care training	
		Mean±standard deviation	Mean±standard deviation	
Practicing peritoneal dialysis	Before	27.5±5.9	23.8±2.3	Time effect: d.9, P<0.000 group effect: P=0.081 interaction effect of time and group: P<0.001
	3 weeks later	23.1±5.4	21.7±2.7	
	6 weeks later	22.2±5.7	21.3±2.6	
	Intragroup test results	P<0.001	P<0.001	
Medication use	Before	9.8±2.4	9.5±1.1	Time effect: P<0.001 group effect: P=0.085 interaction effect of time and group: P<0.031
	3 weeks later	8.7±2.1	8.7±0.8	
	6 weeks later	8.7±2.1	8.7±50.8	
	Intragroup test results	P<0.001	P<0.001	
Diet	Before	41.4±5.5	37.2±3.9	Time effect: P<0.001 group effect: P=0.085 interaction effect of time and group: P<0.031
	3 weeks later	35.4±5.2	3.9±3.7	
	6 weeks later	4.2±5.5	33.1±3.9	
	Intragroup test results	P<0.001	P<0.001	
Hand hygiene and infection control	Before	20.1±3.6	16.7±3.3	time effect: P<0.001 group effect: P=0.02 interaction effect of time and group: P<0.001
	3 weeks later	16.7±3.5	15.0±2.6	
	6 weeks later	15.1±3.1	15.8±3.2	
	Intragroup test results	P<0.001	P<0.001	
Total scores	Before	99.0±16.03	87.4±8.6	Time effect: d.9, P<0.000 group effect: P=0.04 interaction effect of time and group: P<0.001
	3 weeks later	83.9±14.9	79.4±7.6	
	6 weeks later	80.8±15.0	78.3±7.1	
	Intragroup test results	P<0.001	P<0.001	

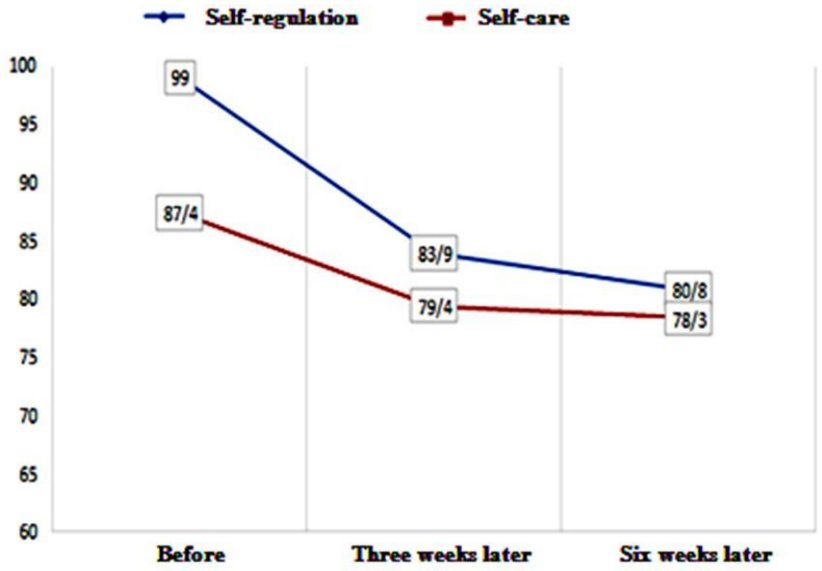

Figure 2. Linear diagram of total mean scores of patient adherence in self-regulation theory and self-care training groups measured during three phases

terms of adherence to hand hygiene and infection control (P=0.02; Figure 2).
The results of Pearson's correlation coefficient suggested a significant direct relationship between age and PA mean scores (P=0.03, r=0.3). Considering that higher mean scores in the present study presented lower PA, the rate of PA was reduced as age increased.

Discussion

The results of this study revealed that using SRT could promote illness perceptions and self-care skills in patients undergoing PD, which could improve the total mean score of PA. Although the results indicated the significant effect of SRT and self-care training on patients on PD within 6 weeks in the domains of practicing PD, medication use, and diet, there was no significant difference between the two study groups in these domains.
The rate of PA in the SRT group was significantly higher than that of the self-care training one only in the domain of hand hygiene and infection control. In the present study, in all PA aspects, patients in both groups had a significant difference in the mean scores of their PA in terms of time. Furthermore, the effect size in all cases was more than 0.6. These results showed that PA was time-dependent in the present study.
Although the interaction effect of the intervention and time was significant, the effect size was less than 0.3 in the domains of practicing PD, diet, and hand hygiene and infection control. These results indicated insufficient study time for self-regulation in the patients. It is essential for healthcare provider to initially understand the patient perception disorder, signs and symptoms, ways to cope with the disease, and complications, as well as physical, mental, and psychological effects based on Leventhal's theory, and then gradually consult and educate patients in each of the domains according to the severity of the disorder (19). Therefore, this process required more time.
The results of the present study could be compared with the findings obtained by Seyyedrasooli et al. in terms of the effect of an intervention promoting illness perceptions about PA in patients with renal failure undergoing dialysis. In this study, improving the understanding of hemodialysis patients with renal failure had enhanced patient PA (23). Moreover, Seyyedrasooli et al. demonstrated the rate of PA in hemodialysis patients in the domains of drug regimen adherence, fluid intakes, and diet, whose results were in line with the findings of the present study.
However, improving the perceptions in hemodialysis patients did not have a significant effect on reducing the duration of dialysis and the rate of patient involvement in hemodialysis sessions. The PD is practiced by patients themselves, and their involvement in the dialysis procedure is of utmost importance; therefore, the patients in the present study in both groups received educational contents associated with self-care in dialysis in four main domains of practicing PD, hand hygiene and infection control, diet and fluid intake, and medication use.
The results of this study showed that patients could significantly promote their PD adherence through observing hand hygiene and improving infection control. Moreover, setting patients' cognitive functioning during the self-regulation process based on Leventhal's cognitive functions theory and the modeling of their beliefs and perceptions of renal failure are among the other effective factors. In addition, the regulation of their emotional functions such as the organization of beliefs about the symptoms of the disease and how to deal properly with medical conditions of the illness, such as PD, in a sterilized manner and through controlling symptoms and complications, as well as diet and medication use are the other major effective variables.
Based on this theory, individuals with positive illness perceptions could accurately understand and analyze disease symptoms and other dimensions. In fact, such impressions could affect health-related behaviors. Therefore, individuals with positive illness perceptions could properly and realistically understand and analyze the symptoms and dimensions of the disease. Such perceptions could influence their health-related behaviors and consequently help them in their adaptability with the disease and affect its outcomes (25, 26).
Moreover, in this study, perception enhancement in patients with renal failure could improve PA in patients with hand washing and preventative measures to control infection. According to the results of a study conducted by Rahimian et al., one of the most important complications of PD was catheter-related infections (7). As a result, it could be concluded that improving patient perceptions to deal with the complications of the disease could have a positive effect on their self-care through proper hand washing and practicing PD based on sterile techniques, which could lead to the prevention of

this complication.

The results of this study illustrated that the active involvement of the researcher as a nurse in conducting self-care training sessions and promoting self-perception could increase the rate of PA in all domains in both groups over time. In this regard, the results of the present study could be compared with the findings of the investigation performed by Wong et al. in 2010. They assessed the effect of a nursing-led disease management program on the rate of non-adherence in patients with chronic kidney disease (13). In their study, Wong et al. confirmed that the incidence of non-adherence in patients on PD gradually reduced in the aspects of fluid restriction and drug regimen over time in both intervention and control groups according to intra-group measurements. However, this difference was not significant between both groups in repeated measurements. The results of the present study showed that despite the improvement of rates of PA in the domains of fluid intake and medication use in each group, no significant difference was found in both groups based on the results of repeated measurements.

In other words, considering the results of this study and the findings of Wong et al., the importance of practicing self-care behaviors among dialysis patients in terms of promoting PA over time was highlighted. The important point in the present study was that the process of improving PA in patients undergoing PD in both groups was dynamic. Further, there was a descending trend during three measurements before the intervention, as well as 3 and 6 weeks after it, and then PA increased gradually.

It should be noted that the given trend was also seen in the total mean difference of PA and that of different domains of PD adherence, diet, and hand hygiene and infection control. Accordingly, the results of the present study were consistent with the findings of a qualitative study carried out by Lam et al. in 2012 (27). They concluded that PA in patients undergoing PD had a dynamic trend in those who had fulfilled three phases in this process including efforts to meet recommendations by educators at the onset of learning in a way that the rate of adherence was not a fixed value and it had gradually promoted.

After 2-6 months of PD, the patients entered a fixed phase of PA in an optional manner in several dimensions, and finally, they reached a corrected phase of PA based on their characteristics after 3-5 years of dialysis. The results of this study were in agreement with their findings in the first phase of the investigation. Given the significant effect of time passing on improving PA in patients receiving PD in both groups, the results were consistent with the first and second phases of the Lam's study. In other words, the rate of PA and patient participation in treatment could be improved as more time had passed from the onset of training.

Furthermore, the results of the present study showed a significant relationship between age and PA rates. It means that older patients were less likely to have PA compared to younger individuals. In this regard, the results of the present study were in congruence with the findings obtained by Ramiraz et al. in 2011 and Martin et al. in 2006. They pointed out that older patients were considered as vulnerable, who needed more time to learn self-care skills for PD, and these patients had a higher risk of peritonitis (28, 29).

Finally, one of the most important limitations of the current study was that following-up the patients was done 6 weeks after the intervention due to the lack of time. In this respect, the effect size of the intervention would increase; therefore, further studies are recommended with sufficient follow-up time.

Implications for Practice

The results of the present study showed that SRT and self-care training could cause improvements in PA in patients undergoing PD in terms of practicing PD, medication use, fluid intakes, and diet, as well as hand hygiene and infection control. Given that the self-care training method was currently being implemented using extensive audio-visual and educational contents, the results of this study revealed that improving illness perceptions could accelerate the process of adherence in patients.

In other words, patients who had a better understanding of their abilities were more interested in learning self-care behaviors from the staff in the centers. Therefore, it was suggested to hold sessions in order to assess illness perceptions in patients and to promote this understanding along with self-care training in centers providing PD.

Acknowledgments
This study was a part of a Master's Thesis fulfilled by a student of Nursing-Internal Surgery and conducted after obtaining permission from the Ethics Committee of Mashhad University of Medical Sciences, Mashhad, Iran, under the code No. IR.MUMS.REC.1395.523. The study was archived in the Iranian Registry of Clinical Trials with the code No. IRCT20171219037949N1. The researchers, hereby, would like to express their sincere gratitude to the Deputy of Research of Mashhad University of Medical Sciences, the respected staff of Imam Reza and Ghaem Peritoneal Dialysis centers, as well as all the participants for their cooperation.

Conflicts of Interest
The authors declare no conflicts of interest.

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