




# The Effect of Peer Support on Hope Among Patients Under Hemodialysis

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**Introduction:** Providing social support for patients under hemodialysis treatment can reduce their psychological, social, and physical problems. The present study aimed at determining the effect of peer support on hopefulness in patients under hemodialysis.

**Methods:** This clinical trial with a pre/posttest design was conducted on 128 patients who had referred to the hemodialysis centers of Shiraz University of Medical Sciences in 2019. The patients were randomly divided into an intervention and a control group. The patients in the intervention group were supported by their peers for eight weeks and were provided with the usual care, but the controls were only provided with the usual care. The data were collected using Snyder Hope Scale. Then, the data were entered into the SPSS software, version 18 and were analyzed using independent *t*-test and paired *t*-test.

**Results:** At baseline, the participants in both groups were similar with respect to the mean scores of hope and its subscales ( $p > 0.05$ ). However, there was a significant difference between the two groups in terms of hope and its subscales eight weeks after the intervention ( $p < 0.001$ ).

**Conclusion:** The results confirmed the effect of peer support on increasing hope among the patients under hemodialysis. Peer support in informational, emotional, instrumental, and spiritual forms could create a positive incentive and increase hope among the patients.

**Clinical Trial Number:** This clinical trial has been registered in the Iranian Registry of Clinical Trials (IRCT20190126042498N1).

**Keywords:** hope, chronic kidney failure, hemodialysis

## Introduction

Chronic renal failure is considered a health issue in modern societies.<sup>1</sup> In the past few years, much attention has been paid to this issue in developed countries.<sup>2</sup> The final stage of chronic renal failure poses a clinical situation through which a kidney is not able to perform metabolic actions and keep balanced fluid and electrolytes in the body.<sup>3</sup> This disease is one of the most common health problems, affecting 2–3% of people around the world.<sup>4</sup>

Patients under hemodialysis face problems, such as increase in blood urea nitrogen, serum potassium and phosphate levels, and even intradialytic weight gain due to the loss of both kidneys. Dietary and fluid non-adherence are other common issues among hemodialysis patients.<sup>5</sup> These patients experience a lower Quality of Life (QoL) in family and health function dimensions compared to those undergoing kidney transplantation.<sup>6</sup> They also suffer from insomnia,<sup>7</sup> poor sleep quality,<sup>8</sup> sexual dysfunction,<sup>9</sup> and fatigue.<sup>10</sup> Therefore, they have to change their daily life similar to the patients with other chronic diseases.<sup>11</sup>

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Girija and Radha investigated elderly individuals under hemodialysis and stated that their hope levels were lower compared to the adults under the same circumstances.<sup>12</sup> However, another study indicated that the hemodialysis patients' hope levels were higher than the expected average, but the mean score of hope was moderate.<sup>13</sup> Hope is a human preventive strategy for adjusting to problems and acute diseases.<sup>14</sup> Hope can be a therapeutic, multi-dimensional, dynamic, and powerful factor, playing an important role in coping with disabilities.<sup>15</sup> Different studies have shown a positive association between hope and positive emotions<sup>16</sup> and self-respect.<sup>17</sup> Additionally, negative associations have been revealed between hope and exhaustion<sup>18</sup> and negative emotions.<sup>17</sup> Snyder et al defined hope as "the capability to derive pathways to desired goals and motivate oneself via agency thinking to use those pathways".<sup>19</sup>

Considering various issues in different aspects of QoL in hemodialysis patients and the presence of hope as an adjusting source, Complementary and Integrative Health (CIH) interventions can probably decrease these issues among hemodialysis patients. CIH types include reflexology,<sup>20</sup> yoga,<sup>21</sup> massage,<sup>22</sup> coping skills training,<sup>23</sup> and resilience training.<sup>24</sup> For example, stress management training as a kind of CIH could enhance hope among patients under hemodialysis.<sup>25</sup> Social support is one of the effective interventions in hope among hemodialysis patients, because social support and hope are mediated by symptom distress.<sup>26</sup> Social support could be presented as psychological, emotional, and informational tangibility.<sup>27</sup> People who received high levels of social support could adjust to life events more efficiently, but those who received low social support levels were more vulnerable.<sup>28</sup> Social support also reduced psychological issues, such as anxiety, in chronic diseases.<sup>29</sup> It has been stated that social support led to a better life, reduced depression, and resulted in more efficient coping with the disease in patients under hemodialysis, while weak social support could increase mortality.<sup>30</sup> Indeed, social support was associated with the hemodialysis patients' QoL,<sup>31</sup> which not only protected them against tensions caused by the illness, but also increased their social-mental coping level.<sup>32</sup> It has also been found that low levels of social support increased mortality and reduced QoL in patients under hemodialysis.<sup>33</sup> Another study, too, revealed that hope and social support were closely associated with QoL among the patients who suffered from chronic diseases.<sup>34</sup> Social interventions and hope could also be effective in the quick healing of the wounds caused by

diabetes.<sup>35</sup> The association between social support and hope has been approved, as well.<sup>36</sup> Accordingly, increase in social support by families could reduce despair in patients with chronic diseases, such as cancer.<sup>37</sup>

As mentioned before, social support has been reported to be associated with health in patients with chronic diseases. Peer support was also associated with self-care in patients with diabetes.<sup>38</sup> Review of the literature revealed no studies on the effect of social support, particularly peer support, on hope among patients under hemodialysis. Only one study investigated the effects of telephone follow-up and self-care education on hope among patients under hemodialysis.<sup>39</sup> In another study, cognitive-existential group therapy led to an increase in hope among patients under hemodialysis.<sup>40</sup> These two interventions are different from peer support, because peer support is done in the face-to-face manner by a person who is experiencing the disease and is not a healthcare worker, which seems to be more efficient. Thus, the present study aims to determine the effect of peer support on hope among patients under hemodialysis.

## Materials and Methods

### Design

The present clinical trial with a pre/posttest design was conducted on 128 patients under hemodialysis who had referred to the hemodialysis centers affiliated to Shiraz University of Medical Sciences. The data were collected from April to June 2019. This study was registered in the Iranian Registry of Clinical Trials (approval No. IRCT20190126042498N1) in 4/20/2019.

### Setting

This study was conducted in three hemodialysis centers in Namazi and Faghihi hospitals and the 24 hr Imam Reza clinic in Shiraz.

### Sample

The target population included the patients under hemodialysis who had active records in the three aforementioned centers. The inclusion criteria were aging 18 years and above, having experienced hemodialysis for at least six months, being on hemodialysis at least twice and at most three times a week, and being willing to participate in the study. The patients suffering from advanced cardiovascular diseases such as heart failure and acute lung deficiency, those with neural sensory disorders such as hearing and

visual impairments or cognitive disorders, those addicted to narcotics, and those who had experienced emotional traumas such death of their loved ones and divorce in the past six months were excluded from the study.

The peer support members were selected purposefully by reviewing the list of the patients under hemodialysis in the selected hemodialysis centers affiliated to Shiraz University of Medical Sciences. For this purpose, 13 patients in the peer group who were willing to participate in the study were voluntarily chosen. They had been under hemodialysis treatment for at least six months, were eligible according to the checklist's criteria, and were able to overcome their disease successfully. The abovementioned checklist assessed skills, abilities, and personal attributes that were derived from the five characteristics of peer support workers, including lived experience of chronic renal failure and hemodialysis, interpersonal communication, critical thinking, teamwork and collaboration, and ethics and reliability.<sup>41</sup>

## Randomization

In order to select the study participants, a table of random numbers was used based on the list of the patients. The participants were divided into an intervention and a control group using the systematic random method based on their referral on odd or even days.

## Sample Size

Based on the research by Jadid Milani and Amiri,<sup>42</sup> using the Med-Calculator statistical software, and considering  $\mu_1 - \mu_2 = 11$ , standard deviation = 18.3,  $\beta = 90\%$ ,  $\alpha = 0.05$ , and drop out = 10%, the sample size was estimated as 128 patients (64 patients in each group).

During the study, four participants in the control group had to be removed due to death and four participants in the intervention group were excluded because they were hospitalized. Finally, 60 patients in the intervention group and 60 ones in the control group remained until the end of the study (Figure 1).

## Blinding

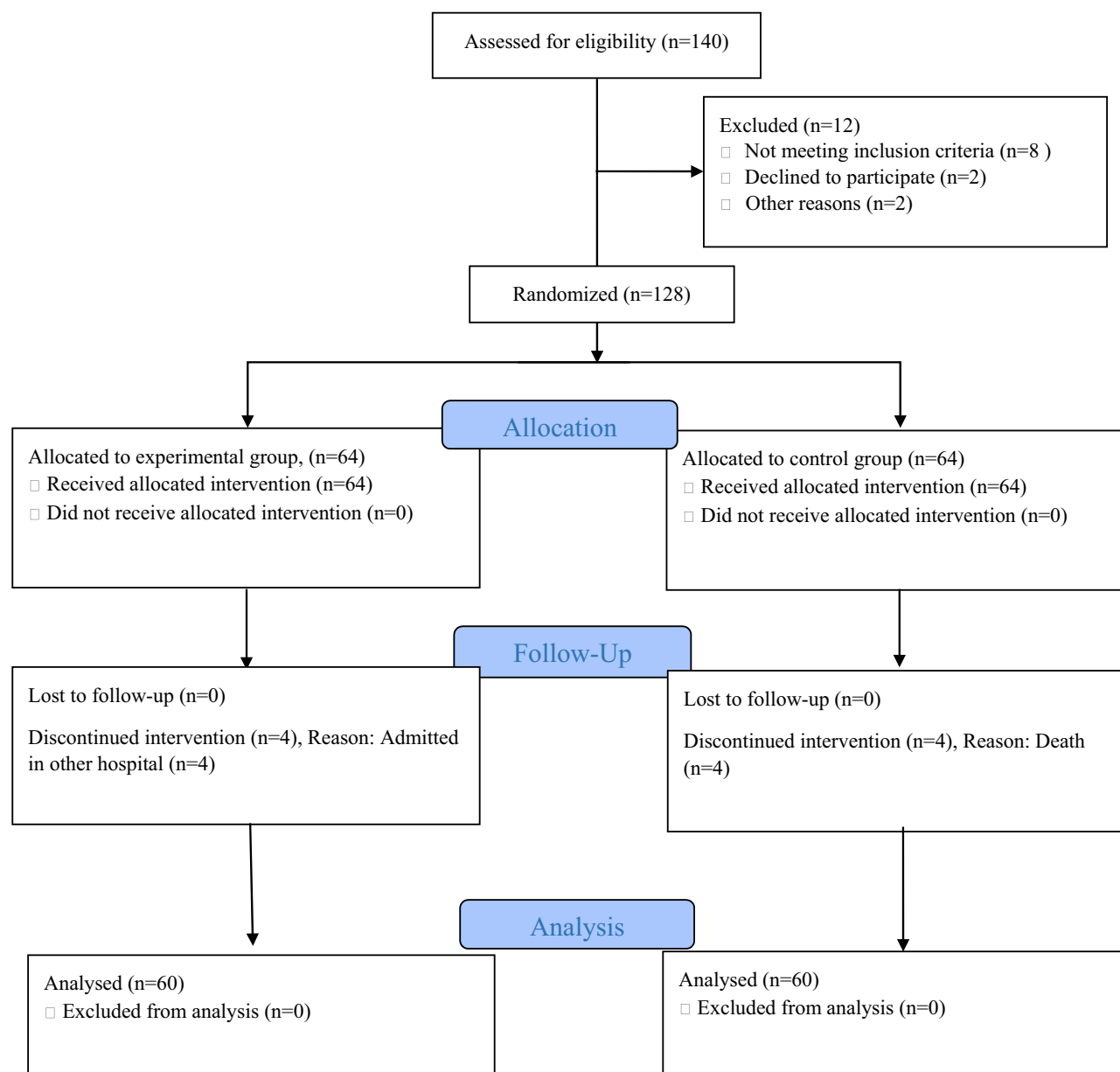
The participants' evaluation was done by the researcher's assistants who were blind to the intervention and control groups at baseline and immediately after the intervention. The person who did the data analysis also did not have any information regarding the study groups.

## Intervention

To provide peer support, 13 individuals were selected through three two-hour training sessions by the researchers. During the first session, concepts such as the importance and advantages of peer support, accurate communication skills, and techniques of tangible and instrumental support were presented. In the second session, a lecture was given on how to present informational support, such as preparation and required care before and after hemodialysis, home activities, and preventive measures for the physical and psychological side effects. Some information about adherence to dietary and fluid limitations in hemodialysis patients and how to care for vascular access, such as an arteriovenous fistula, was also provided in this session. In the third session, topics such as presenting techniques for emotional-psychological support and spiritual support, were explained. Considering emotional-psychological support, methods were described for living a happy life and enjoying life. In addition, in order to perform Benson's relaxation technique, the participants were asked to sit calmly, close their eyes, entirely relax all their body muscles starting from the sole of their feet upward to head, breath in and out through the nose, listen carefully to the breath sounds, quietly say "one" to themselves, and continue for 20 mins.<sup>43</sup> In this session, some information regarding spiritual support, such as relationship with God, praying for oneself and others, reading Quran, hope in God, trust in God, spiritual satisfaction, and thanking the divine blessing, was also given to the peers.<sup>44</sup> The participants' questions were answered during the sessions and their wrong beliefs were corrected by referring to scientific resources. After all, the booklet of the presented information was given to the peers.

The support sessions for the intervention group were held for two hours before the initiation of the dialysis session once a week, which lasted for eight weeks (a total of 16 hrs). For each member of the intervention group, a peer was selected randomly based on their genders. The peers taught and supported the patients in their groups via face-to-face group discussions, question and answer, and lecture method. The misconceptions regarding the contents of the intervention were corrected, as well. Considering the sample size, 12 groups were made each containing five people.

In the first session, the peers asked the patients about their health problems and arranged the next seven sessions based on the priorities of the topics. The topics were different types of social support (emotional,



**Figure 1** CONSORT flow diagram of hemodialysis' subjects who participated in this study.

informational, and tangible/instrumental support), the physical and psychological changes and side effects associated with the disease and hemodialysis, such as muscle spasms, insomnia, and itching, and a proper diet. In each session, the attitudes towards coping with the changes and difficulties related to the disease, coping with the present situation, forming a new concept for life, and using others' experiences and viewpoints were emphasized. Benson's relaxation technique, training about the disease and the methods for controlling it, and planning for pleasant activities were also pointed in these sessions.

In the peer group, the researcher (the third author of this manuscript) was a facilitator who could enhance the efficiency of the group. He had the duty of facilitating the group discussions, presenting accurate scientific information, and presenting feedbacks to the members by monitoring their obedience. To prevent the disclosure of information, the control and intervention groups were categorized in separate shifts of hemodialysis, so that they could not meet each other. After the intervention, all participants were required to fill out the demographic and clinical characteristics questionnaires and Snyder Hope Scale.

At the end of the study when data analysis was finished, the control group participants were provided with the booklet of the intervention.

## Outcome Measures

The outcome measure in this study was hope, which was evaluated at the beginning of the study and eight weeks after the intervention.

## Measures

The demographic features questionnaire consisted of five questions about age, gender, education level, marital status, and length of hemodialysis.

The Snyder Adult Hope Scale is used to evaluate a person's hope status. This scale is based on the Snyder's cognitive model of hope defining hope as "a positive motivational state that is based on an interactively derived sense of successful agency (goal-directed energy) and pathways (planning to meet goals)". This scale consists of 12 maxims and two subscales of agency and pathways thinking.<sup>17</sup> The test-taker should identify the amount of agreement and disagreement on an eight-point Likert scale ranging from totally agree to totally disagree. The score of the test can range from 8 to 64. The internal consistency of the Hope Scale was reported as 0.84 and its test-retest reliability was 0.80. Higher values were obtained in periods more than eight to ten weeks. The internal consistency of the agency subscale was 0.71–0.76 and that of the pathways subscale was 0.63–0.80.<sup>45</sup> In a study by Sadat Kiafar et al, the Cronbach's alpha coefficient was found to be 0.80 for the whole scale, 0.78 for the agency subscale, and 0.61 for the pathways subscale.<sup>46</sup>

## Ethical Considerations

All research procedures were done based on Helsinki Declaration after being approved by the Ethics Committee of Shiraz University of Medical Sciences (IR.SUMS.REC.1398.93). Written informed consent forms for taking part in the research were obtained from all participants. Accordingly, the participants were provided with explanation about the advantages of the study and were assured that they could withdraw from the study at any time. In order to keep the confidentiality of the participants' information, the questionnaires were encoded.

## Data Analysis

All data analyses were carried out using the SPSS software, version 18. Descriptive statistics were used. Paired

*t*-test was employed to compare the two groups regarding the mean score of hope before and after the intervention. Independent *t*-test was also used to compare the mean score of hope in the two groups before and after the intervention.

## Results

The majority of the participants in the intervention and control groups were male and married. Additionally, most of the participants in both groups had secondary and high school degrees. The mean age of the participants was 54.93 years, ranging from 29 to 70 years. The mean age of the patients was 56.57 years (SD=9.54) in the intervention group and 53.30 years (SD=10.01) in the control group. Moreover, the length of dialysis was 30.60 months (SD=15.53) in the intervention group and 36.13 months (15.23) in the control group. The results showed no significant difference between the two groups regarding gender, marital status, education level, age, and length of dialysis ( $p>0.05$ ) (Table 1).

Before the intervention, the mean score of hope was 62.4 (SD=6.13) in the intervention group and 62.03 (SD=4.38) in the control group. The results revealed no significant difference between the two groups regarding the mean scores of hope and its subscales before the

**Table 1** The Demographic and Clinical Characteristics of the Participants in the Intervention and Control Groups

	Intervention	Control	Chi <sup>2</sup> , p-value
Gender, n (%)			
Male	35 (58.3)	40 (66.7)	$\chi^2=0.89$ , $p=0.34$
Female	25 (41.7)	20 (33.3)	
Marital status, n (%)			
Single	5 (8.3)	8 (13.4)	$\chi^2=1.90$ , $p=0.59$
Married	51 (85.0)	50 (83.3)	
Widowed	3 (5.0)	2 (3.3)	
Divorced	1 (1.7)	0 (0.0)	
Education level			
Illiterate	13 (21.7)	11 (18.3)	$\chi^2=3.13$ , $p=0.53$
Primary school	18 (30.0)	14 (23.3)	
Secondary school	14 (23.3)	11 (18.3)	
High school and diploma	11 (18.3)	17 (28.3)	
Academic	4 (6.7)	7 (11.8)	
Age, mean (SD)	56.57 (9.54)	53.30 (10.01)	$t=0.23$ , $p=0.81$
Length of dialysis, <sup>a</sup> mean (SD)	30.60 (15.53)	36.13 (15.23)	$t=0.25$ , $p=0.80$

Note: <sup>a</sup>Month.



**Table 2** Comparison of the Mean Scores of Hope and Its Subscales in the Two Groups Before and After the Intervention

Variables	Intervention	Control	Test, p-value
	Mean (SD)	Mean (SD)	
Hope			
Before	62.03 (4.37)	62.40 (6.13)	$t=0.37, p=0.70$
After	67.95 (5.67)	56.63 (7.19)	$t=-9.56, p<0.001$
Test, p-value	$t=-6.49, p<0.001$	$t=8.03, p<0.001$	
Hope subscales			
Agency thinking			
Before	19.16 (2.21)	20.01 (2.77)	$t=1.85, p=0.06$
After	22.43 (2.74)	17.91 (3.20)	$t=-8.28, p<0.001$
Test, p-value	$t=-6.96, p<0.001$	$t=5.76, p<0.001$	
Pathways thinking			
Before	20.45 (2.02)	20.65 (2.44)	$t=0.48, p=0.62$
After	22.68 (2.11)	18.93 (2.42)	$t=-9.02, p<0.001$
Test, p-value	$t=-6.03, p<0.001$	$t=6.56, p<0.001$	

intervention. However, a significant difference was observed between the two groups concerning the mean scores of hope and its subscales after the intervention (Table 2). The effect size was measured by Cohen's *d*, which was equal to 1.74. According to Cohen,  $d=0.2, 0.5$ , and  $0.8$  represented small, medium, and large effect sizes, respectively.<sup>47</sup> Therefore, the effect size of this study was large enough.

## Discussion

This study aimed to determine the effect of peer support on hope in patients under hemodialysis. The results revealed a significant difference between the two groups regarding the mean score of hope after the intervention. Accordingly, the hemodialysis patients who had received the peer support had a significantly higher level of hope after the intervention. In another study, social support and coping style were found to be associated with symptom distress.<sup>26</sup> Social support can help a patient select a positive coping strategy. This enhances the hope status by reducing symptom distress. It was also indicated that if an individual received peer and network support, s/he could deal with the difficult situations caused by the disease and, consequently, enjoy an enhanced emotional condition, which could in turn increase one's hope level.<sup>48</sup>

Ruston et al stated that hope could be effective in the psychological characteristics of the patients with cancer.<sup>49</sup> Therefore, hope is a powerful coping mechanism in patients with chronic diseases, and people who are hopeful can tolerate the trauma caused by the disease more easily.

Hope is also a necessary and crucial element of survival and life expectancy.<sup>50</sup>

The effect size of the present study was 1.74, which was large enough. However, the effects size of a hope-based intervention for colorectal cancer was small in a previous study.<sup>51</sup> Based on the results, utilizing peer groups as an educational-supportive human resource and strong intervention is warranted in addition to the treatment team. This is of particular importance due to the tangibility of hemodialysis in the peers' personal life, effective control of the disease, convenient communication, and the powerful effect of training. All these can encourage the patients to discuss their concerns in groups and obtain the required information more easily. Moreover, the patients learn strategies on how to cope with the disease from their peers and their hope level increases as their knowledge expands. Furthermore, the use of peer support groups provides a powerful and cost-effective human resource for managing the disease.

## Limitations

One of the limitations of this study was that the third author of the manuscript participated as a facilitator. This might have yielded interventional bias, resulting in better outcomes than expected.

## Conclusion

The results of this study showed that offering social support by peers could increase the hope level among the patients under hemodialysis. Hence, this intervention could be effective in promoting the individuals' internal forces and hope levels.

## Suggestions for Future Studies

Future studies are recommended to be conducted on other chronic diseases, such as cancer and diabetes.

## Data Sharing Statement

Another study-related document will be made available in the format of SPSS software. As the data were unlinked, the data will be available by contact to email of Pasyar N (pasyarn@sums.ac.ir).

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## Disclosure

The authors declare no conflicts of interest in this project.

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