

# The Effect of Peer Education on Self-Care Behaviors of Chemotherapy in Patients under Chemotherapy and Treatment Referred to Imam Khomeini Educational and Medical Hospital in Urmia in 2019: Clinical Trial Study

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## Abstract

**Background:** Cancer is the second leading cause of death after heart disease.

**Objectives:** This study was conducted to determine the effect of peer education on self-care behavior on the effects of chemotherapy in patients undergoing chemotherapy.

**Methods:** This research is a clinical trial. Sixty cancer patients were randomly assigned to the two control groups. In addition to routine training, the intervention group members were provided with self-care training in the field of chemotherapy and side effects. The control group received only common training, ie training by a doctor and a hospital nurse, and soon. The data collection tool was a demographic information questionnaire and a questionnaire on the effectiveness of self-care behavior in patients undergoing chemotherapy and chemotherapy. Data were collected at the beginning of the study and after the completion of the first course of chemotherapy. Finally, the data were analyzed by SPSS software version 19.

**Results:** In the pre-test phase, the independent t-test did not show a significant difference in on self-care behavior from chemotherapy and treatment complications between the two groups ( $p < 0.05$ ). However, in the post-experimental phase, there was a significant difference in the effectiveness score of self-care behavior in chemotherapy-therapeutic effects between the two groups of test and control ( $p < 0.05$ ). Also, the T-pair test showed a significant difference between the pre- and post-intervention stage in the test group ( $p < 0.05$ ).

**Conclusion:** Peer education promotes on self-care behaviors, so the use of peer education for cancer patients under chemotherapy is recommended along with other educational methods.

**Keywords:** Education; Self-care; Cancer; Iran

## Introduction

### Background

According to the Centers for Disease Control and Prevention (CDC), cancer is the second leading cause of death after heart disease [1]. The burden of cancer and cancer deaths are increasing worldwide. More than 14 million cases occur annually, but this number is estimated to reach 22 million by 2030 [2].

Chemotherapy is currently the current standard first line treatment for most cancer patients [3]. However, the side effects of chemotherapy often reduce the quality of life in cancer patients and may lead to discontinuation. Treatment Therefore, developing effective management strategies against the side effects of chemotherapy is crucial [4]. In recent years, patient self-care has emerged as an important component of disease management programs. In fact, self-care is defined as the ability of patients to manage treatment by accepting responsibility for health behaviors and changing lifestyles to adapt to a chronic illness [5]. Education is a special part of the care program that actively participates in self-care and helps to cope better with the situation [6].

One training method is peer training. Peers are defined as individuals from the same social group of patients who are not specialists but have similar experiences. Peer to peer educational programs can help patients cope and manage their illness [7]. So that in the study of Gozum, et al. The training of peers made positive changes in women's health beliefs and breast self-examination knowledge. A study by Karimi, et al. showed that the self-care training program on the severity of nausea and vomiting in patients with colorectal cancer under chemotherapy and treatment in the intervention group after the

self-care training program had a significant difference with the control group [8].

Given the increased survivors of cancer patients and the benefits of peer education, interventions were designed to be more effective and efficient. The researcher aimed to conduct a study to determine the impact of peer education on the effectiveness of self-care behaviors. It is hoped that the findings of this study can help the health field to design appropriate intervention programs to increase the effectiveness of self-care behaviors in patients undergoing chemotherapy. The aim of this study was to determine the effect of peer education on self-care behavior in patients undergoing chemotherapy [9,10].

**Objectives:** This study was conducted to determine the effect of peer education on self-care behavior on the effects of chemotherapy in patients undergoing chemotherapy.

## Materials and Methods

This research is a trial type. The research community of cancer patients referred to the clinic and oncology department of Imam Khomeini educational and medical hospital in Urmia for the first time from June to March 2017. Aged between 26 and 70 years, one of the types of cancers that require chemotherapy for the first time at the discretion of the relevant physician, conscious awareness and willingness to participate in the study formed the criteria for entering the study and recent participation in training sessions and similar research and lack of cooperation to participate in research were the criteria for leaving the study [11].

Sample size using the mean comparison formula, according to the standard deviation index based on the study of Tarkashvand, et al., with the assumption of the first type error 0.05 and test power 90% ( $B=0.1$ ) and 0.35% difference of standard deviation for each group A total of 30 people (30 in the intervention group and 30 in the control group) were estimated. Sampling by random sampling was simple and from the list of patients referred for the first time for chemotherapy to Imam Khomeini hospital in Urmia, the samples were randomly selected. They were then assigned to two intervention and control groups using randomly blocked.

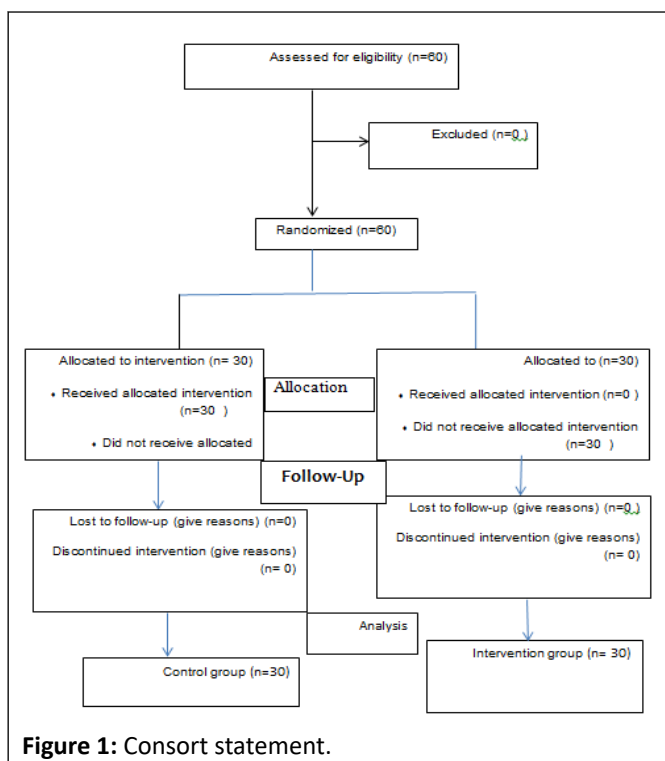
Williams was the instrument for collecting demographic information (including age, sex, marital status, type of cancer, family history of cancer, etc.) and the Selfe Care Diary (SCD) questionnaire (Williams). The questionnaire (Selfe Care Diary (SCD)) examines on self-care behaviors, which includes 14 questions on the effectiveness of self-care behaviors on the effects of chemotherapy, in which the effectiveness of self-care behaviors was assessed by self-report. The effect of self-care behavior was rated from 0 to 5 and selected [12,13].

Content validity was used to determine the validity of the Selfe Care Diary (SCD) questionnaire. In this way, the prepared questionnaire was given to ten faculty members of Urmia university of medical sciences (6 nursing faculty members and 4 subspecialty physicians of blood and oncology) and after receiving their suggestions, the necessary corrections were made and CVR and CVI 0.98 and the reliability of the questionnaire were calculated using Cronbach's alpha of 0.80.

In the selection process, 4 cancer patients with a history of chemotherapy, in collaboration with physicians and nurses of the clinic and blood department and oncology department of the hospital, and based on features such as better adaptation to control the effects of chemotherapy, less conflict with the effects of chemistry. With the approval of the physician, treatment and desire to work with the researcher were selected as peer therapy [14]. Two training sessions were conducted by the researcher to prepare peers. The trainings were determined according to the objectives of the research with the cooperation of 3 oncology specialists and 5 nurses working in the oncology departments. The information was collected in such a way that after random selection, individuals were contacted by phone and the method of study was explained to them. If agreed, the time of meeting with them was determined at the Imam Khomeini hospital's chemotherapy clinic. In addition to routine hospital care, patients received training from their peers during the first course of chemotherapy (3-4 months).

The program of training sessions by peers for one hour before the start of chemotherapy sessions was face to face and supervised by the researcher on the necessary items for how to self-care in the complications of chemotherapy. The content of the training sessions by peers included: introducing patients to each other and peers, patients needs, and describing the importance of observing self-care behaviors. During this time, the control team did not intervene and received only the usual care of the clinic and oncology department. After training by peers (3-4 months), patients were asked to complete a self-care memory questionnaire (post-test) so that the researcher could obtain information on the effectiveness of self-care behaviors to reduce complications [15].

Finally, after collecting the data, the data were analyzed using descriptive statistics (mean and standard deviation) and analytical statistics (independent t-test and t-test) by SPSS software version 19 (Figure 1).



## Results

Demographic findings indicate that the majority of participants in the two groups of women, aged 46-65 years, were married, had genitourinary cancers and a family history of cancer in terms of homogeneous characteristics.

**Table 1:** Mean score of effectiveness of self-care behaviors by cancer patients for management of chemotherapy complications in intervention and control groups before intervention.

After intervention			Before intervention		Side effects of chemotherapy		
P value	t	M (SD)	P value	Independent t test	M (SD)	Control	Difficulty sleeping
0/02	2/36	3/20 (0/92)	0/19	1/30	3/56(0/67)	Intervention	
		2/63 (0/92)			3.33 (0/71)		
0/00	9/34	3/16 (0/83)	0/60	0/58	3/26 (0/73)	Control	Decreased appetite
		1/50 (0/50)			3/36 (0/76)	Intervention	
0/01	2/47	3/60 (0/78)	0/87	0/15	3/30 (0/86)	Control	Constipation
		2/46 (1/07)			3/26 (0/74)	Intervention	
0/00	9/09	3/03 (0/96)	0/76	0/29	3/33 (0/88)	Control	Diarrhea
		1/26 (0/44)			3/26 (0/86)	Intervention	
0/00	10/17	1/23 (0/77)	0/38	0/86	3/26 (1/01)	Control	Mouth sore
		1/40 (0/62)			3/03 (1/06)	Intervention	
0/00	8/31	3/40 (0/72)	0/81	0/23	3 (1/17)	Control	Nausea and vomiting
		1/93 (0/63)			2/93 (1/04)	Intervention	
		3/40 (0/81)	0/90		3/10 (1/12)	Control	Changes in food taste and smells
		1/60 (0/56)			3/06 (0/98)	Intervention	

0/00	9/96			0/12			
0/00	5/73	3/16 (0/87)	0/40	0/84	3/36 (0/85)	Control	Anxious
		2/06 (0/58)			3/16 (0/98)	Intervention	
0/00	12/83	3/13 (0/77)	0/68	0/40	3/26 (0/96)	Control	Irritation skin
		1/20 (0/40)			3/36 (0/94)	Intervention	
0/01	2/41	3/36 (0/68)	0/06	1/95	3/76 (0/43)	Control	Fatigue
		2/96 (0/99)			3/40 (0/93)	Intervention	

Independent t-test did not show a statistically significant difference in the mean score of self-care behavior of patients undergoing chemotherapy before intervention in the experimental and control groups ( $p>0.57$ ). The same test showed a statistically significant difference in the self-care efficacy scores of cancer patients undergoing chemotherapy in the two groups after the intervention ( $p<0.05$ ) (Table 1).

Paired t-test also showed a significant difference in the self-care behavior effectiveness score of cancer patients undergoing chemotherapy before and after the intervention ( $p<0.05$ ) (Table 2).

**Table 2:** Mean score of effectiveness of self-care behaviors by cancer patients for management of chemotherapy complications in intervention and control groups before intervention.

Pair t	After intervention	Before intervention		
t=1/69 df=29 p=0.10	3/20 (0/92)	3/56 (0/67)	Control	Difficulty sleeping
t=-2/85 df=29 p=0/08	2/63 (0/92)	3/33 (0/71)	Intervention	
t=0/05 p=0/6 df=29	3/16 (0/83)	3/26 (0/73)	Control	Decreased appetite
t=12/47 p=0/62 df=29	1/50 (0/50)	3/36 (0/76)	Intervention	
t=1/18 df=29 p=0/24	3/06 (0/78)	3/26 (0/86)	Control	Constipation
t=3/60 df=29 p=0/005	2/46 (1/07)	3/30 (0/74)	Intervention	
t=1/17 df=29 p=0.24	3/03 (0/96)	3/33 (0/88)	Control	Diarrhea

t=13/19 df=29 p=0/00	1/26 (0/44)	3/26 (0/86)	Intervention	
t=0/13 df=29 p=0/89	3/23 (0/77)	3/26 (1/23)	Control	Mouth sore
t=7/35 df=29 p=0/00	1/40 (0/62)	3/03 (1/06)	Intervention	
t=1/48 df=29 p=0/14	3/40 (0/72)	3 (1/17)	Control	Nauseaand vomiting
t=6/28 df=29 p=0/00	1/93 (0/63)	2/93 (1/04)	Intervention	
t=1/27 df=29 p=0.21	3/40 (0/81)	3/10 (1/12)	Control	Changes in food taste and smells
t=7/47 df=29 p=0/00	1/60 (0/56)	3/06 (0/98)	Intervention	
t=0/86 df=29 p=0/39	3/16 (0/87)	3/36 (0/85)	Control	Anxious
t=4/64 df=29 p=0/00	2/06 (0/58)	3/16 (0/98)	Intervention	
t=1/04 df=29 p=0/30	3/13 (0/77)	3/36 (0/96)	Control	Irritation skin
t=11/98 df=29 p=0/11	1/20 (0/40)	3/26 (0/94)	Intervention	
t=1/61 df=29 p=0/11	3/50 (0/68)	3/76 (0/43)	Control	Fatigue
t=1/89 df=29 p=0/05	2/96 (0/99)	3/40 (0/93)	Intervention	

## Discussion

According to the results of the present study, after the peer-centered training program during the first course of chemotherapy, the mean scores of the effectiveness of self-care behaviors were different between the intervention and control groups and there was a significant difference in all dimensions between the two groups. The effect of peer education on the effectiveness of self-care behavior in cancer patients. Sharif, et al. study to evaluate peer-based education on quality of life of mastectomized patients referred to breast cancer clinics in Shiraz. Results show the impact of peer group education as an effective teaching method on quality improvement. Patient's quality of life was effective. Mabacho, et al. also study peer health education on understanding and willingness to screen for cervical cancer on 300 Nigerian women of childbearing age, increasing personal risk perception about cervical cancer, and the benefits of early detection of cervical cancer [16]. The uterus was observed through screening Lu, et al. also found that peer education was effective in postoperative rehabilitation of 240 patients with laryngeal cancer. Berger, et al. also conducted a study of patients with breast and prostate cancer in 2018 prior to their first oncology visit, and the results showed that interpersonal changes in patients knowledge of disease and planned treatment. There are people who have access to the Internet on a daily basis and those with higher education have the highest basic scores. After receiving information from a physician, the mean level of knowledge of the patients reached significantly 21.3 out of 25 points. Najafi, et al. in a study of the effect of peer-to-peer support on health-promoting style in women with breast cancer showed that peer support increased health-promoting scores in patients. The results of a study by Aranda, et al. also showed that the training program significantly provided some of the side effects of chemotherapy, including the incidence and severity of nausea and vomiting in patients, by providing self-care information, educational counseling and telephone follow-up decreases [17,18]. These studies were consistent with the present study due to the effectiveness of self-care training in the effects of chemotherapy (nausea and vomiting), but their differences were similar to the present study in the educational method and the study of a limited number of chemotherapy complications. The results of a study by Ahmadi, et al. showed that peer education on self-care behaviors of patients with effective diabetes and the average self-care behaviors had increased compared to before the intervention [19]. Given that cancer and diabetes are similar in terms of chronicity and lack of definitive treatment, the results of the two studies confirm each other. But in general, based on the findings of this study, it can be concluded that using the peers and experiences of these people as training program educators can improve the management of chemotherapy side effects in patients undergoing chemotherapy. There were two limitations in this study; the effect of individual characteristics of the participants on the level of learning and the way of completing

the questionnaire. This study was conducted by the ethics committee in the research of Urmia university of medical sciences with the number 1397.118 IR.UMSU.REC. And the registration of Iran's clinical trial with the number IRCT20161116030926N2 was approved. Obtaining a project permit from the hospital management, obtaining the consent of the participants, keeping the patients information confidential and observing the rights of the authors in the use of printed and electronic texts and resources were the ethical considerations observed in this study.

## Conclusion

Based on the findings of this study, it can be concluded that the use of peers and their experiences can promote the on self-care behaviors in patients undergoing chemotherapy referred to Imam Khomeini Hospital of Urmia.

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## Conflict of Interests

There is no conflict of interest among the authors.

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