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The effect of using self-help rehabilitation program on the life quality of the patients discharged from Intensive Care Units

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ABSTRACT

Aims: Patients in intensive care units experience many physiological and psychological complications that their recovery sometimes takes several years. Life quality of intensive patients after discharge is lower than other internal and surgical patients and physical problems makes a person disable in doing daily activities. This study assesses the effect of using self-help rehabilitation program on the life quality of the patients discharged from Intensive Care Units.

Methods: It was a clinical trial study which was done on ninety patients of internal-surgical intensive units of three hospitals in Kerman. This study was done by SIP68 life quality questionnaire with three physical, psychological and social areas and six dimensions in 2012. After patients' discharged from intensive care unit, they were in a general ward in tow case and control groups, data were analyzed by using inferential, descriptive statistical tests and $SPSS_{19}$ software.

Results: The mean score of the life quality in all the dimensions in intervention group was improved statistically. The mean age of the participants was 37.2 (9.5). There was no relationship between none of the demographic factors and life quality.

Conclusions: Since intervention had remarkable effect on improvement of the patients' life quality after discharge, performing patient-centered methods is effective in this area.

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1. Introduction

Millions of patients are hospitalized in intensive care unit annually; these patients after spending high costs and passing complex specialized services are very weak and they have low quality of life after discharge [1].

Many patients of intensive care units suffer from physical, psychological and social functional decline; not only these patients

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themselves are involved hardly, but also all the health care system is affected [2].

Patients in intensive care units often suffer from some complications such as myopathy, muscle weakness, disability in walking and stair climbing, neuropathy, anemia (physical complications) and anxiety disorders, depression, posttraumatic stress, disturbance in sleep and appetite (psychological complications) and many other things due to long-term hospitalization, acute diseases and consuming Cytotoxic drugs and drugs that weaken the immune system [3] that according to the texts, their recovery takes six months to two yeas [4,5].

Most of these patients need rehab services after discharge to return to their work and ordinary life since physical function is decreased due to the special disease and long period of inactivity. Decrease of muscle strength, a person's tolerance, myopathy and neuropathy leads to disability in doing duties and simple daily activities [1, 6, and 7]; the amount of physical disabilities in the form of functional limitation in this group of the patients is estimated over 60 percent one year after discharge [8].

In some countries there are some arrangements in national health schedule for rehabilitation of this group of the patients; for example 30 percent of Britain hospitals are equipped with rehab clinics of the intensive patients after discharge [9]; but in our country, it doesn't seem that the focus of the resources are moving toward the way that different patients of intensive care units achieve their required broad services integrated.

Considering social and economic conditions of the country, it seems that strengthening self-management methods of the patients until reaching to the appropriate level of global standards besides the present scattered rehabilitation services in this group is among the effective choices [10]; therefore this study was done with the aim of "studying the effect of patients' rehabilitation after discharge on life quality by using a patient-centered program in intensive care unit".

2. Methods

In this study which was done in clinical trial form with IRCT201211207844N2 code, ninety patients who were discharged from surgical-internal intensive units of three hospitals in Kerman and were hospitalized in ICU at least for 48 hours, were attached to ventilator during their treatment period and were able to use the manuals (patients or first level caregivers' literacy, consciousness and lack of cognitive deprive and willingness to cooperate) entered the study from October 2011 to September 2012.

Patients' exclusion criteria included; burn diagnosis, lack of communication ability due to hearing and speech defects, history of major psychiatric disorder and passing the end stages of life. Patients were divided into control and intervention groups randomly by using number table. Patients' registration was done in general ward 48 hours after being discharged from intensive care unit.

Severity of disease of all the patients was measured by using APACHE II criteria in the first day of hospitalization in intensive care unit. Hospitalization period, diagnosis, age and gender were documented as the possible factors influencing life quality and recovery process. SIP68 questionnaire was used for measuring patients' life quality.

This tool assesses the effect of disease on life quality from performance dimension and the scores are given from zero to one hundred. In this questionnaire zero indicates lack of performance limitation and one hundred indicates severe limitation of the performance. Answering the questions was in yes-no form and one and zero scores are given to these answers respectively.

For being sure about validity of this questionnaire in the Iranian Society, after translating the questionnaire in backward forward form again by using Content Validity Index (CVI) determination, all the questions with sentences such as being related, being simple and being clear were assessed by using the opinion of 10 faculty members of Razi

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nursing and Midwifery College. Sentences were edited after determining CVI based on the reviewers' view. Scores of CVI and internal reliability with determining correlation coefficient (Cronbach Alpha) were achieved 0.90 and 0.75 respectively.

The researcher visited control group in the general ward and SIP68 questionnaire was completed. Patients of this group only achieved usual visits of the specialists and the recommended references by them. Also patients of the case group were studied in the public ward with this difference that the rehabilitation package including; guidebook, exercise training CD and telephone contacts program were given according to the agreement with the patients and after taking their written consent. Written explanations about using the book and booklet that the patient should document the amount of using the educational package in that every day were given through oral explanations and answering the patients 'questions, it was done with the presence of the patient's family, a close friend or a first level caregiver, with this assumption that it does not only decrease family members' anxiety and their need to the information but also with their active cooperation, patient is also going to have more adherence to the program and the recommendations.

Telephone contacts were done based on the prior appointment in every other week l and patients were encouraged to continue using the program. Finally patient's outcome was measured and statistically analyzed by using the questionnaire at home.

Data analysis was done through $SPSS_{19}$ software, by using descriptive and analytic statistics based on the aims of the study. In order to determine demographic features of the study samples, descriptive statistic was used in the form of determining mean and percentage. For comparing numeric variables in two groups, independent t-test (such as age and the duration of hospitalization) and for comparing qualitative variables chi-square test were used. Due to that the data were natural, parametrical tests such as paired t-test were used for comparing life quality score of groups and Repeated Measure ANOVA was used for determining intervention effectiveness and evaluating the effect of demographic factors on the patients' outcome.

3. Results

The mean age of the patients was 46.1 (9.5) years old. 45.36% of the patients were female and 49.99% of the patients were male. The

Table 1: Difference of demographic factors in two intervention and control groups

Demographic features		Intervention	Control	*p value
Diagnosis Frequency (percentage)	Nerves (traumatic and non-traumatic)	25 (62.5)	23 (51.1)	0.8
	Internal	4 (8.8)	3 (6.6)	
	Surgical	3 (6.6)	6 (12.4)	
	Respiratory failure (traumatic)	13 (28.8)	(28.8)13	
gender Frequency (percentage)	male	21.32 (24.6)	23.2 (26)	
	female	25.66 (25.73)	24.2 (24.2)	0.2
Age (mean, standard deviation)		47.6 (8.15)	44.5 (10.93)	0.1
APACHE II (mean, standard deviation)		9.11 (8.25)	9.83 (7.34)	0.7
Hospitalization time (mean, standard deviation)		15.02 (2.36)	15.25 (2.57)	0.4

* ($p<0.05$)

In comparing numerical amount independent t-test and in comparing nominal amount $\chi 2$ were used.

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mean score of the disease severity by using APACHE II was 9.75 (7.8) and the mean of the patients' hospitalization in ICU was 15.2 (2.8). There was no relationship between age, gender, disease severity and hospitalization time with the life quality statistically ($p>0.05$).

After three months of discharge, no recovery in the patients' life quality was observed. This recovery was seen in intervention group in all the dimensions after performing rehabilitation program. The highest improvement was in physical independence, social behaviors and communication dimensions ($p<0.05$). Also in control group, life quality was improved in most of the dimensions, only in psycho-social areas such as social behaviors ($p=0.2$), emotional stability ($p=0.3$) and range of motion ($p=0.4$), this difference is not statistically remarkable.

By using paired t test, all the dimensions of life quality of SIP68 questionnaire showed recovery statistically after intervention and passage of three months.

4. Discussion

There was remarkable improvement in the patients' life quality after three months and performing rehabilitation program. It indicates the efficiency of patient-centered follow-up programs in the area of taking care of the patients after discharge that as the different studies state they are vulnerable populations regarding the amount of death and disabilities [11].

A study by Jounz et al. in 2003 has similar results with the present study [12]. In the study of Jounz et al. the difference of life quality score regarding physical dimensions in intervention group was statistically remarkable, but there was a little improvement regarding psychological dimension after intervention. In a study, Katbertson et al. measured the effect and affordability of the nurses' follow-up programs in improving patients' psychological and physical recovery process after discharge and the effect of such programs on the patients' life quality. After following up in two, three and nine months of time intervals after discharge, unlike the present study, there was no recovery statistically in the achieved results [13].

Despite this, results of an observational prospective study that for determining the predictive amounts of physical and psychological amounts of life quality measured this variable before hospitalization in ICU, three months after that and one year later in 38 internal and surgical patients, showed the improvement of physical dimensions clearly in the first one year Like the same study, but again these results were lower than the amounts before hospitalization. Unlike the results that we achieved, also in this study there was no relationship in comparing psychological dimension before hospitalization in ICU and

Table 2: Assessing dimensions of life quality in two control and intervention groups

	Immediately after discharge		Three months later		p value	
	Intervention	Control	Intervention	Control	Intervention	Control
Life quality dimensions	mean (standard deviation)	mean (standard deviation)	mean (standard deviation)	mean (standard deviation)		
Physical independence	10.3 (16.8)	12 (16.6)	72.3 (17)	57 (23.2)	0	.04
Movement control	22.4 (25.7)	25 (27.7)	61.1 (23.4)	55.5 (28.6)	0.01	0.6
Social behaviors	31.6 (31.2)	28.7 (27)	75.1 (26.8)	65.1 (18.1)	0	0.2
Communication and emotional independence	18.3 (28)	20.6 (21.6)	53.7 (31)	67.3 (27.3)	0	0
Emotional stability	9.6 (15.2)	14 (17.4)	42.2 (36.6)	65.2 (28.2)	0.01	0.3
Range of motion	36.2 (36.1)	30.9 (25.8)	77.5 (35)	95.1 (16)	0.05	0.4

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three months after that [14].

In the study of Kowal et al. life quality was measured among one hundred patients after six, eight and twenty four months of their discharge by SF36. After twelve months improvement was observed in all the eight dimensions of life quality which is in consistent with the present study [15].

In the study of Shef et al. in Amsterdam, patients who were under mechanical ventilation filled disease effect questionnaire three, six and twelve months after discharge. Also in this study, movement control and social behavior dimensions showed improvement during one year, but unlike the results of the present studies, psychological disorders still remain [16]. Also the results of the study of Eliot and Fildiazis et al. indicated low equality of life before admission and then the improving process of life quality scores, but again these amounts are lower than the mean score of the general population [17, 18]. Psychological dimensions in control group showed little improvement and it is in consistent with the findings of Jounz, Katbertson and Kowal who provided descriptive studies in this regard [1, 12, 19], but in the study of Fidiazis et al. psychological area was improved [18].

There are many effective factors in changing patients' life quality after being discharged from intensive care unit. For example age, gender and the severity of disease are mentioned as the main variables in most of the studies [20], but the effect of demographic factors in different studies still does not enjoy enough credit [21]. Also in this study, there was no relationship between demographic factors and changes of life quality.

Among the limitations of the study, considering that the high percentage of the patients after being discharged from ICU suffer from some degrees of loss of consciousness or cognitive disorders, sampling process by noticing that it was a self-help plan and following up the patients after discharge was very hard. From the other side due to lack of a special center for referring of these patients and that the interaction between the researcher and the participants was by phone, many of them were extracted from the study during the work process. Despite these limitations, intervention was effective in life quality of the patients of this group. This program can be used in national health planning for improving life quality of this group of the patients and eliminating the existed shortages in taking care of the patients.

5. Conclusions

Based on the results of this study, some low-cost interventions such as rehabilitation program improve patients' life quality after being discharged from intensive care unit and it can be used for nursing care planning in the house.

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