



Original Article

The Effect of Pre-Discharge Training on the Quality of Life of Burn Patients

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ABSTRACT

Introduction: Many physical, psychological, social and economic complications have been reported after discharge, which have a negative impact on the quality of life of burn patients. The present research examines the effect of pre-discharge training program on the life quality of patients with burns.**Methods:** This is a pre and post-experimental study with control group that was conducted in 2015 in teaching hospital Sina. The control group received the typical instructions upon being discharged from hospital while the experimental group received in-person training in the form of question-answer, pamphlets and a researcher-made instruction booklet. The patients' life quality was evaluated when they were being discharged, a month and then three months after they were discharged.**Results:** The result showed that the quality of life has a significant statistical difference across the three time points. And these differences are compared using Bonferroni's adjustment multiple comparisons indicating that pre-discharge training affects the quality of life scores and this effect continues over time.**Conclusion:** The results show that the pre-discharge training has significantly improved the life quality among the burns patients. The improvement of life quality is also correlated with the quantitative variable of total body surface area percent (TBSA %). Thus, planning and designing in-discharge training programs based on the existing context, combined with training packages focusing on the patients' needs could be a very significant step in more successful implementation of the follow-up programs on the burn patients and improving their quality of life.**Citation:** Lotfi M, Ghahremanian A, Aghazadeh A, Jamshidi F. The effect of pre-discharge training on the quality of life of burn patients. J Car Sci 2018; 7 (2): 107-12. doi:10.15171/jcs.2018.017

Introduction

Most of the burn survivors need medical, surgical and rehabilitation interventions for many years.¹ Evidence suggests that burns can have a major impact on the quality of life of patients and may impair their physical, psychosocial, and spiritual well-being.² Studies have shown that victims of burns face many problems, and this affects the quality of life, especially its psychological aspects.³ Many physical, mental, socio-economic complications, including skin problems, ulcers, pain, itching, stress, low self-esteem, anxiety, depression, post-traumatic stress disorder, lack of attention and support from family and friends, lack of financial support, etc., most of which occur after the patients being discharged, have been reported to have a negative impact on the quality of life of these patients.⁴ For this reason, these patients need long-term professional physical and social support.⁵ Survivors of burns have a lower quality of life and higher emotional stress than the normal population.⁶ Today, taking care of the patients with burns after their survival is a priority.⁷

Quality of life is considered as an important indicator for assessing personal health, making decisions and judging the general health of the community and identifying the main problems of individuals' lives in the health system.⁸ Nurses, as the most important members of the burn treatment team, are responsible for maintaining and improving the physical, and mental well-being of the patients.

On the other hand, discharge from the hospital is a serious and complicated transition in the life stages of burn patients. Stress and anxiety at this stage will increase the patients' need to receive information, training and reassurance. This information is essential for the well-being of patients, as 19% of patients experience an incompatible event after a discharge because of a lack of knowledge.⁹ The discharge stage does not mean the end of treatment for burn patients, rather discharge means that the patient and his or her family should resume running their life without the help of hospital staff. Burn patients need to be adapted to new situations such as self-care at home, lifestyle changes, and return to the society.¹⁰ The overall prevalence of psychological disorders among these patients is between 28%-75% and their physical complications is 90%, which poses many requirements in dealing with such problems. These needs during post-discharge recovery should be identified by the nurses and be dealt with good planning. The lack of awareness at discharge time will lead to re-admission and unnecessary use of resources, and impose additional costs on the community, and information organized. Trained well by the nurses will also have positive economic effects, and will increase the capacity of patients in self-care as well.¹¹ The difficulties and limitations of patients in paying for hospital costs, limited facilities and the risk of hospital infections, and providing better and healthier care at home are all indicative of the importance of training patients.¹²

Patient training is one of the most important aspects of care.¹³ According to William and Goupy, the highest percentage of patients' dissatisfaction concerns the provision of information and training.^{14,15}

Studies on the effectiveness of training at discharge time on the outcomes of patients are diverse and have different results. The long-term experience of the authors of the article in the care of burn patients shows that there is not a training care program that must be compatible with the socio-cultural conditions of Iran for the training the discharge of burn patients. Therefore, the aim of this study is to develop a training program for the discharge of patients admitted in burn wards, execute it, and evaluate its impact on the outcome of patients' quality of life.

Materials and methods

This is a pre and post-experimental study with a control group which was conducted with the aim of determining the effect of pre-discharge training on quality of life as well as investigating the relationship between gender, age, burn percentage and hospitalization time with the quality of life of burn patients referring to the teaching Hospital Sina, Tabriz, a northwestern city of Iran.

To determine the sample size using the software GPower 3.1,¹⁶ the minimum sample size, taking into account $P = 0.5$, and the mean Cohen's median effect ($h = 0.5$) and 80% power and 95% confidence level, was obtained 64 for each group.

Primary sampling for selecting the participants in the study, and also allocating them to experimental and control groups were done randomly. Likewise, after referring to the mentioned center, qualified patients with burns were identified in the wards and after obtaining informed consent, they were randomly entered in one of the control or experimental groups. The inclusion criteria were as follows: native, aged over 18, not suffering from chronic diseases such as diabetes, renal failure, coronary artery disease, cirrhosis of the liver and hepatitis, or suffering from confirmed mental diseases, mentally retarded and burns under 60% of the body surface, and unintentional. Exclusion criteria were changing place of residence and being reluctant to continue to participant in the study.

Intervention:

All participants in the intervention group were evaluated in the first 48 hours of their hospitalization with respect to four areas of physical, spiritual, psychological and social on the basis of "coming back to existence caring model". Then, the patients were visited by the researcher every three days. After the patient was examined after, as soon as possible physiological stability, the educational goals were collaboratively determined and prioritized with the patient and their family on the basis of the initial assessment and identification of the educational needs. Afterwards, upon being discharged, the patients were provided with training materials such as booklets and pamphlets alongside face-to-face education. Also, the questions and worries of the patients were responded to,

and they were given adequate information regarding their future follow ups and reference. It has to be mentioned in passing that the patients were able to access the researcher through telephone calls or personal meetings to receive the required guidance and counselling on any sort of question or problem they had encountered up to three months after being discharged.

The tool for gathering data in this study was a demographic form, with socio-demographic data including age, sex, place of residence, marital status, educational level, occupation and household economic status, and the information related to disease and treatment were also investigated. The Persian version of the burn-specific health scale-brief Questionnaire (BSHS-B) was used to assess the quality of life. The Persian version of this questionnaire was confirmed in terms of linguistic and cultural adaptation in a study carried out by Pishnamazi *et al.*, and its reliability was confirmed by a test-retest method with a correlation coefficient of 0.85.³

This questionnaire consists of 40 items. Of these 40 items, 18, 11 and 11 are related to the physical, psychological, and social aspects of quality of life, respectively. The items include concern skin sensitivity to heat, body image, hands performance, how to take care of burned areas, occupation-communication, and ability to perform simple activities, sexual performance, and emotional aspect. The 5-point Likert items included "very high", "somewhat high", "moderate", "low" and "in no way", and the score ranges from 1 to 5, respectively. Based on this questionnaire, quality of life is determined by the total scores of the responses to the questionnaire.

All questionnaires were completed by interview. The researcher was present at the burn wards on certain days and received informed consent after introducing himself/herself to the patients and providing adequate explanations about the purpose of the research. All units under study were assured that the information obtained in the research would remain confidential and would not be used in any other way. All data were collected after receiving approval from the Ethics Committee of Tabriz University of Medical Sciences (code of ethics: TBZMED.REC.1394.1184).

SPSS software version 13 was used for data analysis. Descriptive statistics were first reported in the forms of frequency and percentage for qualitative variables, and mean and standard deviation for quantitative variables. Then, Mixed Repeated Measures ANOVA was used to compare the quality of life scores in three times before discharge, one and three months after discharge in two experimental and control groups. Furthermore, in order to investigate the relationship between some of the demographic characteristics and the quality of life of people suffering from burns, multiple regression models were used, considering the quality of life component as a dependent variable, and analysis the variables such as age, gender, burn percentage, hospitalization time as independent variables.

Results

Findings of this study with regard to demographic characteristics showed that in both groups, 50% of

participants were female. The majority of samples in the control group (23.4%) had elementary education and the same percentage accounted for those with high school education. In the intervention group, the majority (32.8%) had a diploma. Most of the samples in the control and intervention groups were married, 87.5% and 84.4%, respectively, and mostly had an average income level. There was no significant difference between the two groups in terms of these variables ($P > 0.05$).

In addition, the mean (SD) of the control and intervention groups were 40.96 (13.57) and 39.45 (15.71), respectively, and the duration of stay was 13.45 (7.41), 18.03 (12.25), respectively. Independent t-test showed that there was no significant difference between the two groups in terms of age ($P > 0.05$), but there was a significant difference in the length of stay ($P = 0.012$).

Regarding the burn-related variables, the results showed that most of the individuals in the control and intervention groups (54.7% and 51.6%, respectively) had second and third-degree burns ($P = 0.626$). In terms of severity of the burns, the majority of participants in the control and intervention groups (53.1% and 60.9%, respectively) were in a moderate condition ($P = 0.371$).

The mean (SD) for the control and intervention group were 11.98 (7.33) and 14.63 (13.54), respectively. Independent t-test showed that the two groups did not differ significantly in terms of burn percentage ($P = 0.173$), (Table 1).

The results of comparing the scores of quality of life between the two experimental and control groups at three times before, one month, and three months after discharge are shown in Table 2. Considering the defect of the presupposition in Mauchly's test of sphericity, in the analysis of the variance of repeated measurements, the Huynh-Feld correction was used for the degree of freedom. The results showed that quality of life has a statistically significant difference over three different time intervals, and in general it can be said that approximately 80% of variance of quality of life scores is explained by an independent variable.

Intra-group comparisons showed a significant linear increase in the quality of life in both groups under study, while inter-group comparisons showed that the quality of life scores between the two experimental and control groups were statistically significant in the three different time intervals (Table 3). To investigate these differences, Bonferroni's moderated multiple comparisons were used.

As it is shown in table 4, there is an increasing trend over three different time intervals for the quality of life scores, and the mean quality of life scores in both groups has increased, and this trend is more in the experimental group than in the control group. A multiple linear regression was calculated to predict quality of life scores based on their burn percent, age, stay in hospital and predictors such as burn percent which was significantly related to patients' quality of life. Therefore, patients' quality of life is reduced by 0.898 units for each burn percentage.

Table 1. Demographic information of the research samples in the two experimental and control groups

| Variable | Control N (%) | Experimental N (%) | P* |
|--------------------------|------------------|-----------------------|--------|
| Gender | | | 1 |
| Men | 32 (50) | 32 (50) | |
| Women | 32 (50) | 32 (50) | |
| Education level | | | 0.253 |
| Illiterate | 11 (17.2) | 8 (12.5) | |
| Elementary | 15 (23.4) | 17 (26.6) | |
| Junior high school | 15 (23.4) | 12 (18.18) | |
| Diploma | 13 (20.3) | 21 (32.8) | |
| Higher than diploma | 10 (15.6) | 6 (9.4) | |
| Marital status | | | 0.611 |
| Married | 56 (87.5) | 54 (84.4) | |
| Single | 8 (12.5) | 10 (15.6) | |
| Economic status | | | 0.513 |
| Poor | 16 (25.0) | 11 (17/2) | |
| Average | 42 (65.6) | 47 (73/4) | |
| Good | 6 (9.4) | 6 (9.4) | |
| Burn degree | | | 0.626 |
| 1 | 1 (1.6) | 1 (1.6) | |
| 2 | 22 (34.4) | 19 (29.7) | |
| 3 | 6 (9.4) | 11 (17.2) | |
| 2,3 | 35 (54.7) | 33 (51.6) | |
| Burn severity | | | 0.666 |
| Low | 1 (1.6) | 1 (1.6) | |
| Average | 34 (53.1) | 39 (60.9) | |
| High | 29 (45.3) | 24 (37.5) | |
| Place of residence | | | 0.394 |
| Rural | 11 (17.2) | 11 (17.2) | |
| Urban | 13 (20.3) | 20 (31.3) | |
| Resident of Tabriz | 40 (62.5) | 33 (51.6) | |
| Occupation | | | 0.161 |
| Worker | 19 (29.7) | 10 (15.6) | |
| Clerk | 6 (9.4) | 5 (7.8) | |
| Housewife | 27 (42.2) | 29 (45.3) | |
| Unemployed | 1 (1.6) | 0 | |
| Others | 11 (17.2) | 20 (31.3) | |
| Type of family | | | 0.565 |
| Immediate family | 60 (93.8) | 60 (93.8) | |
| Extended family | 4 (6.2) | 4 (6.2) | |
| Burn area | | | <0.001 |
| Head and face | 1 (1.6) | 5 (7.8) | |
| Limbs | 27 (42.2) | 43 (67.2) | |
| Torso | 1 (1.6) | 5 (7.8) | |
| Pierna | 0 | 1 (1.6) | |
| Others ^ε | 35 (54/7) | 10 (15.6) | |
| Cause of burn | | | 0.811 |
| Hot liquids | 24 (37.5) | 24 (37.5) | |
| Hot semi-solid materials | 2 (3.1) | 2 (3.1) | |
| Chemical materials | 3 (4.7) | 1 (1.6) | |
| Electricity | 1 (1.6) | 3 (4.7) | |
| Fire flame | 24 (37.5) | 22 (34.4) | |
| Others ^ξ | 10 (15.6) | 12 (18.8) | |
| Cause of burn | | | 1 |
| Accidental | 64 (100) | 64 (100) | |
| Arson | 0 | 0 | |

^εactive in business and student, ^ξburns more

Table 2. Demographic information of the research samples in the two experimental and control groups

| Variable | Mean (SD) | P* |
|-----------------|----------------|-------|
| Length of stay | | |
| Control | 13.45 (7.417) | 0.012 |
| Intervention | 18.03 (12.250) | |
| Age | | |
| Control | 40.64 (13.579) | 0.648 |
| Intervention | 39.45 (15.716) | |
| Burn percentage | | |
| Control | 11.98 (7.337) | 0.173 |
| Intervention | 14.63 (13.548) | |

Discussion

The results of this study showed that although in both experimental and control groups, the quality of life gender, a significant regression equation was found. $F(4.59) = 16.378, P < 0.001$ with an R square of 0.526.

Participants predicted quality of life scores is equal to: $Q. L = 187.672 - 0.898$ (Burn percent) between these results of his study showed that pre-discharge training improves compliance with a healthy lifestyle among patients with acute coronary syndrome. In this study, the experimental group receiving pre-discharge training significantly scored higher than the control group in terms of three components of lifestyle-health responsibilities, nutrition, and interpersonal relationships. As a result, pre-

discharge training encourages patients with acute coronary syndrome to adapt to healthy lifestyles.¹⁷

Also, in the study of Altuntas, which explores the role of group training on the quality of life of patients with stoma, it has been shown that training in the form of lecturing and social activities leads to significant improvements in all aspects of quality of life.¹⁸

The findings of study are consistent with the results of this study. In his study, he showed that self-care training in the intervention group significantly improved the quality of life in patients with myocardial infarction.¹⁹

At the same time, the study by Gallefoss et al.,²⁰ which was conducted at Christianssand Hospital in Norway, over asthma patients, showed a different outcome. In this study, four individual and group training sessions were held, each lasting for two hours. The studies performed 12 months later did not show a significant difference in the quality of life scores and respiratory volumes.²¹ The cultural, political and social differences between this research and the present study may be seen as the cause of the difference.

In another study by Palmu et al., entitled "The quality of life of burned patients admitted to the hospital six months after burning", the results showed that overall perceived quality of life among burned patients 6 months after the injury is similar to the quality of life among healthy population of Finland. High standards of care in

Table 3. Mean and standard deviation of quality of life scores in the control and experimental groups before, one month and three months after discharge

| Quality of life | Control | Experimental | P | 95% CI | |
|------------------------------|------------------------|------------------------|--------|-----------|------------|
| | Mean (SE) ^ε | Mean (SE) ^ε | | Low Limit | High Limit |
| Before discharge | 120.71 (3.10) | 129.95(3.10) | 0.037 | -17-91 | 0-56 |
| One month after discharge | 143.90 (2.75) | 156.76 (2.75) | 0.001 | -20-55 | 5-16 |
| Three months after discharge | 161.34 (3.10) | 175.29 (2.68) | <0.001 | -21-46 | 6-44 |

^εMean (Standard Error)

Table 4. Bonferroni's moderated multiple comparisons based on estimated marginal means

| Group | Mean (SD) |
|------------------------------|---------------|
| Before discharge | |
| Control | 120.71(26.05) |
| Intervention | 129.95(23.49) |
| Total | 125.33(25.13) |
| One month after discharge | |
| Control | 143.90(24.71) |
| Intervention | 156.76(18.90) |
| Total | 150.33(22.84) |
| Three months after discharge | |
| Control | 161.34(25.41) |
| Intervention | 175.29(16.60) |
| Total | 168.32(22.49) |

Table 5. Comparisons between quality of life scores before, one month and three months after discharge

| Quality of life | Df* (SE) | P | 95% CI ^ε | |
|------------------------------------|---------------|--------|---------------------|------------|
| | | | Low Limit | High Limit |
| Control | | | | |
| One month after-before | -23.18(07) | <0.001 | -27-2 | -18-95 |
| Three months after-before | -40.62(0.426) | <0.001 | -51-46 | -34-74 |
| Three months after-one month after | -17.43(0.549) | <0.001 | -195-21 | -68-13 |
| Experimental | | | | |
| One month after-before | -26.81(0.74) | <0.001 | -31-0.45 | -58-22 |
| Three months after-before | -45.34(0.42) | <0.001 | -51-229 | -34-74 |
| Three months after-one month after | -18.53(0.549) | <0.001 | -22-289 | -68-13 |

[∇]Differences mean, ^ε95% confidence interval for the mean difference in scores before, one month and three months after discharge in the relevant community.

the acute phase and the inclusion of burns less than 5 percent in the study may have had a poor impact of the injury on the quality of life.²²

According to the literature, there is a close relationship between the burn percentage and the quality of life of the burned patients. In this regard, the present study also showed that there is a significant relationship between quality of life scores and burn percentage, so that an increase in the burn percentage leads to a decrease in the quality of life. These results are similar to those of others. The results of the study of Pishnamazi et al., which is consistent with the results of this study, showed that the higher the percentage of burns, the lower the quality of life, especially in the physical field.⁸ In addition, the results of Pallua et al., showed that an increase in the percentage or extent of burn is associated with physical performance of the patients, and an increase in the percentage of burns results in a decrease in the physical performance.²³ Druery et al., also concluded in their study that the level of mobility and self-care significantly changes in the burns by more than 20% of the body surface.²⁴ In their study, Anzarut et al., concluded that patients with extensive burns had lower scores in terms of physical fields compared to healthy groups of the population.²⁵

The present study showed that there is no significant relationship between age and quality of life. In this regard, the results of the study by Pishnamazi et al., and Tahir et al., were consistent with the results of our study.^{8,9}

However, the results of Malik et al.,'s studies showed that there is a significant relationship between age and quality of life.²⁶ Pope et al., also reported in their study that teenagers with a history of burns in their childhood had a higher level of satisfaction than their control group.²⁷ The possible reason for such results may be due to cultural difference in research environments, in a way that in some cultures, life-threatening diseases encourage many teenagers to use coping strategies such as expressing painful feelings, communicating with peers, determining tyranny, and effective use of all moments of life which ultimately helps them have normal lives.²⁵

Our study showed that there is no relationship between gender and quality of life. In this regard, the results of the study of Misra et al., are opposed to the present study, so that men had a better quality of life in terms of psychological aspect than women.²⁸ Also, the results of the study by Palmu et al., showed that quality of life in women are worse than men.²² At the same time, in this regard, Pishnamazi et al., and the study of Tahir et al., support our findings.^{8,9}

The findings of this study showed that there is no significant relationship between quality of life and hospital stay, while the results of the study by Kimmo et al., showed that patients with more than one month of hospitalization were more concerned about their general health.²⁹ Baker et al., also found that the length of stay in the hospital could be a predictor of physical performance. Patients staying longer in the hospital reported less mobility and limited hand performance.³⁰ The existence of different protocols to decide on the time of discharge

of patients from the hospital, the existence of organizations and health care providers or post-discharge pursuit are among factors affecting the quality of life. Similarly, a decrease in the diversity of adaptation strategies in the hospital wards and communication limitations could be a possible reason for the loss of quality of life with an increase in the length of hospitalization in these studies.³¹

Conclusion

The findings of this study showed that pre-discharge training significantly increases the quality of life in patients with burns. Also, this increase in the quality of life is associated with a burn percentage variable.

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Ethical issues

None to be declared.

Conflict of interest

The authors declare no conflict of interest in this study.

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