*The article was received on November 16, 2020, and accepted for publishing on March 5, 2021.*

VARIA

# The effect of multimedia training on social function of burn patients in Shahid Motahhari Hospital, Tehran: A clinical trial study

**Karvan Bekmaz[1], Somayeh Hashemzadeh[2], Hadiseh Okhli[2], Fatemeh M. Ardebili[3], Samira Khanmohammadi[2], Leila Mamashli[4]**

**Abstract**: *Introduction: Burn is a tissue injury and affects social functioning and relationships. Complications of burns lead to disruption of social relationships and consequently social dysfunction.*

*Objective: Aim of this study was to determine the effect of multimedia training on social functioning of burn patients in Shahid Motahhari hospital in Tehran.*

*Methods: This clinical trial study was performed on 100 burned patients. The intervention group received a multi-media self-care discharge training on a CD in addition to the common education. Social function of quality of life was examined in both groups before intervention, 3 months and 6 months after intervention.*

*Conclusion: Results showed that before intervention the mean score of social function of quality of life in intervention and control group was 1/55± 0/46, 1/92± 0/6 respectively which was statistically significant (p <0.001). Mean and standard deviation of social function of quality of life in the intervention and control groups three and six months after intervention were 2/47± 0/56, 4/05± 0/77, 2/15±0/39, 3/29 ± 0/95 respectively which was statistically significant (p <0.001).*

**Keywords**: *self-care, multimedia, patient discharge, social adjustment, burns*

## INTRODUCTION

Burn have been described as one of the most devastating disasters on the human body [1] which seriously damages one's life and health and is considered to be the fourth most common injury [2]. The World Health Organization estimates that the incidence of burns Severe is one percent of life expectancy and more than 300,000 people die from burns worldwide each year [3]. According to the Forensic Medicine Organization statistics, in the first quarter of this year, 379 people died from burns in the country. Of these, 213 were men and 166 were women [4], so burn injuries are one of the most dangerous health incidents in Iran. Over the past decade, advances in health care have made patients with more severe burns survive [5]. Even if urgent management is successful, burn injuries can create many obstacles for patients. In addition to their physical problems, they also suffer from social problems and ultimately their quality of life is affected [6]. Patients suffer from severe seizures at the gate, which can live longer. High-end living is particularly attractive in most places where a lot of space for cabins can be attractive. And the place of marriage, relationships, places of residence, in their lives, and ultimately cause them to become overwhelmed by anxiety and anxiety [7]. People

Corresponding author: Leila Mamashli
nosratollahmas@gmail.com

[1] Department of Nursing, Orumieh Branch, Islamic Azad University, Orumieh, Iran
[2] Department of Nursing, Ali Abad Katoul Branch, Islamic Azad University, Ali Abad Katoul, Iran
[3] Department of Medical-Surgical Nursing, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran
[4] Department of Nursing, Gonbad Kavoos Branch, Islamic Azad University, Gonbad Kavoos, Iran

have trouble meeting new people and dating, worrying about developing relationships and exhibiting various reactions, such as shyness, aggression, or extreme social avoidance. Therefore, it is necessary to design appropriate supportive programs to improve their quality of life [8]. The only thing that will help the patient is how to live with this situation and learn to meet their own needs and to be less in need of others and to have the attitude that they can play with these shortcomings and that It will be nothing but training and learning and rehabilitation [9]. The philosophy of patient education is to apply the information and skills learned to control and cope better with the disease performed by the care team, especially the nurses [10]. The role of nurses in the last few years as the most important member of the health care team has undergone a historical transformation, from promoting patient-centered health education to empowering patients to self-care and achieve health. Informing the patient and contributing to decision-making speeds recovery and reduces hospital stay and reduces hospital readmission [11]. This is a key challenge here in achieving donation. Education is a traditional teaching tool and disability [12], because lecture-based training requires a great deal of time and expense and, on the other hand, a patient with a burn accident during hospitalization due to mental and physical injuries, physical injuries. Physical weakness, painful daily activities, intellectual discomfort, and lack of focus on decision making may make you less prepared to learn and remember education. The empowerment and self-care is not [9]. In recent decades, traditional approaches to learning with the advent of new technologies such as multimedia virtual education have undergone dramatic changes [13]. The purpose of multimedia application is to make meaningful learning happen, and meaningful learning occurs when the learner can make meaning to the material presented by constructing a coherent mental image from multiple sources of information [14]. It seems that learning will be better if the patient is able to carry out a self-care program using a comprehensive audiovisual CD to suit any time and circumstances they wish [9]. Also, due to the gradual process of rehabilitation in patients, education during discharge for these patients to return to the community must be sufficient and carefully planned [15].

## OBJECTIVES

Since humans are social beings and communicating with others is an important factor in life and patients with burns suffer from this, the researchers sought to investigate the impact of multimedia training on the social functioning of burn patients. At the Shahid Motahhari Hospital in Tehran.

## MATERIALS AND METHODS

### Setting

This research was a randomized clinical trial with a control group that was conducted in the hospitalization wards of Shahid Motahari Burn Center, Tehran, Iran in from 2016 to 2017. The study population consisted of all burn patients who were admitted to Shahid Motahari Burn Center and were participated in the study based on the inclusion criteria.

### Inclusion and exclusion criteria

The criteria for participating in the study were the patients` age, people who were between 18 to 60 years, and had the ability to use audiovisual compact discs (CDs), their burning percentage to be 10-45%, degrees of 1, 2 and 3, those having a minimum reading and writing literacy, and understanding of Persian language. Also those who lacked sensory and motion problems and brain and mental disorders, mental retardation, those who were living in Tehran and the suburbs of Tehran, people whose burns were due to accident and non-self-immolation, non-burning with electricity were included in the current study. The exclusion criteria were the withdrawal of continued study and severity of disease, disability and death of patient.

### Sampling method

The sampling method was at convenience and continuous study; the patients were randomly assigned into intervention and control groups. According to the studies carried out in this regard, the effect of educational interventions with 95% of confidence and 80% of test capacity was considered on the number of samples needed for each group and taking into account 10 scores of difference in the quality of the psychological dimension of life of the two groups. So the population was estimated to be 55 people based on the following formula in a way that each group included 50 subjects, considering 10% of the probability of not participating. Finally, 100 samples were considered to be participated in the study with the formula $n=2(z1-\alpha/2+z1-\beta)2s2/(\mu1-\mu2)2$. In this formula $z1-\alpha/2=1.96$, $z1-\beta=0.84$, $s=9$ and $\mu1-\mu2=5$.

### Measures

Two questionnaires were used in the recent study. The demographic information questionnaire and the status of the disease including some questions about gender, age, occupation, marital status, burning agent or source of heat (gasoline, gas, flame, hot liquids, oil, hot food, etc.), level of education, grade and percentage of burns, burning area, city, location of incident and economical status. This

questionnaire was selected by the patient and a research associate on the first day so that the samples inclusion in the study was completed. The next instrument was a questionnaire of burn patient's Quality of Life [BHS-B (Burning Specific Health Scale). The social dimensions of this questionnaire were used.

The questionnaire included 40 questions about skin sensitivity to heat, body image, hand performance, care for burnt areas, communication, ability to perform simple activities, sexual function and psychological dimension with the options of high, moderate, low and never, which had been scored from 1 to 5, respectively. Each questionnaire had at least one and maximally five scores. Based on this questionnaire, the quality of life in each dimension or domain was determined separately and in all domains. From 40 questions of the questionnaire, 18 questions were related to the physical dimension of quality of life, 11 questions were about the psychological dimension of quality of life and 11 questions revealed the social dimension.

Demographic and disease information questionnaire was given to 10 faculty members of the faculty of medical sciences in terms of validity and content validity, and then their opinions were applied as the reliability and validity of the BHS-B were measured by Kildal et al. in 2001 using its dimensional analysis [16] In Iran, Pishnamaazi et al. (2009) had measured its validity and reliability by Alpha Cronbach of 94% in the burn patients in Shahid Motahari and Hazrat Fatemeh hospitals [17] and at Qotboddin Shirazi Hospital [18], calculated the reliability of this tool with Alpha Cronbach of 98%. In our study, Alpha Cronbach was measured 94%.

**Education and treatment program**

Based on the implementation of this method, the researcher referred to the Burn Medical Educational Center of Shahid Motahari Hospital after receiving the study confirmation from Iran University of Medical Sciences and the ethical code from the university's ethics committee (93-02-28-24922-106366 on 8/12/2014 and registered in a clinical trial with the code IRCT 2014112920145).

After introducing the principal investigator and the collaborators of the research and the research objectives to the hospital's officials and obtaining permission, he referred to the departments and, while introducing himself and the colleagues of the research and the study objectives to the departmental authorities, the samples were randomly provided according to the conditions of inclusion as the control or intervention group. After explaining the procedure and ensuring the anonymity of the samples, a written informed consent was obtained from each participant. They were announced that the transportation cost and the cost of left work to be compensated at 3 and 6 months by the researcher. Before the intervention, the demographic information and burn characteristics questionnaire was completed by the patient with the help of a research associate and using medical records. Then the intervention and control groups received face-to-face routine trainings, however, the intervention patients, in addition to routine trainings, received the self-care discharge education of a burnt patient given at the time of discharge in an educational CD containing text, slide, film and recorded sound; then the researcher gave this CD to the patients to perform at home. In educational session they used CDs and answered questions for 30-60 minutes at the time of discharge.

Educational content was prepared based on the sources of self-care educations of the burn patients. The questionnaire of the quality of life of burnt patients in the psychological, physical and social dimensions was completed by the patient before the intervention on the day of discharge and 3 and 6 months after the intervention; the telephone number, email address, researcher's telegram number were given to patients to call if necessary. The researcher conducted a weekly phone contact with the patients in the intervention and control groups to follow up and ensure the preservation of the samples. After 3 and 6 months of intervention, the patients in both the control and intervention groups were contacted by phone to complete the questionnaire. Patients completed the questionnaires in the manner of the self-report. At the end of the research, the educational CD was provided to the control group for observing ethics in the research.

**Ethical consideration**

This study was approved by the Ethics Committee of Iran University of Medical Sciences and the Ethics Committee of the place where research was conducted (Ethic code: 93-02-28-24922-106366).

The clinical trial was approved by the Iranian Registry of Clinical Trials (IRCT) under No: IRCT2014112920145N1. The CONSORT checklist was used to report the study.

**Statistical analysis**

After collecting raw data for the analysis, the descriptive and inferential statistics (Chi-square and independent and paired t tests for the distribution of normal variables), Fisher's exact test, nonparametric tests such as Mann-Whitney, Wilcoxon and Friedman test and Dunn test, with Bonferroni's correction, Spearman correlation coefficient were used by SPSS software (version 21, Chicago, IL, USA). It should be

noted that all of the participants were included in the process and no one was excluded during the investigation.

**RESULTS**

Among the participants of this study, 56% of the subjects were male and 56% were female. Only 34% of them in the intervention group were in the age range of 39-48 years and 44.9% of the control group`s members were in the age range of 29-38 years.

According to the statistics, most of them (44% in the intervention group and 79.6% in the control group) were married. In the intervention group, 48% and in the control group, 62.5% were employed; 52.1% had diploma in the intervention group and 66.7% had diploma educational level in the control group.

Moreover, 36% in the intervention group and 34% in the control group were burned by fire flame and 60% in the intervention group and 64% in the control group had a degree of burns of 1, 2 and 3. Furthermore, 24% in the intervention group had burning percentage of 15-20% and in the control group, 36% had burning percentage of 21-26%. About 46% in the intervention group had burn in the trunk, hand, and foot and 47.9% in the control group had burn in the whole body.

The majority of patients in the intervention and control group (58.1%, 79.2%, respectively) were resident in Tehran. The majority of patients in the intervention and control group (58.1% and 53.5%, respectively) were burned at home. In the intervention group, 56.5% were on average economical level and 37.8% were in weak economic level.

The Mann-Whitney test showed that before intervention, the mean of social function in intervention and control groups was 1.92±0.6 and 1.55±0.46, which was statistically significant (p<0.001). The mean difference of the score of social function in both intervention and control groups at the time before intervention was statistically significant and the mean score of social dimension in the intervention group was slightly higher than the control group.

Mean and standard deviation of social function score in intervention and control groups three months after intervention were 3.29±0.95 and 2.15±0.39, respectively and six months after intervention, the mean and standard deviation of intervention and control group were 4.05±0.77and 2.47±0.56, which were statistically significant (p<0.001) (Table 1).

**Table 1:** Comparison of mean and standard deviation of social function score in intervention and control groups one month before and three and six months after intervention

| | Intervention group | Control group |
|---|---|---|
| Mean and standard deviation before intervention | 1/92 ± 0/6 | 1/55 ± 0/46 |
| Test result | Z = -2/98<br>P value < 0/001 | |
| Mean and standard deviation three months after intervention | 3/29 ± 0/95 | 2/24 ± 0/4 |
| Test result | Z = -6/83<br>P value < 0/001 | |
| Mean and standard deviation six months after intervention | 77/0 ± 05/4 | 2/75 ± 0/58 |
| Test result | Z = -7/74<br>P value < 0/001 | |

Considering the chi-square value (=95.14) and the value of significance level (p<0.001) in Table 2, since the level of significance was less than 0.05, the assumption of the equality of the mean scores of social function during three periods was rejected statistically, that is, the average score of social function varied at least in two periods of the three ones. Therefore, in order to determine which of the two periods had a significant difference, the Dunn follow-up test was used.

The results of the test were presented in Table 2 and 3, while the mean score of each period had significant differences with other periods because the corrected significance level value was less than 0.05.

Figure 1 shows that the social dimension score before intervention in the intervention group was slightly higher than the control group, but after 3 and 6 months of intervention, the social function score of the intervention group demonstrated a significant difference compared to the control group (p<0.001).

**Table 2:** Results of comparison of mean and standard deviation of social function score before intervention, 3 and 6 months after intervention in intervention group using Friedman test in intervention group

| Time | Number | Mean | Standard deviation | Test result |
|---|---|---|---|---|
| Before intervention | 50 | 1/92 | 0/6 | Chi-square = 95/14<br>df = 2<br>p-value<0/001 |
| Three months after intervention | 50 | 3/29 | 0/95 | |
| Six months after intervention | 50 | 4/05 | 0/77 | |

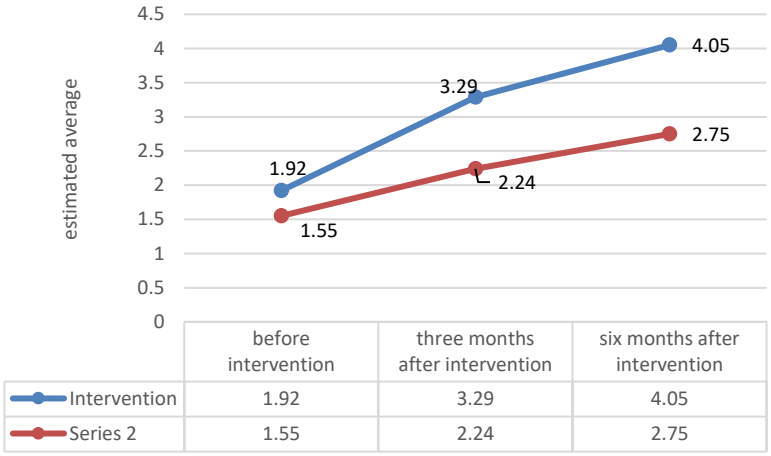
**Table 3:** Comparison results of social function score in 3 periods with Dunn pairwise test with Bonferroni's correction in intervention group

| Difference | Standardized test statistic | Corrected significance level |
|---|---|---|
| Before intervention - 3 months later | -5/4 | <0/0.001 adj. p-value |
| Before the intervention - 6 months later | -9/45 | <0/0.001 adj. p-value |
| 3 months later - 6 months later | -4/05 | <0/0.01 adj. p-value |

**Table 4:** Comparison results of social function score in 3 periods with Dunn pairwise test with Bonferroni's correction in control group

| Difference | Standardized test statistic | Corrected significance level |
|---|---|---|
| Before intervention - 3 months later | -5/25 | <0/0.001 adj. p-value |
| Before the intervention - 6 months later | -8/4 | <0/0.001 adj. p-value |
| 3 months later - 6 months later | -3/15 | <0/0.01 adj. p-value |

**Figure 1:** Comparison of the trend of changes in the mean score of social function 3 and 6 months before and after intervention in two groups




## DISCUSSION

The results of this study showed that multimedia virtual self-care discharge education improves social functioning of burn patients. This finding is consistent with the study by Li et al. In their study, they found that social functioning of burn patients 5 weeks after rehabilitation was better than the control group [19]. Tang et al. (2015) study also showed that the use of rehabilitation interventions and self-care measures increased the social function dimension of patients three months after intervention, which is consistent with the present study [20]. Radwan et al. (2011), who found that running a 7-day rehabilitation program for 2 weeks improved social performance in the experimental group, also consistent with our study [21]. Burn injuries affect one's ability to cope with life's stresses and interact with the outside world [8]. These people feel ashamed and embarrassed about being in the community and communicating with others due to the apparent changes caused by burns and burns, and the look and sometimes excitement of others suggests that they feel compassion and compassion. For this reason, they lack communication and social skills and require intervention [23]. Hojati et al.'s study showed that psychosocial interventions had a significant effect on life satisfaction, occupational activity, mental health, physical health, quality of life, and social

relationships.

Therefore, these interventions increase patients' life satisfaction and social relationships [24]. The results of the Fatimid study showed that patients' quality of life in the social dimension was relatively undesirable, so it recommended that patients be taught communication skills [25]. The consequence of education in the community is maintaining and promoting health and will have many benefits, including reducing the duration of illness, accelerating client independence and maintaining self-confidence in self-care [26]. A study by Elalem et al. (2018) showed that self-care nursing intervention was effective in burn patients.

And self-care intervention led to active participation of patients in their treatment and led to a significant improvement in quality of life as well as self-esteem, which is consistent with the present study which correlates with self-esteem and quality of life later. Social has had a significant impact [27]. Hospital discharge is associated with stress and anxiety and an increased need for patients to receive information. Information training is essential for the well-being of patients because patients experience discomfort after awareness discharge [28]. Discharge does not mean the end of treatment for burn patients, but discharge means that the patient and his or her family must resume the responsibility of managing their lives without assistance from hospital staff. Burn patients need to adapt to new situations that include self-care at home, lifestyle change and return to society [29].

### Limitation and recommendation

One of the limitations of the present study was the mental state of the patient which could be effective in answering the questions. It was the researcher who emphasized the importance of the subject in the result of the research and asked the samples to fully comply with the CDC's recorded care instructions and followed up the samples by telephone.

## CONCLUSIONS

Given the findings of the present study, it is important to provide virtual and multimedia education and to institutionalize a self-care culture. This allows the patient to self-care and engage in self-care. Nurses and caregivers in burn centers need to know that these patients will be socially isolated and isolated, and that they need to return to the community, and nurses are one of those who treat patients' behaviors and attitudes more than others. So they can help them get back into the community with proper education, but education through lectures does not meet their educational need because they are involved in the mental illness of their illness and burn accident, especially while they are still in hospital. And maybe the ability to understand and learn training in that situation So they need virtual training to use it in the right conditions and in a comfortable place. That is, self-care education should be continuous, accessible, follow-up, and economically viable. So using educational CDs, which is a virtual teaching method, can be a good option. It is recommended that nurses use this method in clinical centers.


#### Acknowledgements

This study was part of an independent research project approved by the Faculty of Nursing and Midwifery of Iran University of Medical Sciences and Health Services with code of ethics 93-02-28-24922-106366 on 18/09/1393 and registered in clinical trial code IRCT 2014112920145: is. We sincerely thank the Vice Chancellor for Research of Iran University of Medical Sciences, Shahid Motahari Hospital, and the patients who assisted us in this study.

#### Funding

Iran University of medical science supported this study.


#### Conflict of interests

It is not declared by the authors.

#### Ethics approval and consent to participate

Clinical trials with the issue number IRCT 2014112920145, ethical code number 93-02-28-24922-106366 on 18/09/1393.

## References


1. Frear CC, Griffin B, Cuttle L, McPhail SM, Kimble R. Study of negative pressure wound therapy as an adjunct treatment for acute burns in children (SONATA in C): protocol for a randomised controlled trial. Trials. 2019;20(1):130. doi: 10.1186/s13063-019-3223-9

2. Mamashli L, Ardebili FM, Bozorgnejad M, Ghezeljeh TN, Manafi F. The Effect of Self-Care Compact Disk-Based Instruction Program on Physical Performance and Quality of Life of Patients with Burn At-Dismissal. World J Plast Surg. 2019;8(1):25. doi: 10.29252/wjps.8.1.25.

3. Li H, Yao Z, Tan J, Zhou J, Li Y, Wu J, et al. Epidemiology and outcome analysis of 6325 burn patients: a five-year retrospective study in a major burn center in Southwest China. Sci Rep. 2017; 7:46066. doi: 10.1038/srep46066

4. Iranian Legal Medicine Organization(IMO) http://www.lmo.ir/news/83855-

5. Lip HTC, Tan JH, Thomas M, Imran F-H, Mat TNAT. Survival analysis and mortality predictors of hospitalized severe burn victims in a Malaysian burns intensive care unit. Burns trauma. 2019;7(1):3. doi: 10.1186/s41038-018-0140-1

6. Bosmans MW, Hofland HW, De Jong AE, Van Loey NE. Coping with burns: the role of coping self-efficacy in the recovery from traumatic stress following burn injuries. J Behav Med. 2015;38(4):642-51. doi: 10.1007/s10865-015-9638-1

7. Haghi S, Parsa Yekta Z. The Effect of Resilience Training on Anxiety of Patients with Deformity due to Burning Injuries. Journal of Health and Care. 2018;20(3):196-206.

8. Daryabygi R, Abdolmohamadi L, Alimohammadi N, Gazavi Z. The Effect Of Group Hope-Therapy Program On The Improvement Of Life In Burnt Patients Of Isfahan–Imam Mousa Kazem Hospital: Clinical Trial Study. Complementary Medicine Journal. 2016;1(18): 1395-1409

9. Ardebili FM, Mehmandar M, Bozorgnejad M, Khalili E, Hosseini AF, Mobaderi T. The effectiveness of multimedia self-care education on burn patients' quality of life: An application of latent growth model. Med Sci. 2019; 25(12):33-42.

10. Miller, M. A. and Stoeckel, P. R. (2015) Client education: Theory and practice, Jones & Bartlett Publishers. pp.

11. Arian M. The effect of designed walking program with holistic nursing approach on serum ferritin and heart problems of Thalassemia Major patients. Tehran: Tarbiat Modares University. 2013.

12. Jiao X, Chen C, editors. Thoughts on application of multimedia in education. 2011 International Conference on Future Computer Science and Education; 2011: IEEE.

13. Wang L. Developing and evaluating an interactive multimedia instructional tool: Learning outcomes and user experiences of optometry students. Journal of Educational Multimedia and Hypermedia. 2008;17(1):43-57.

14. Mousavi F, Almasi F, Almasi F. The Effectiveness of Educational Multimedia on Students' Social Skills Development. Dynamics in Humanities Education .2017;5(2): 1-17.

15. House MA. Medical-Surgical Nursing: A Psychophysiologic Approach. Journal of Cardiovascular Nursing. 1900;1(7): 07 -4.

16. Kildal M, Andersson G, FuglMeyer AR, Lannerstam K, Gerdin B. Development of a brief version of the Burn Specific Health Scale (BSHS-B). J Trauma. 2001; 51(4): 740-746 doi: 10.1097/00005373-200110000-00020

17. Pishnamazi Z, Heravi M, Noorozzadeh R, Kiany A, Zaeri F. Quality of life in burn patients. Payesh.2011;11(1):103-10. Persian

18. Hashemi F, Dolatabad FR, Yektatalab S, Ayaz M, Zare N, Mansouri P. Effect of Orem Self-Care program on the life quality of burn patients referred to Ghotb-al-Din-e-Shirazi burn center, Shiraz, Iran: a randomized controlled trial. Int J Community Based Nurs Midwifery. 2014;2(1):40.

19. Li L, Dai J-x, Xu L, Huang Z-x, Pan Q, Zhang X, et al. The effect of a rehabilitation nursing intervention model on improving the comprehensive health status of patients with hand burns. Burns. 2017;43(4):877-85. doi: 10.1016/j.burns.2016.11.003

20. Tang D, Li-Tsang CW, Au RK, Li K-c, Yi X-f, Liao L-r, et al. Functional outcomes of burn patients with or without rehabilitation in mainland China. Hong Kong journal of occupational therapy. 2015;26(1):15-23.

21. RadwanM,SamirS,AtyOA,etal.Effectofarehabilitationprogram on the knowledge, physical and psychosocial functions of patients with burns. Journal of American Science. 2011; 7: 427-34.

22. Bibi A, Kalim S, Khalid MA. Post-traumatic stress disorder and resilience among adult burn patients in Pakistan: a cross-sectional study. Burns & trauma. 2018;6(1):8. doi: 10.1186/s41038-018-0110-7

23. Aazami Y, Sohrabi F, Borjali A, Farrokhi N, Farokh Forghani S. The Effectiveness of Psychosocial Model-Based Therapy on Social Skills in People With PTSD After Burn. Archives of Rehabilitation. 2018;19(3):206-19.

24. Hojjati-Abed E, Karbalaaei-nouri A, Rafiei H, Karimlou M. The efficacy of psychosocial occupational therapy services on quality of life of chronic pschiatric patents .Archives of Rehabilitation. 2010; 11(1):23-28.

25. Fatemi MJ SR, Samimi R. Saberi M, Namazi P, Pahlavanpour P, Moshiri Sh. Quality of life of burn patients after discharge from Shahid Motahari Hospital in 2013. Iranian Journal of Surgery. 2015; 23(2):31-40.

26. Marcum J, Ridenour M, Shaff G, Hammons M, Taylor M. A study of professional nurses' perceptions of patient education. The Journal of Continuing Education in Nursing. 2002;33(3):112-8.

27. Elalem SMA, Shehata OSM, Shattla SI. The effect of self-care nursing intervention model on self-esteem and quality of life among burn patients. Clinical Nursing Studies. 2018;6(2):79.

28. Forster AJ, Murff HJ, Peterson JF, Gandhi TK, Bates DW. The incidence and severity of adverse events affecting patients after discharge from the hospital. Ann Intern Med. 2003;138(3):161-7. doi: 10.7326/0003-4819-138-3-200302040-00007

29. Van Loey N, Faber A, Taal L. Do burn patients need burn specific multidisciplinary outpatient aftercare: research results. Burns. 2001;27(2):103-10. doi: 10.1016/s0305-4179(00)00099-1