

Assessment of Guided Imagery Effect on Reducing Anxiety and Pain Associated with Wound Dressing Changes in Burn Patients

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Abstract

Background: Burn damages are important causes of mortality and morbidity. They are also associated with many physical, psychological, social, and economic consequences.

Objectives: The present study was conducted to assess the effect of guided imagery on reducing anxiety and pain due to dressing change in burn patients.

Methods: The statistical population of this clinical trial included all burn patients (grade 1 and 2 but not self-immolation) who admitted to the burn department of Imam Reza hospital in Mashhad (the second largest city in Iran) between September 2012 and March 2013. 40 patients selected non-randomly through convenience sampling method were divided randomly into two equal groups of intervention and control. The intervention group received guided imagery treatment (15 minutes per day for 8 days) in addition to the routine care, while the control group only received the routine care. Data were gathered through a demographic form, Beck anxiety inventory, and McGill pain inventory. The data were analyzed by descriptive statistics such as frequency, mean, and standard deviation and inferential statistics such as independent t-test in SPSS software.

Results: The comparison of anxiety and pain between the two groups in pre-test showed no significant differences ($P = 0.310$ and $P = 0.120$, respectively). However, there were significant differences in the scores of anxiety and pain between the groups in post-test ($P = 0.001$ and $P = 0.001$, respectively).

Conclusions: It seems that guided imagery can reduce the level of anxiety and pain due to dressing change in burn patients.

Keywords: Anxiety, Burn, Guided imagery, Pain

1. Background

Burn is a main reason for acute damages and constitutes more than 1 percent of burden of diseases. Burn damages are important causes of mortality and morbidity. They can also lead to many physical, psychological, social, and economic problems. The prevalence of burn in Iran is high, so that its associated mortality and permanent morbidity are reported frequently. Also, the treatment of burn injuries is a long-term process that requires repeated surgical interventions and ongoing medical treatments by taking a lot of time and imposing heavy cost to community (1-5).

Based on an epidemiological study in Tehran (the capital of Iran) in 2011, burn injury is a major health problem in Iran that involves mainly young people (aged 26 - 35 years) (6).

According to the high prevalence of burn damages, it is necessary to evaluate different treatment methods in order to reduce pain and control its physical/psychological complications.

One of the most stressful complications is pain and pain-related anxiety. Based on an international survey on care of wound and trauma, the highest perceived pain by burn patients is experienced during dressing change (7).

The burn patients experience severe, long-term pain during frequent dressing change that is a necessary measure to prevent infection and promote healing (8).

The process of dressing change increases the underlying pain to some extent depending on burn size (9).

To reduce pain and anxiety of dressing change, different medications such as opioid and non-opioid drugs are used through oral or injection routes that are accompanied with different side effects (10).

It has been indicated that non-medical treatments have similar effects as medical treatments and they can be used in combination with drugs in order to reduce pain and fear in burn patients (11, 12).

One of these non-medical treatments is guided imagery. This method is based on the relationship between mind and body. It means that mind and body are able to cause diseases or improve healing process in a synergistic

way. In this way, one can see, hear, or smell the thing that he/she tends to feel it (13).

The effects of this method have been identified in reducing pain and distress induced by various diseases such as different cancers, musculoskeletal complications, etc. (14-18).

In a review of studies on coping strategies for pain management, it was revealed that guided imagery is known as one of the most effective methods that can be used alone or in combination with other interventions such as hypnosis and cognitive-behavioral therapy. Also, the office of research and policy in health research suggests the effects of this method in reduction of pain and distress among cancer patients and management of mild to severe acute pains. Guided imagery acts positively through the ways such as: increase of control, decrease of depression, stress and anxiety, reduction of pain, decrease of side effects of treatment, promotion of sleep and quality of life, increase of relaxation, decrease of nausea and blood pressure, increase of healing and immunity, decrease of respiratory problems, decrease of duration of hospitalization and increase of self-esteem (19).

A research on the efficacy of guided imagery in orthopedic operations indicated that patients' total pain score decreased significantly compared to a control group (20).

2. Objective

Regarding the prevalence of burn injuries, its complications, and lack of research in this field in Iran, this research was conducted to assess the efficacy of guided imagery in reduction of pain and anxiety due to dressing change in burn patients.

3. Materials and Methods

This clinical trial was conducted on patients with the first and second-degree burns (not those with self-Immolation) who admitted to the burn department of Imam Reza hospital (Mashhad, Iran) in 2013. Other inclusion criteria included: elementary education level, absence of psychiatric symptoms or signs, and volunteering for research.

Based on the sample size formula, 40 patients were selected non-randomly through convenience sampling method and divided randomly into two equal groups of intervention and control.

All participants filled out a demographic questionnaire, guided imagery, Beck anxiety, and McGill inventories in pre-test. The intervention group received training on guided imagery technique for 15 minutes a day for 8 days in addition to the routine care (taking drugs and so on).

In the training process, the patients were asked to listen to guided imagery sentences (sentences describing beautiful and sublime views with an emphasis on the release of anxiety and pain) via CD and headphone.

The control group only received the routine care. Finally, at the end of 12th session, two groups completed the mentioned inventories as post-test.

3.1. Beck Anxiety Inventory (BAI)

Aeron Beck and colleagues (1990) introduced this 21-item inventory to measure the severity of clinical anxiety symptoms. BAI is a self-reporting inventory that targets adolescent and adult populations.

Every item in this inventory describes one prevalent symptom of anxiety (mental, physical, and panic symptoms). The 4-point response scale includes: never (0 score), mild discomfort (1 score), moderate discomfort (2 score), and severe discomfort or intolerable (3 score). Therefore, this inventory has a total score in range of 0 to 63.

The internal consistency of this inventory is 92% and its validity in retest with one week interval is 75%. Also, the correlation between its items is various ranging from 30% to 76%. This inventory has been shown to be an applicable instrument for measuring anxiety severity in different types of reality (21, 22).

The assessment of its psychometric characteristics in Iran has indicated that this inventory has satisfactory reliability (72%) and validity (83%) in retest after one month ($\alpha = 0.92$) (23).

3.2. McGill Pain Questionnaire (MPQ)

This is a most useful standard instrument for evaluation of acute and chronic pains (24).

It includes 78 descriptive sentences in 20 subgroups that form 3 domains: sensation (subgroup 1 - 10), affective (subgroup 11 - 15), cognitive (subgroup 16) and miscellaneous (subgroup 17 - 20). A 5-point scale is used to indicate the severity of current pain (25).

This questionnaire has been used as a standard instrument in many countries and its reliability and validity are reported acceptable (24, 26-29).

The Cronbach's α and validity in all domains of this questionnaire have been reported above 0.8 in Iran (30).

3.3. Guided Imagery Inventory

This instrument designed by Cristien Qukobom for measuring the imagery ability has been used by different researchers. The designer reviewed the instrument in 2000 and added/deleted several items.

This inventory has two subscales: The first part is named absorb subscale that includes 21 items and consists

of sentences about person's experiences of images, memory, and events. The subjects are asked to tick a response (never = score 0 to absolutely correct = score 4). The total score of this subscale is in range of 0 - 84.

The second part of this inventory is named image formation that includes 11 items consisting of questions 22 and 23 of the inventory. This part measures the clearness of mental images. The subjects are asked to create one image in his/her mind; then, he/she determines the clearness of the image on a 5-point scale (score 0 - 4) based on the degree of clearness (total score: 0 - 44). The total score of the questionnaire is 0 - 128. The validity and reliability of this questionnaire have been reported as 0.89 and 0.75, respectively (31, 32).

Data were gathered anonymously and patients were participated voluntarily.

The data were analyzed by descriptive statistics such as mean and standard deviation and inferential statistics such as independent t-test.

4. Results

40 patients (equally distributed in intervention and control groups) took part in this research. Demographic characteristics of patients are presented in Table 1.

Table 1. Demographic Characteristics of Participants^a

Demographic Variable	Intervention Group	Control Group	P Value
Gender			
Male	11 (55)	7 (35)	0.21
Female	9 (45)	13 (65)	
Age, y			
20 - 30	6 (30)	6 (30)	0.91
31 - 40	10 (50)	11 (55)	
40 ≤	4 (20)	3 (15)	
Education			
Elementary	8 (40)	6 (30)	0.62
High school	8 (40)	7 (35)	
Academic	4 (20)	7 (35)	
Marital status			
Single	4 (20)	9 (45)	0.09
Married	16 (80)	11 (55)	

^aValues are expressed as No. (%).

The mean score of guided imagery was 69.9 ± 6.9 in the control group and 73.3 ± 6.2 in the experimental group.

The mean scores of anxiety, pain, quality, and severity of pain in the intervention and control groups are presented in Table 2.

Based on the results, there was no significant difference between the two groups in all of the variables in pre-test. However, the post test scores indicated that there were significant between-group differences in all of the variables.

5. Discussion

The results of the present study demonstrated that guided imagery technique can significantly reduce pain and anxiety among burn patients.

We looked for the same studies in this field; but there were no studies focusing on this technique in patients with burn injuries. For example, a systematic review (comprising 8 studies) was conducted to assess the effects of muscle relaxation technique through guided imagery in breast cancer patients' pain and distress. The results of 7 studies indicated that this technique was effective in reduction of pain and distress among the mentioned patients, which was in agreement with our research, although the effect of guided imagery was not evaluated alone but in combination with muscle relaxation (32).

The effectiveness of guided imagery on pain of orthopedic surgeries was assessed in another study. In this research, 74 traumatic patients were divided into control and intervention groups. Based on the scores of research instruments including ability of imagery inventory and McGill pain questionnaire, the total score of pain and the score of quality of pain on 3rd day after operation decreased significantly in the interventional group compared to the control group, although there was not any significant relationship between the scores of imagery ability and the scores of severity and duration of pain (20). Thus, these results are different from those obtained in the present research that indicated the significant effect of guided imagery on pain and anxiety.

Another study assessing the effect of guided imagery on the reduction of pain after arthroplasty operation among elderly patients demonstrated that this method could reduce pain in these patients, which is consistent with our study results (33).

The results of a research conducted to evaluate the effectiveness of guided imagery and mean-therapy in depression, anxiety, and hopefulness among 42 women with cancer indicated that both of the mentioned methods were useful; but mean-therapy was more effective than guided imagery (34).

The lack of evidence regarding the effects of guided imagery on pain and anxiety of dressing change among

Table 2. The Scores of Anxiety, Pain, Quality, and Severity of Pain Among Participants

Variable	Intervention Group	Control Group	T	P Value
Anxiety				
Pre-test	48.4 ± 4.7	47.2 ± 5.1	0.7	0.120
Post-test	23.1 ± 5.2	46.3 ± 6.4	-11.01	0.001
Pain				
Pre-test	58.8 ± 5.4	56.2 ± 6.1	-3.14	0.310
Post-test	42.9 ± 5.7	54.3 ± 5.6	8.51	0.001
Quality of pain				
Pre-test	59.1 ± 6.2	56.8 ± 4.9	16.2	0.291
Post-test	40.9 ± 5.6	55.7 ± 6.3	13.1	0.010
Severity of pain				
Pre-test	2.9 ± 0.6	2.8 ± 0.4	10.1	0.126
Post-test	1.8 ± 0.7	2.7 ± 0.6	8.4	0.010

burn patients indicates the novelty and potential use of this method in reduction of burn-induced consequences, although it made it difficult for us to compare the results of the present study with those of similar researches. It is recommended to conduct further studies to provide sufficient evidence about the efficacy of guided imagery technique especially in acute pains.

5.1. Conclusion

It seems that guided imagery can be effective in the reduction of dressing change-induced anxiety and pain among burn patients.

Footnotes

Authors' Contribution: Negar Asgharipour conceived and designed the study. Masoumeh Shariati collected the clinical data. Mahdiah Borhani and Negar Asgharipour interpreted the clinical data, performed the statistical analysis, and drafted. Mahdiah Borhani and Negar Asgharipour revised the critically for important intellectual content. All authors read and approved the manuscript.

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References

1. Taghavi M, Rasouli MR, Boddouhi N, Zarei MR, Khaji A, Abdollahi M. Epidemiology of outpatient burns in Tehran: an analysis of 4813 cases. *Burns*. 2010;**36**(1):109-13. doi: [10.1016/j.burns.2009.02.011](https://doi.org/10.1016/j.burns.2009.02.011). [PubMed: [19818561](https://pubmed.ncbi.nlm.nih.gov/19818561/)].
2. Lari AR, Alaghebandan R, Panjeshahin MR, Joghataei MT. Suicidal behavior by burns in the province of Fars, Iran. *Crisis*. 2009;**30**(2):98-101. doi: [10.1027/0227-5910.30.2.98](https://doi.org/10.1027/0227-5910.30.2.98). [PubMed: [19525170](https://pubmed.ncbi.nlm.nih.gov/19525170/)].
3. Ahmadi A, Mohammadi R, Stavrinou D, Almasi A, Schwebel DC. Self-immolation in Iran. *J Burn Care Res*. 2008;**29**(3):451-60. doi: [10.1097/BCR.0b013e31817112f1](https://doi.org/10.1097/BCR.0b013e31817112f1). [PubMed: [18388564](https://pubmed.ncbi.nlm.nih.gov/18388564/)].
4. Rajabian MH, Aghaei S, Fouladi V. Analysis of survival and hospitalization time for 2057 burn patients in Shiraz, southwestern Iran. *Med Sci Monit*. 2007;**13**(8):CR353-5. [PubMed: [17660724](https://pubmed.ncbi.nlm.nih.gov/17660724/)].
5. Hosseini RS, Askarian M, Assadian O. Epidemiology of hospitalized female burns patients in a burn centre in Shiraz. *East Mediterr Health J*. 2007;**13**(1):113-8. [PubMed: [17546913](https://pubmed.ncbi.nlm.nih.gov/17546913/)].
6. Mohammadi-Barzelighi H, Alaghebandan R, Motevallian A, Alinejad F, Soleimanzadeh-Moghadam S, Sattari M, et al. Epidemiology of severe burn injuries in a Tertiary Burn Centre in Tehran, Iran. *Ann Burns Fire Disasters*. 2011;**24**(2):59-62. [PubMed: [22262960](https://pubmed.ncbi.nlm.nih.gov/22262960/)].
7. Moffatt CJ, Franks PJ, Hollinworth H. Understanding wound pain and trauma: an international perspective. *EWMA Position Document: Pain at wound dressing changes*. 2002;**2**.
8. Sheridan RL, Tompkins RG. Skin substitutes in burns. *Burns*. 1999;**25**(2):97-103. doi: [10.1016/S0305-4179\(98\)00176-4](https://doi.org/10.1016/S0305-4179(98)00176-4). [PubMed: [10208382](https://pubmed.ncbi.nlm.nih.gov/10208382/)].
9. Atchison NE, Osgood PF, Carr DB, Szyfelbein SK. Pain during burn dressing change in children: relationship to burn area, depth and analgesic regimens. *Pain*. 1991;**47**(1):41-5. doi: [10.1016/0304-3959\(91\)90009-M](https://doi.org/10.1016/0304-3959(91)90009-M). [PubMed: [1771092](https://pubmed.ncbi.nlm.nih.gov/1771092/)].
10. Macintyre P, Rowbotham D, Walker G. *Clinical pain management*. 2nd ed. USA: Hodder Arnold; 2008. p. 403.
11. Choniere M. Burn pain: a unique challenge. *Pain clinical updates*. 2001;**9**:1-4.
12. Hoffman HG, Patterson DR, Carrougher GJ. Use of virtual reality for adjunctive treatment of adult burn pain during physical therapy: a controlled study. *Clin J Pain*. 2000;**16**(3):244-50. doi: [10.1097/00002508-200009000-00010](https://doi.org/10.1097/00002508-200009000-00010). [PubMed: [11014398](https://pubmed.ncbi.nlm.nih.gov/11014398/)].
13. Compas BE, Haaga DA, Keefe FJ, Leitenberg H, Williams DA. Sampling of empirically supported psychological treatments from health psychology: smoking, chronic pain, cancer, and bulimia nervosa. *J Consult Clin Psychol*. 1998;**66**(1):89-112. doi: [10.1037/0022-006X.66.1.89](https://doi.org/10.1037/0022-006X.66.1.89). [PubMed: [9489263](https://pubmed.ncbi.nlm.nih.gov/9489263/)].
14. Devine EC. Meta-analysis of the effect of psychoeducational interventions on pain in adults with cancer. *Oncol Nurs Forum*. 2003;**30**(1):75-89. doi: [10.1188/03.ONF.75-89](https://doi.org/10.1188/03.ONF.75-89). [PubMed: [12515986](https://pubmed.ncbi.nlm.nih.gov/12515986/)].

15. Tatrow K, Montgomery GH. Cognitive behavioral therapy techniques for distress and pain in breast cancer patients: a meta-analysis. *J Behav Med*. 2006;**29**(1):17-27. doi: [10.1007/s10865-005-9036-1](https://doi.org/10.1007/s10865-005-9036-1). [PubMed: [16400532](https://pubmed.ncbi.nlm.nih.gov/16400532/)].
16. Luskin FM, Newell KA, Griffith M, Holmes M, Telles S, DiNucci E, et al. A review of mind/body therapies in the treatment of musculoskeletal disorders with implications for the elderly. *Altern Ther Health Med*. 2000;**6**(2):46-56. [PubMed: [10710803](https://pubmed.ncbi.nlm.nih.gov/10710803/)].
17. Utay J, Miller M. Guided imagery as an effective therapeutic technique: A brief review of its history and efficacy research *Journal of instructional psychology*; Available from: <http://www.findarticles.com>.
18. Lewandowski WA. Patterning of pain and power with guided imagery. *Nurs Sci Q*. 2004;**17**(3):233-41. doi: [10.1177/0894318404266322](https://doi.org/10.1177/0894318404266322). [PubMed: [15200727](https://pubmed.ncbi.nlm.nih.gov/15200727/)].
19. Burnett J, editor. Guided imagery as an adjunct to pharmacologic pain control at end of life. Proceeding of North American Association of Christians in Social Work. 2012; St. Louis. .
20. Chamanzari H, Raffe S, Modarres Gheravi M, Ebrahimzade S. Effect of guided imagery on orthopedic operations pain in traumatic patients [In Persian]. *Horizo Med Sci*. 2013;**19**(2):117-22.
21. Beck AT, Steer RA. The beck anxiety inventory manual. San Antonio: Psychological Corporation; 1990.
22. Fydrich T, Dowdall D, Chambless DL. Reliability and validity of the beck anxiety inventory. *J Anxiety Disord*. 1992;**6**(1):55-61. doi: [10.1016/0887-6185\(92\)90026-4](https://doi.org/10.1016/0887-6185(92)90026-4).
23. Kaviani H, Mousavi AS. Psychometric properties of the Persian version of Beck Anxiety Inventory (BAI) [In persian]. *Tehran Uni Med J*. 2008;**66**(2):136-40.
24. Ngamkham S, Vincent C, Finnegan L, Holden JE, Wang ZJ, Wilkie DJ. The McGill Pain Questionnaire as a multidimensional measure in people with cancer: an integrative review. *Pain Manag Nurs*. 2012;**13**(1):27-51. doi: [10.1016/j.pmn.2010.12.003](https://doi.org/10.1016/j.pmn.2010.12.003). [PubMed: [22341138](https://pubmed.ncbi.nlm.nih.gov/22341138/)].
25. Boureau F, Luu M, Doubrere JF. Comparative study of the validity of four French McGill Pain Questionnaire (MPQ) versions. *Pain*. 1992;**50**(1):59-65. doi: [10.1016/0304-3959\(92\)90112-O](https://doi.org/10.1016/0304-3959(92)90112-O). [PubMed: [1513604](https://pubmed.ncbi.nlm.nih.gov/1513604/)].
26. Kiss I, Muller H, Abel M. The McGill Pain Questionnaire-German version. A study on cancer pain. *Pain*. 1987;**29**(2):195-207. doi: [10.1016/0304-3959\(87\)91036-0](https://doi.org/10.1016/0304-3959(87)91036-0). [PubMed: [2886967](https://pubmed.ncbi.nlm.nih.gov/2886967/)].
27. Mystakidou K, Parpa E, Tsilika E, Kalaidopoulou O, Georgaki S, Galanos A, et al. Greek McGill Pain Questionnaire: validation and utility in cancer patients. *J Pain Symptom Manage*. 2002;**24**(4):379-87. doi: [10.1016/S0885-3924\(02\)00495-5](https://doi.org/10.1016/S0885-3924(02)00495-5). [PubMed: [12505206](https://pubmed.ncbi.nlm.nih.gov/12505206/)].
28. Varoli FK, Pedrazzi V. Adapted version of the McGill Pain Questionnaire to Brazilian Portuguese. *Braz Dent J*. 2006;**17**(4):328-35. doi: [10.1590/S0103-64402006000400012](https://doi.org/10.1590/S0103-64402006000400012). [PubMed: [17262148](https://pubmed.ncbi.nlm.nih.gov/17262148/)].
29. Hasegawa M, Hattori S, Ishizaki K, Suzuki S, Goto F. The mcgill pain questionnaire - Japanese version, reconsidered: Confirming the reliability and validity. *Pain Res Manag*. 1996;**1**(4):233-7. doi: [10.1155/1996/609850](https://doi.org/10.1155/1996/609850).
30. Khosravi M, Sadighi S, Moradi Alamdari S, Zendehelel K. Persian-McGill questionnaire, translation, adaptation and reliability in cancer patients: a brief report [In Persian]. *Tehran Uni Med J*. 2013;**71**(1):53-8.
31. Holland SJF, McGinn LK. Treatment plans and intervention for depression and anxiety disorders. 2nd ed. New York: Guilford; 2012.
32. Hajian S, Mirzaii NAK, Keramat A, Mirzaii HR. The effect of muscle relaxation and guided imagery on pain and distress reduction caused by disease and treatment side effects in women with breast cancer during 1998-2007: a systematic review. *Iran Qlty J Breast Dis*. 2009.
33. Antall GF, Kresevic D. The use of guided imagery to manage pain in an elderly orthopaedic population. *Orthop Nurs*. 2004;**23**(5):335-40. doi: [10.1097/00006416-200409000-00012](https://doi.org/10.1097/00006416-200409000-00012). [PubMed: [15554471](https://pubmed.ncbi.nlm.nih.gov/15554471/)].
34. Abolghasemi SH, Saadi S, Morri Najafi N. The effect of guided imagery and logo therapy on depression, anxiety and hopefulness in women with cancer in ahwaz. *Woman Cult*. 2010;**2**(5):31-47.