

Effect of Acupressure Pain and Fatigue among Patients with Multiple Sclerosis

Fayza Ahmed Ibrahim¹, Hanan Ahmed Al Sebaee², Dalia Salah El Deen³,
Nevin Mohieldin Shalaby⁴

¹Assistant Lecturer, Medical Surgical Nursing, ²Professor, Medical Surgical Nursing, ³Assistant Professor, Medical Surgical Nursing, ⁴ Professor, Neurology Medicine, Faculty of Nursing– Cairo University-Egypt

Abstract

Context: Pain and fatigue are common symptoms that correlated with multiple sclerosis patients, which disrupts physical, cognitive, emotional, and social functioning. **Aim:** evaluate the effect of acupressure on pain and fatigue among patients with multiple sclerosis. **Design:** Non-equivalent interrupted quasi-experimental. **Sample:** 60 adult male and female patients were randomly selected and divided equally into study and controls groups study was conducted at Multiple Sclerosis Research Unit affiliated with one of the biggest teaching hospital in Cairo, Egypt. **Tools:** Semi-Structured Interview Questionnaire, Pain Quality Assessment Scale, and Fatigue Severity Scale. **Results:** There was statistical significant decrease of pain and fatigue mean scores among the study group who received acupressure when compared to control group who received routine hospital care. **Conclusion:** Applying acupressure could be effective in reducing severity of pain and fatigue among patients with multiple sclerosis. Therefore it is recommended to endorse acupressure as a nursing practice for patients with multiple sclerosis in the early course of the disease.

Keywords: Multiple sclerosis, Acupressure, pain and fatigue

Introduction

Multiple sclerosis (MS) is a neuroinflammatory and neurodegenerative demyelinating disease of the central nervous system defined by a wide range of symptoms and signs that disrupt physical, cognitive, emotional, and social functioning¹. Multiple sclerosis resulting from a complex interaction between genetic, lifestyle and environmental risk factors². Approximately 2.5 million individuals are affected worldwide; females aged between 20- 40 years are mainly affected³. The prevalence of MS in Egypt was found to be 14.1/100,000⁴.

Multiple sclerosis patients suffer from various symptoms; among these symptoms pain and fatigue are the most significant symptoms⁵. Pain represents one of the most disabling symptoms of MS, in that it adversely affects most aspects of health-related QOL and not affecting only patients' lives but also their families, health care providers, and health care systems⁶. The overall prevalence of pain syndromes in MS patients is 63% with a higher risk associated with older age, longer disease duration, and greater disease severity⁷.

Fatigue is one of the most disabling MS symptoms, significantly impacting on patients' daily life activities and quality of life and affecting up to 80% of MS patients. The main characteristic of MS-related fatigue is enhanced perception of effort and limited endurance of sustained physical and mental activities and is described by patients as their worst symptom⁸.

The currently approved treatments for MS are pharmacological as disease-modifying agents and

Corresponding Author:

Fayza Ahmed Ibrahim

Assistant Lecturer, Medical Surgical Nursing, Faculty of Nursing– Cairo University, Egypt

Mobile No: 01146089192

e-mail: fofa_hona_mora@yahoo.com

non-pharmacological as acupuncture, aromatherapy, reflexology, guided imagery, yoga and acupressure has become more popular. The use of these method not only reduces the overall side effects of drugs due to less consumption, but also prevents the conversion of acute pain to chronic pain⁹.

Acupressure therapy works on the principle of stimulating specific reflex points located along the lines of energy which run through the body, called meridians. There are 14 meridian lines, each of which corresponds to an individual organ of the body. When the vital energies are able to flow through the meridians in a balanced and even way, the result is good health. When you experience pain or illness, it is an indication that there is a block or leak in the bio magnetic energy or vital life force Energy or Chi energy flow within the body¹⁰.

Acupressure is a type of touch therapy by using fingers, palms, elbows, or special bands to apply pressure to exact points on the body that provides the energy circulation and balance in the body, applying pressure to these points creates a slightly painful muscle spasm. Acupressure therapy aims to maintain homeostasis by increasing the blood and oxygen flow in the affected body area, resulting in relief and suppression of various symptoms by reducing pain¹¹.

Significance of the Study: Most of MS patients experienced pain and fatigue, which could affect their ability to perform activities of daily living. Patients are turning to complementary therapy due to dissatisfaction with conventional treatments¹² there is growing interest regarding using acupressure for such patients as it is safe, suitable for almost all people, no side effects, noninvasive treatment, reduce dependence on medications and self-administered. It is hoped that the findings of this study might provide health care providers and decision makers with evidence based data to be utilized in planning and providing treatment regimens for MS patients. As well, such data might have an impact on the provided care in a cost effective way and decrease the load upon personal and hospital resources.

Method

Aim of the Study: The aim of this study was to evaluate the effect of acupressure on pain and fatigue among patients with MS.

Research Hypotheses:

H1: The pain mean scores of patients with MS who subjected to acupressure will be significantly less than the pain mean scores of a control group who received routine hospital care.

H2: The fatigue mean scores of patients with MS who subjected to acupressure will be significantly less than the fatigue mean scores of a control group who received routine hospital care.

Research Design: Non-equivalent interrupted quasi-experimental (pre-post) control design was utilized in the current study.

Setting: This study was conducted at Multiple Sclerosis Research Unit affiliated with one of the biggest teaching hospital in Cairo, Egypt.

Sample: A convenient sample of 60 adult male and female patients over a period of six months consisted the study sample who were diagnosed as having RRMS, able to read and write, had no psychiatric disorder and had no history of addiction were recruited equally randomly divided into study and control groups.

Tools for Data Collection:

- (a). **Demographic and medical related data sheet:** demographic data covering questions related to age, gender, level of education, occupation, marital statusetc. Medical related data which includes questions related to duration of illness, duration of hospitalization.....etc.
- (b). **Pain Quality Assessment Scale (PQAS)** developed by¹³: used to assess quality of pain. The PQAS asks respondents to rate the severity of each of 20 pain descriptors by using 0 to 10 numeric rating scales, in which "0" means no pain while "10" is the worsening pain sensation imaginable. The reliability test of the scale is (Cronbach's $\alpha = 0.859$).
- (c). **Fatigue Severity Scale (FSS)** developed by¹⁴: used to assess severity of fatigue; FSS is containing 9 statements with sub score ranged from (1) indicates strongly disagree to (7) indicates strongly agreement. Internal consistency of the FSS is excellent (Cronbach's $\alpha = 0.89$).

Procedure: The study was conducted through four phases.

Preparatory Phase: Once official permission was granted, the subjects who met the inclusion criteria

were interviewed individually to explain the nature and purpose of the study, then written consent were obtained from them; every patient was asked to fill out the demographic and medical related data sheet, PQAS and FSS to assess pain and fatigue, then subjects were assigned to either control or study groups randomly as 1st patient included in the control group and the 2nd patient included in the study group and so on.

Implementation Phase: The researchers applied acupressure technique for the study group through three sessions/week for two weeks. Each patient was provided with a brochure that includes the sites of acupoints and step by step instruction on how to perform the acupressure technique and also contact with them by what’s app.

Acupressure Technique:

1. Acupressure was applied by pressing in circular movements on the acupoint with the thumb finger first in clock wise and then anti-clock wise direction. The finger must remain at the same point on the skin and be moved in small circles.
2. The patient was asked to perform breathing exercise during acupressure session
3. The duration of each session ranged between 30–45 min \ sessions, massage for each acupressure points it takes 3-5 min.
4. Nine acupoints were used in the current study which

were: He Gu (LI 4), Shen Men (HT 7), Nei Guan (PC6), Quze (PC3), Jian Jing (GB21), Feng Chi (GB20), Zusanli (St 36), Bigger Rushing (LV3) and Governor vessel (GV24.5).

Evaluation Phase: The researchers assessed pain using PQAS and fatigue using FSS for all patients either in study or control group by the end of the 1st and 2nd weeks of conducting the intervention.

Statistical Analysis: The collected data were scored, tabulated and analyzed by personal computer using statistical package for the social science (SPSS) program version 20. Level of significance was adopted at $p \leq 0.05$.

Results

Regarding age, 43.3%, 36.7% had age ranged between 18 to less than 30 years in the control and study groups respectively. In relation to gender, 80% and 83.3% respectively of both control and study group were females, regarding to marital status, 53.3% were married in both groups. In relation to educational level, 46.7%, 36.7% had secondary education in both control and study groups respectively. With reference to occupation, 76.6% and 80% were house wife in both control and study groups respectively. There were no statistically significant differences between the two groups regarding demographic variables.

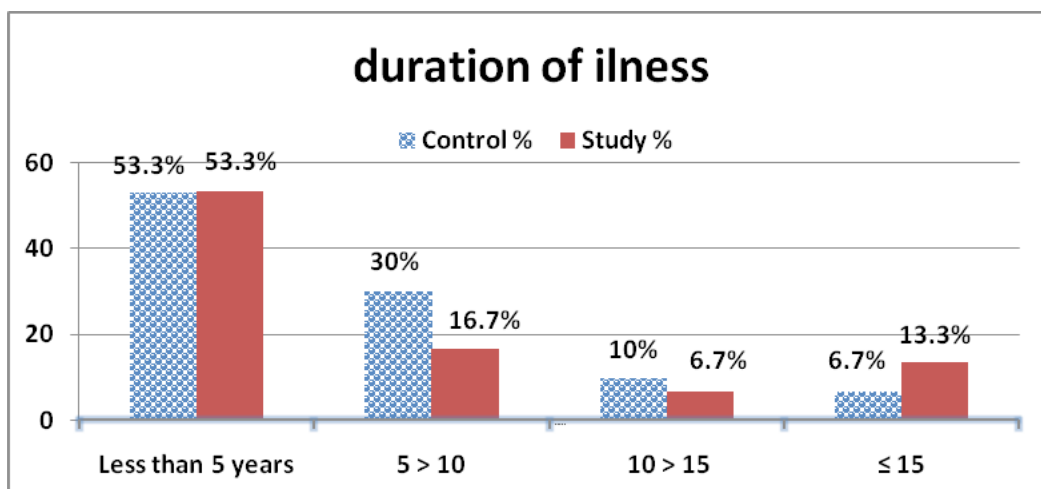


Figure (1): Percentage distribution of duration of illness among the studied sample (N=60).

Figure (1) in relation to duration of illness, 53.3% of both control and study groups had MS for less than five years additionally there was no statistically significant difference between the two groups regarding medical background variables.

Table 1: Comparison of pain total mean scores between control and study groups along the study period (N= 60).

Study periods	Mean ± SD	t-test	p-value
Pre intervention Control Study	96.7 ± 42.3 85.9 ± 45	0.955	0.344
After one week Control Study	99.5 ± 42.3 66.1 ± 36.8	3.268*	0.002
After two week Control Study	103.3 ± 42.6 57.1 ± 34.1	4.643*	0.000

It was significant at *p ≤ 0.05

Table (1) shows that there was no statistically significant difference between control and study groups (t = 0.955, p = 0.344) regarding the total mean scores of pain at the pre intervention reading. While there was statistically significant difference between control and study groups after one and two weeks from acupuncture application (t = 3.268, p = 0.002), (t = 4.643, p = 0.000) respectively.

Table 2: Comparison of fatigue total mean scores between control and study groups along study period (N = 60).

Study periods	Mean ± SD	t-test	p-value
Pre intervention Control Study	41 ± 12.8 37.9 ± 13.8	0.927	0.358
After one week Control Study	43.2 ± 12.6 27.4 ± 11.9	5.014*	0.000
After two week Control Study	45.6 ± 11.9 21.9 ± 9.3	8.598*	0.000

It was significant at *p ≤ 0.05

Table (2) shows that there was no statistically significant difference between control and study groups (t = 0.927, p = 0.358) regarding the mean fatigue scores in pre intervention reading. While there was statistically significant difference between control and study groups by the end of 1st and 2nd weeks of interventions (t = 5.014, p = 0.000) and (t = 8.598, p = 0.000) respectively.

Discussion

The Mean ±SD age of the studied sample was 32.7 ± 8.6, 3. This result is linked with a study¹⁵ who mentioned that the mean age among the sample was 33.9 ± 10.8. While it opposed with study¹⁶ who reported that the X ± SD age is 56 ± 11.2.

The majority of study sample was female, this goes in accordance with study done by ¹⁵ and ¹⁶ who founded that more than three fourth of the sample were females in addition, the current study results revealed that half of the sample were married and had either secondary or higher education, while the majority of the sample were housewives. The results were congruent with a study¹⁷ found that approximately three fourth of the

study sample were married, approximately three fourth had higher and secondary education and more than half housewives.

In relation to duration of illness more than half had MS for less than five years this result matched with¹⁸ showed that mean duration of disease were 5.9 ± 4 years and the result opposed with¹⁹ who reported that the mean ±SD of duration of illness since onset of MS symptoms was 8.3 ± 6.7 years;

The current study result shows that there was statistical significant decrease in pain mean scores of the study group after application of acupuncture when compared to control group by the end of the 1st and 2nd weeks, indicating that application of acupuncture may contribute in decreasing severity of pain. The result is consistent with study²⁰ who reported that the level of pain before the acupuncture application decreased significantly following the last acupuncture application on the 3rd day (P < 0.001).

The current study result shows that there was statistical significant decrease in fatigue mean scores of the study

group after application of acupressure when compared to control group by the end of the 1st and 2nd weeks, indicating that application of acupressure may contribute in decreasing severity of fatigue. The result is consistent with study done by²¹ who reported significantly decrease of the mean scores of fatigue in both acupressure and sham acupressure groups. However, the decrease in the acupressure group was significantly greater than in the sham acupressure group.

Conclusion

Implications: It can be concluded that applying acupressure could be effective in reducing severity of pain and fatigue among patients with multiple sclerosis.

Recommendations:

1. Endorse acupressure as a nursing practice for patients with multiple sclerosis in the early course of the disease.
2. Replication of the study on a larger probability sample selected from different geographical areas in Egypt to obtain more generalized results.

Ethical Clearance: An approval was obtained from the Research and Ethical committee at Faculty of Nursing-Cairo University and official permission was obtained from the administrators at study setting. Written informed consent was obtained from each patient.

Conflict of Interest: The authors declare that there is no conflict of interest.

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References

1. Sakkas, G. K., Giannaki, C. D., Karatzaferi, C., & Manconi, M. Sleep abnormalities in multiple sclerosis. *Current Treatment Options in Neurology*. 2019; 21(1),4.
2. Serafini, B., Zandee, S., Rosicarelli, B., Scorsi, E., Veroni, C., Larochele, C., ... & Aloisi, F. Epstein-Barr virus-associated immune reconstitution inflammatory syndrome as possible cause of fulminant multiple sclerosis relapse after natalizumab interruption. *Journal of neuroimmunology*. 2018; 319, 9-12]
3. Daltrozzo, T., Hapfelmeier, A., Donnachie, E., Schneider, A., & Hemmer, B. A systematic assessment of prevalence, incidence and regional

- distribution of multiple sclerosis in Bavaria from 2006 to 2015. *Frontiers in neurology*. 2018; 9.
4. El-Tallawy, H. N., Farghaly, W. M., Badry, R., Metwally, N. A., Shehata, G. A., Rageh, T. A., & Kandil, M. R. Prevalence of multiple sclerosis in al Quseir city, Red Sea governorate, Egypt. *Neuropsychiatric disease and treatment*. 2016;12, 155.
5. Gilmour H, Ramage-Morin PL, Wong SL. Multiple sclerosis: prevalence and impact. *Health Rep*. 2018; 29(1):3–8.
6. Gromisch, E. S., Kerns, R. D., Czapinski, R., Beenken, B., Otis, J., Lo, A. C., & Beauvais, J. Cognitive behavioral therapy for the management of multiple sclerosis-related pain: a randomized clinical trial. *International Journal of MS Care*. 2019.
7. Berra, E., Bergamaschi, R., De Icco, R., Dagna, C., Perrotta, A., Rovaris, M., ... & Tamburin, S. The Effects of Transcutaneous Spinal Direct Current Stimulation on Neuropathic Pain in Multiple Sclerosis: Clinical and Neurophysiological Assessment. *Frontiers in human neuroscience*. 2019; 13.
8. Biseco, A., Nardo, F. D., Docimo, R., Caiazzo, G., d'Ambrosio, A., Bonavita, S., ... & Tedeschi, G. Fatigue in multiple sclerosis: the contribution of resting-state functional connectivity reorganization. *Multiple Sclerosis Journal*. 2018; 24(13), 1696-1705]
9. You, E., Kim, D., Harris, R., & D'Alonzo, K. Effects of auricular acupressure on pain management: A systematic review. *Pain Management Nursing*. 2018.
10. Vijayalakshmi, C., & Devarajan, V. Role of Swamiji Vethathiri Maharishi's Acupressure 14 Points Exercise Therapy in the Effective Management of Neurological Disorders (Seizures) Found on A 16-Year-Old Male Student—A Case Report. 2019; e-ISSN: 2320–1959, p- ISSN: 2320–1940 Volume 8, Issue 2 Ser. X. (Mar. - Apr. 2019), PP 18-26 www.iosrjournals.org
11. Sen, S., & Aygin, D. A randomized trial of acupressure on pain management after cardiac surgery. *Int J Clin Exp Med*. 2019; 12(2), 1731-1738.
12. Pouy, S., Nabi, B. N., & Yaghobi, Y. Comparison of parental satisfaction with posttonsillectomy pain management with two method of acupressure and

- pharmacological analgesics in children: A clinical trial study. *Indian Journal of Forensic Medicine & Toxicology*. 2018; 12(3), 223-228.
13. Galer, Gammaitoni & Jensen. Pain assessment in clinical trials. In D. Carr & H. Wittink (Eds.), *Evidence, outcomes, and quality of life in pain treatment*. Amsterdam: Elsevier.2010.
 14. Shahid, A., Wilkinson, K., Marcu, S., & Shapiro, C. M. Fatigue Severity Scale (FSS). In *STOP, THAT and One Hundred Other Sleep Scales* (pp. 167-168). Springer New York.2011.
 15. Gascoyne, C. R., Simpson Jr, S., Chen, J., van der Mei, I., & Marck, C. H. Modifiable factors associated with depression and anxiety in multiple sclerosis. *ActaNeurologicaScandinavica*.2019.
 16. Chen, J., Taylor, B., Winzenberg, T., Palmer, A. J., Kirk-Brown, A., van Dijk, P., ... & van der Mei, I. Comorbidities are prevalent and detrimental for employment outcomes in people of working age with multiple sclerosis. *Multiple Sclerosis Journal*.2019; 1352458519872644]
 17. Valiani, M., Mansourian, M., & Ashtari, F. (). The effect of auriculotherapy on stress, anxiety, and depression in MS patients: A double blind randomized clinical control trial (Parallel Design). *ACTA MEDICA MEDITERRANEA*. 2018; 34, 561-567.
 18. Ghajarzadeh, M., Jalilian, R., Sahraian, M. A., Moghadasi, A. N., Azimi, A., Mohammadifar, M., & Azizi, S. Pain in patients with multiple sclerosis. *Maedica*. 2018; 13(2), 125.
 19. Schiess, N., Huether, K., Holroyd, K. B., Aziz, F., Emam, E., Shahrou, T., ... & Alsaadi, T. Multiple sclerosis, anxiety, and depression in the United Arab Emirates: Does social stigma prevent treatment? *International journal of MS care*. 2019; 21(1), 29.
 20. Sen, S., & Aygin, D. (). A randomized trial of acupressure on pain management after cardiac surgery. *Int J ClinExp Med*. 2019; 12(2), 1731-1738.
 21. Vagharseyyedin, S. A., Salmabadi, M., BahramiTaghanaki, H., & Riyasi, H. The impact of self-administered acupressure on sleep quality and fatigue among patients with migraine: A randomized controlled trial. *Complementary Therapies in Clinical Practice*. 2019; 35, 374-380.