



The Effect of Foot Reflexology on Happiness and Academic Stress of Nursing Students: A Randomized Controlled Clinical Trial

Samaneh Alizadeh^{1*}

PhD, Department of Medical-Surgical Nursing,
Faculty of Nursing & Midwifery, Tabriz
University of Medical Sciences, Tabriz, Iran.

Shahriar Ostovar²

MSc, Mardani Azar Children's Hospital,
Tabriz University of Medical Sciences, Tabriz,
Iran.

Abstract

Background: Some nursing students might experience high level of stress and lower levels of happiness; therefore, providing some interventions would be beneficial for them.

Aim: The aim of this study was to determine the effect of foot reflexology on happiness and academic stress of female Nursing student resident in dormitory

Method: This randomized controlled trial was conducted on 99 students, who were divided into three groups of reflexology, sham and control. The intervention group received foot reflexology. The sham group received nonspecific foot massage without applying pressure on standard reflex points. No intervention was done for the control group.

Results: The results indicated a significant difference amongst the three groups regarding stress and happiness after the intervention. A significant difference was observed between the foot reflexology group and the control group regarding stress and happiness. In addition, in the foot reflexology group, a significant difference was found regarding the mean change of students' stress and happiness before and after the intervention.

Conclusions: Foot reflexology, as an effective intervention treatment, can reduce level of stress and increasing nursing students' happiness, therefore educational authorities and instructors are recommended to use this intervention during the course of nursing' Bachelor's degree.

Keywords: Happiness, Academic Stress, Nursing Student, Reflexology



1) Introduction

Happiness is associated with depression, self-esteem, optimism, and interpersonal relationships among nursing students(1, 2). It is also associated with lower levels of stress and higher flexibility and self-confidence(3). A nursing student's stress affects the efficiency of the entire system and the quality of care(4). The results of studies in this field have shown that stress management can increase happiness, so, considering that the existence of high stress and low level of happiness may have negative effects on the learning and clinical success of students and affect their efficiency and as a result make it difficult to achieve the main goals of nursing education, so it is necessary to take steps in the direction of reduce stress in nursing students(2-4).

Several supplementary intervention and care have been developed to assist with the management of stress in students(5). Complementary medicine is one of the recommended methods to reduce stress levels(6). One of the branches of complementary medicine is reflexology, which is a non-invasive, simple, low-cost and complication-free method(7, 8). Therefore, this study was conducted with the aim of determining the effect of foot reflexology on the happiness and academic stress of female students living in the dormitory at Tabriz University of Medical Sciences.

2) Methods

Ethical considerations

This study was approved by the Ethics Committee of the Tabriz University of Medical Sciences, as part of a MSc. Written informed consent forms were signed by all participants. Also, the purpose of the study as well as the potential risks and benefits of participation were explained to the students. They were also assured that they could withdraw from the study at any time. In addition, confidentiality was considered in this study and all participant information was kept in a locked file cabinet with limited access. In addition, all participants are identified by a code number.

Trial design

The present randomized controlled trial contained two intervention groups and a control group and followed a pretest–posttest design. Each group consisted of 33 nursing students.

Study setting

Kosar dormitory, Tabriz University of Medical Sciences.

Participants

Female Nursing student resident in dormitory participated in this study. The inclusion criteria were studying in nursing, the health of the sole of the foot when examining the foot in terms of not having wounds and having a healthy foot and not taking psychoactive drugs since one month ago according to the student's statement. The exclusion criteria were Pregnancy, the occurrence of any foot problems during the study process, absence of more than two intervention sessions, having a history of mental disorders, taking sedatives and being exposed to stressful events in the last three months.

Interventions

This study was conducted on three groups; reflexology ($n = 33$), sham ($n = 33$) and control ($n = 33$). Considering the importance of an appropriate research environment for doing reflexology, it was necessary to choose a good place to continue the work, so one of the rooms in the dormitory, which had good light and ventilation and was also quiet, was chosen to perform the interventions. In this study, reflexology and nonspecific foot massage was performed by the researcher, who has learned those techniques from a reflexology specialist. The duration of training was 3 weeks. After the student entered the intervention room, academic stress and happiness were measured with their respective tools by the assistant of the researcher.

The intervention group received foot reflexology for four weeks (10 minutes per foot). Reflexology will be performed first on the right foot, then on the left foot, and the position in which the students will be placed during the reflexology is lying on their back, and for the comfort of the student, two pillows will be placed under the person's feet. After finishing the reflexology, we give the student a glass of water to eliminate the toxins released in the body. All 2 tools were completed again by the researcher's assistant after completing the reflexology sessions.

The sham group received nonspecific foot massage without applying pressure on standard reflex points with the same condition and duration as the intervention group.

No intervention was done for the control group. In the case of the control group, the time to measure the variables will be equivalent to the intervention and sham groups.

Tools

In this study happiness was assessed by OHI (Oxford Happiness Inventory) that was designed by Argyle and Luo (1990) and contained 29 items. Each item was scored via a four-point Likert scale (9, 10). The validity and reliability of OHI was confirmed by 727 university student in Iran in 2008 (11). The internal consistency of OHI showed that all 29 items highly correlated with the total score. Additionally, Cronbach's alpha was calculated as 0.92 for OHI.

To measure academic stress Academic Stress Scale constructed and standardised by R. Balaji Rao in 2012 was used. This scale consists of as many as 40 items and each item has five alternative responses (12, 13). The psychometric steps of this scale include translation, re-translation, calculation of face validity and content validity by a panel of experts, as well as calculation of reliability by the method of internal consistency and stability over time. Cronbach's alpha was calculated as 0.89 for Academic Stress Scale.

Sample size

The sample size required for one-way analysis of variance to compare the mean stress and happiness in three intervention, control and sham groups, taking into account the type 1 error of 5% and power of 90% and considering the equal ratio for the groups, a minimum number of 27 people for each one of the three groups and a total of 81 people were estimated. Taking into account 20% attrition, the final sample size for each group was 33 people and a total of 99 people.

Randomization

First, students were selected based on a table of random numbers. Then the students were divided into three groups through random blocks with a block size of four.

Blinding

In this study, participants, the person who collected the data and the individual who analyzed data were blind into the groups' allocation.

Statistical methods

Finally, the data was entered into SPSS version 24 statistical software and analyzed using descriptive statistics, number, percentage, mean and standard deviation. To analyze the data, in the first step, the basic values of the three reflexology, sham and control groups were compared in terms of the indicators under investigation with one-way analysis of variance. Also, the before and after values of all three groups were compared within the group with paired t-test. One-way analysis of variance test was used for the post-intervention values between the three groups.

3) Results

Analysis the demographic variables of the participants showed that the average age of the students in the intervention group was (20.87 ± 1.16) , in the sham group was 21.48 ± 1.15 , and in the control group was 21.30 ± 1.26 .

Also, the majority of students in all 3 groups were single: Intervention group (93.9%), Sham group (93.1%) and control group (96.7%).

In terms of grade point average, the intervention group was (16.50 ± 0.87) , the sham group was (16.85 ± 0.71) and the control group was (16.91 ± 0.87) .

Comparing the mean scores of happiness and academic stress between each group before and after the intervention shows in Table 1.

4) Discussion

The present study was a randomized clinical trial study that was conducted with the aim of determining the effect of reflexology on the happiness and academic stress of female nursing students living in the dormitory.

In line with the first aim of the study, which was to compare the mean score of happiness in the three studied groups (reflexology, sham, control) before and after the intervention, the results of the present study showed that the mean score of happiness in the reflexology group compared to the sham and control groups was significantly higher.

In a study by Bostani et al. (2020) exploring the effect of progressive muscle relaxation (PMR) exercise and support group therapy on the happiness of nursing students it was shown that a

significant difference there is between the PMR exercise and the control group regarding happiness. In addition, the mean score of happiness was significantly higher in the PMR exercise group compared to the support group therapy after the intervention(14).

The second aim of the study was to compare the mean score of academic stress in the three studied groups (reflexology, sham, control) before and after the intervention, and the results of this study showed that the mean score of academic stress in the reflexology group was significantly lower than the sham and control groups.

In a study entitled “Fasciatherapy and Reflexology compared to Hypnosis and Music Therapy in Daily Stress Management” that was done by Payrau et al. in 2017 the results suggest fasciatherapy, hypnosis, and reflexology could be used as non-pharmacological and safe interventions in stress management. The results of this study are consistent with the present study(15).

In a study by Lee et al. (2011) exploring the effects of self-foot reflexology on stress, fatigue, skin temperature and immune response in female undergraduate students The results showed that self-foot reflexology was effective in reducing perceived stress and fatigue, and raised skin temperature in female undergraduate students. But cortisol levels and immune response were not statistically significant different(16). The results of this study are consistent with the present study.

Considering that reflexology can be done by the person himself and its teaching and learning is done easily, and on the other hand, it is a low-cost, effective method and does not require special tools and places, so it can be used as an effective method for reduce stress and increase happiness among students(5, 14, 17, 18). Also, considering the nature of nursing profession, the students themselves can use this method for their clients.

On the other hand, considering that today the approach of using non-pharmacological methods has increased(19), the findings of this research can be used by planners, managers, nurses and other members of the healthcare team and can be included in treatment and care programs of the clients.

The main limitation of this study was that the study samples were only female nursing students living in a dormitory of Tabriz University of Medical Sciences. Another limitation of this study was the long duration of the intervention, which was carried out for one month, and there may be changes in the mood of students. It should be noted that by adding the control and sham groups, we tried to reduce this limitation as much as possible.

5) Implications for practice

Foot reflexology, as an effective intervention, can reduce level of stress and increasing nursing students' happiness .Considering that this type of massage can be done by the person himself and it is possible to teach and learn it, on the other hand, it is a low-cost and effective method that does not take time, it also does not require special tools and places, it can be an effective method for reduce stress and increase happiness in students, therefore educational authorities and instructors are recommended to use this intervention during the course of nursing' Bachelor's degree.

6) Acknowledgment

We acknowledge the financial support of the Vice Chancellor for Research of the Tabriz University of Medical Sciences (TBZMED) and all the participants who helped us in this study.

Ethical approval

The present study was approved by the Ethics Committee of the Tabriz University of Medical Sciences, with the ethical approval code of IR.TBZMED.REC.1397.278.

Registration

The trial registered in Iranian Registration of Clinical Trial (IRCT) and registration number is IRCT20110629006918N27.

7) Conflict of Interests

None of the authors has any conflict of interest to declare.

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Table 1. Comparing the mean scores of happiness and academic stress between each group before and after the intervention

Variable	Intervention				Sham				Control				Compare
	N=33				N=33				N=33				
	Before		After		Before		After		Before		After		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	P-Value
Happiness	38.57	11.28	47.30	10.65	41.34	15.71	42.51	15.75	37.06	13.44	35.13	13.05	.045
Academic Stress	68.18	33.73	57.93	29.00	63.93	28.31	62.51	31.09	52.40	34.89	53.76	31.17	.021



CONSORT 2010 Flow Diagram

