

Unravelling the Role of Reflexology in Enhancing the Quality of Life of Patients Undergoing Cardiac Surgery: A Quasi-Experimental Study

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ABSTRACT

Background: Cardiovascular diseases are considered as the leading cause of mortality in India. There are medical and surgical management measures for cardiovascular diseases. Nursing care for patients undergoing cardiac surgery should be of high quality as they face significant challenges and experience many physiological and psychological symptoms during the post-operative period which can adversely affect their quality of life.

Objective: The aim of the study was to investigate the effect of reflexology on quality of life of patients undergoing cardiac surgery.

Materials and Methods: This quasi-experimental study of Forty patients undergoing cardiac surgery who met the inclusion criteria were randomly assigned to intervention group(n=20) and control groups (n=20). Patients in the intervention group were given reflexology for 45 minutes consecutively for three post-operative days control group received only routine care. Quality of life was measured in the 1st,3rd and 4th month follow up using EURO QOL -5D scale.

Statistical Analysis: The data was analysed using SPSS software version 20. Independent t test was used for inter group comparison and repeated measures ANOVA was used for within group comparison.

Results: There was a statistically significant difference in the quality-of-life scores in the intervention group(P<0.001). Conclusion: The results showed that reflexology could improve the quality of life of patients undergoing cardiac surgery. Reflexology is a simple and effective

intervention and nurses can incorporate it in their daily clinical practice.

Key words: Reflexology, Quality of life, Patients, Cardiac surgery

INTRODUCTION

Worldwide, cardiovascular illnesses are the leading cause of death. By 2030, the World Health Organization predicted that more than 23 million people could die each year. [1] Surgery is one of the most important treatment options for cardiovascular diseases. Surgery for coronary artery disease involve many risks and the overall operative morbidity is around 2-3 %. Increased mortality is associated with age (over 70), left ventricular dysfunction, female gender, previous cardiac surgery, diabetes, peripheral vascular disease and chronic renal failure. [2]

Patients undergoing cardiac surgery require continuous monitoring, quality care and supervision. Nurses should have adequate knowledge and skill regarding the multiple needs and challenges faced by the patients undergoing cardiac surgery so that the patient achieves good post operative outcomes. Peri operative nurses in cardiac surgery unit should be able to achieve high quality of life along for their patients.

Patients undergoing cardiac surgery experience many physiological and psychological changes which can have

impact on their physical and mental health. This will affect their quality of life. [3] Quality of life is a concept which is affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and relationship to features of environment. Any changes in any of the domains of quality of life can have a direct impact on the physical, psychological and social health. [4] Thus, it is crucial to ensure high quality of life for patients undergoing cardiac surgery.

Reflexology is a non-invasive, manual therapeutic technique that can be applied to the hands, feet, or ears at specific reflex spots utilizing specialized manipulations and pressure levels. It establishes the psychological and physiological standardization of the body using specialized manipulations with varying degrees of pressure; it aids in improving daily performance in people's lives and has a significant impact on the quality of life and well-being, reducing anxiety, stress, and pain. The nursing care has always included foot reflexology. It is a means to improve the nurse-patient interaction since a nurse can employ massage in a practical and easy approach. The focus of nursing nowadays is on holistic health care, and complementary therapies. The development of nursing apps based on research is expected of nurses who use an integrated approach to patient care.

In order for reflexology to work, the blood must be circulated and trapped energy must be released into the body. When the reflex point on the hands or feet is gently but firmly pressed, the peripheral nerves are stimulated, which sends messages to the central nervous system (the brain and spinal cord). The messages are sent from the central nervous system to the visceral organs, muscles, or glands of the body, causing energy blockages to be released, energy to circulate throughout the body, and the body's inherent healing abilities to be activated. [5]

The foundation of foot reflexology is the idea that the feet are the micro-map of the entire body. Each of the 10 reflex zones on

the feet targets a different organ or area of the body during a foot reflexology therapy. Reducing and eliminating glandular and organ blockage can be done by applying particular pressure to the reflex sites. [5] In this technique, no extra equipment is needed to apply pressure to particular foot locations. [6] The reflexology technique was developed by Eunice Ingham. Ingham suggests that using touch to deliver particular types of massage to specific places can help with disease symptoms. [7] A study to investigate the influence of humanized care on self-efficacy, sleep quality and quality of life of 134 patients hospitalized in CSICU revealed that humanized care contributes to the recovery of cardiopulmonary function, and is effective in alleviating anxiety and depression and enhances self-efficacy, sleep quality and quality of life. [8]

A randomized controlled trial of 130 patients undergoing cardiac surgery was carried out with foot massage and patient education as interventions for the experimental group. The control group received usual hospital care. The experimental group had a significant decrease in anxiety, fatigue, pain and increased self-efficacy and quality of life. The RCT concluded that the combined form of foot massage and patient education is effective in decreasing anxiety, fatigue, pain and in increasing self-efficacy and quality of life. [9]

An RCT study was carried out in Egypt to find out the effect of foot reflexology massage versus Benson relaxation technique on physiological parameters and pain after open heart surgery. This study of 90 patients reported that there was a statistically significant difference between the groups in terms of physiological variables after applying foot reflexology and Benson relaxation and the improvement was more significant in reflexology group. Study concluded that reflexology technique can be used as part of routine nursing care for patients. [10]

The current study was designed to determine the effectiveness of reflexology on quality of life among patients undergoing cardiac surgery.

MATERIALS & METHODS

Design

A quasi-experimental repeated treatment time series design was adopted to accomplish the effectiveness of reflexology on quality of life among patients undergoing cardiac surgery.

Patients

Cardiac surgery patients were selected using purposive sampling technique based on the inclusion criteria such as patients who are subjected to elective cardiac surgery within the age group of 20-70 years from both the genders, who are willing to participate in the study while being able to comprehend English/Kannada, weaned off from ventilator within 48 hours of surgery and admitted at least one day prior to surgery. In contrary to this, the exclusion criteria adopted for the study include cardiac surgery patients who were critically ill, had peripheral vascular disease or fracture of leg or whose graft was taken from great saphenous vein. BMI, diagnosis, previous history of cardiac surgery and patient comorbidities such as Diabetes Mellitus, Hypertension, and Hyperlipidaemia were

included as a part of clinical profile. Selected patients were randomly allocated to intervention and control group, 20 in each group respectively.

Intervention

Sociodemographic data and clinical profile were collected from the subjects. Reflexology was administered to intervention group on 2nd, 3rd and 4th post operative day. Control group received only the routine care from the hospital. Quality of life was monitored at various points ie, 1st, 3rd and 4th month during the post operative follow up visits for both the groups.

Instruments

Data were collected by sociodemographic questionnaire (including age, gender, educational status, occupational status, marital status, monthly income, dietary habits, habit of exercise, habit of alcoholism, smoking and tobacco use), clinical profile and by using Euro QOL -5D scale. [11] The Euro QOL 5D has 5 dimensions which include mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension contains 3 statements with the scoring of 1-3 where in 1 denotes normal functioning. The validity and reliability of the translated version of the scale were obtained prior to the study.

Table 1 EURO QOL -5D SCALE FOR QUALITY-OF-LIFE SCORING- 1-Normal,2 Moderate difficulty,3 Extreme difficulty
Kindly tick one box that best describe your health TODAY

1.MOBILITY
I have no problems in walking about
I have some problems in walking about
I am confined to bed
2.SELF-CARE
I have no problems with self -care
I have some problems washing or dressing myself
I am unable to wash or dress myself
3.USUAL ACTIVITIES
I have no problems with performing my usual activities
I have some problems with performing my usual activities
I am unable to perform my usual activities
4.PAIN/DISCOMFORT
I have no pain or discomfort
I have moderate pain or discomfort
I have extreme pain or discomfort
5.ANXIETY/DEPRESSION
I am not anxious or depressed
I am moderately anxious or depressed
I am extremely anxious or depressed

PROCEDURE

The first author who has a reflexology training certificate performed foot reflexology for the intervention group. Stimulation of the reflex points is associated with the adrenal, hypothalamus, and pituitary glands, and the heart and lung. [12] (Figure 1)

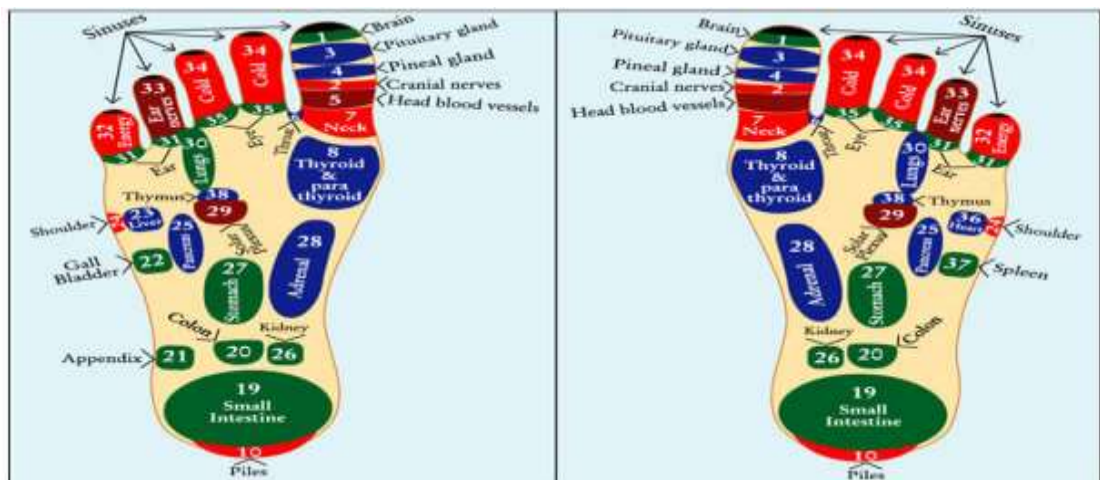


Figure1: Foot reflexology point

STATISTICAL ANALYSIS

The data were analysed using SPSS software version 20. Study variables were tested for normality using Kolmogorov Smirnov test. Descriptive statistical parameters like mean, standard deviation and percentage were calculated for socio demographic and clinical variables. Independent variable in the study includes reflexology and dependent variable include

quality of life. Independent t test was used for inter group comparison and repeated measures ANOVA was used for within group comparison. P level of 0.05 was considered as statistically significant.

RESULTS

The socio demographic data of the subjects are presented in Table 2.

Table 2: Demographic Characteristics of the participants

Demographic Variables	Intervention Group (n=20)	Control Group (n=20)
Age (years)		
20-39	4 (20.0%)	5 (25.0%)
40-59	11 (55.0%)	10 (50.0%)
>=60	5 (25.0%)	5 (25.0%)
Gender		
Male	13 (65.0%)	10 (50.0%)
Female	7 (35.0%)	10 (50.0%)
Marital status		
Married	17 (85.0%)	15 (75.0%)
Unmarried	3 (15.0%)	4 (20.0%)
Separated	0 (0.0%)	1 (5.0%)
Occupation		
Govt Employee	1 (5.0%)	3 (15.0%)
Pvt Employee	5 (25.0%)	7 (35.0%)
Daily wager	13 (65.0%)	5 (25.0%)
No employment	1 (5.0%)	5 (25.0%)
Dietary habits		
Vegetarian	1 (5.0%)	5 (25.0%)
Non-vegetarian	19 (95.0%)	15 (75.0%)
Habit of exercise		
Irregular	6 (30.0%)	5 (25.0%)
None	14 (70.0%)	15 (75.0%)
Use of tobacco		
Daily	1 (5.0%)	1 (5.0%)
Often	2 (10.0%)	3 (15.0%)
Rarely	7 (35.0%)	2 (10.0%)
Nil	10 (50.0%)	14 (70.0%)

Table 2 reveals that there were no significant statistical differences in demographic variables between the two groups (P>0.05). Around 50% of patients were in the age group pf 50-59 years in both intervention and control groups. In intervention group 60% were males wherein control group males and females were equal. In the intervention group 65% were daily wagers. In both intervention and control groups majority were non vegetarians. Around 70-75% of patients did not have the habit of exercise. Majority in both groups did not have regular habit of using tobacco (Table 2).

There were no significant statistical differences in clinical variables between the two groups (P>0.05).50% of patients in the intervention group were diagnosed with CAD where in the control group 55% of patients were CAD.55% of patients in the control group had cardiac illness for a duration of one to two years.50%of patients in the intervention group and 55% of patients in the control group underwent CABG. Approximately 70 to 75% of patients did not have any co morbidity in both intervention and control groups (Figure 2).

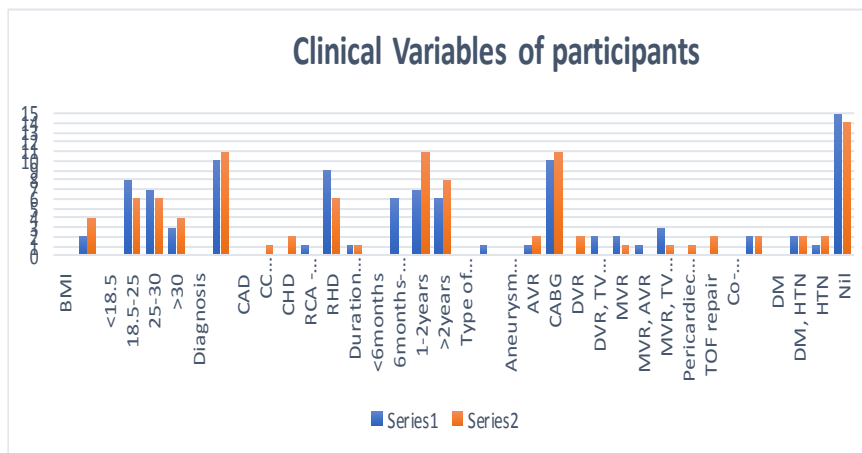


Figure 2 Clinical Variables of the participants by subgroups

Table 3: Comparison of quality of life between groups

Quality of life	Intervention group		Control group		t-value	P value
	Mean	SD	Mean	SD		
First month	8.55	0.76	10.84	0.76	-9.391	<0.001
Third month	6.20	0.62	10.37	0.50	-23.217	<0.001
Fourth month	5.10	0.31	8.16	0.83	-15.340	<0.001

Table 3 shows the mean scores of qualities of life in the intervention and control group. The mean score in the first month was 8.55(0.76) and was 5.10(0.31) in the fourth month in the intervention group. Whereas in the first month the mean score was 10.84(0.76) and was 8.16(0.83) in the fourth month in the control group. The mean difference of scores between the first and fourth month were 3.45 and 2.68 in intervention group and control group respectively. The intervention group had a significantly high quality of life score compared to control group.

There was statistically significant difference observed between the intervention group and control group in quality of life and p value <0.001 signifies the effectiveness of intervention. (Table 3).

DISCUSSION

The present study explores the effectiveness of reflexology on quality of life among 40 patients undergoing cardiac surgery. The results showed that reflexology was found effective in improving the quality of life of patients undergoing cardiac surgery.

A quasi-experimental study was conducted on 90 menopausal women in Iran to assess the effect of foot reflexology on the quality of life. For six weeks straight, the intervention group underwent foot reflexology twice a week for 15 minutes on each foot. Through the MENQOL questionnaire, data was gathered. The groups' QOL scores were compared before, right away after, and two months after the intervention. Results showed that foot reflexology could improve the quality of life of post-menopausal women. [13] The findings of this study and the current study has similar results.

A study was aimed to evaluate the effects of foot massage on relieving pain, anxiety and improving quality of life of patients undergone cervical spine surgery. Patients were treated with 10 minutes foot massage on a daily basis for four weeks using sweet almond oil and were assessed for improvement in pain, anxiety and quality of life. Study revealed that foot massage was effective in alleviating pain and anxiety while improving the quality of life in patients who have undergone anterior cervical discectomy and fusion. [14]

A quasi-experimental study conducted in a University Hospital in Egypt to measure the effect of reflexology on pain and quality of life in patients with Rheumatoid Arthritis. 39 female adults were included in the study. RAQOL was used to assess their quality of life. Study concluded that hands and feet reflexology applied to rheumatoid arthritis patients were effective in reducing their pain, and in improving their quality of life and total health status and reflexology was suggested as a complementary treatment modality. [15] Current study also proved that reflexology was effective in improving the quality of life of patients undergoing cardiac surgery.

A quasi-experimental study was carried out to evaluate the effect of foot reflexology on blood pressure and quality of life among patients with essential hypertension. Purposive sampling was used to include 60 patients. Patients in the intervention group

received foot reflexology. WHO QOL questionnaire was used to measure the quality of life in the first, second and third month during the follow up. It is concluded that foot reflexology had statistically significant positive effect on the quality of life. [16] In the current study, the sample size was only 40.

A systematic review concluded that reflexology can lower biological indicators of stress and anxiety, and it was also suggested that reflexology can increase general relaxation, be deeply calming, and improve overall quality of life., [7] which is consistent with the results of the present study. Haefner reported that complementary health practices, including reflexology, induce local physiological and biochemical changes, leading to a deep sense of calm throughout the entire body and stress and anxiety reduction. [6]

CONCLUSION

The results of the study shed light on the effectiveness of reflexology on quality of life among patients undergoing cardiac surgery. Reflexology was found feasible and effective and showed promising results in improving the quality of life. Further research is recommended in this area. Clinical trials are suggested in this field. Also, comparison of the effect of reflexology with other complementary therapies on the QOL of cardiac surgery patients is recommended. Findings of the study is useful while planning perioperative care for cardiac surgery patients to ensure minimal complications, faster recovery and better post-operative outcomes.

Declaration by Authors

Ethical Approval: Approved

Institutional review board approval (DCGI Reg. No. ECR/348/Inst/KA/2013/RR-16) obtained from concerned authority. The trial has been registered with Clinical trials registry India (CTRI/2020/05/025393). Permission has been obtained from concerned authority to collect data. The aim of the study was explained to each

participant and written informed consent was obtained from all the participants. Participants were informed about voluntary willingness to participate in the study and could withdraw from the study at any time.

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Conflict of interest: The authors declare no conflict of interest.

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