

“Effectiveness of foot massage on body balance among elderly people in selected community areas at Kishtwar district”

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Abstract:

Background: A pre-experimental study was conducted to assess the effectiveness of foot massage on body balance among elderly people in selected community areas at Kishtwar district. A total sample of 60 elderly people were selected using purposive sampling. The objectives of the study were to assess the level of body balance among elderly and to evaluate the effectiveness of foot massage on improving the level of body balance among elderly people. The final objective was to find out the association between level of body balance and selected demographic variables among elderly people.

Materials and Methods: A one-group pre-test post-test design was used to conduct the study. A sample comprising of 60 elderly people were enrolled using purposive sampling technique. The conceptual framework of the study was based on J W Kenny’s open System Model. Tools used for data collection were demographic Performa and flamingo test.

Results: Data analysis was done using descriptive and inferential statistics. Findings of the study revealed that the mean post interventional level of body balance score 19.33 ± 3.78 was significantly higher than the mean pre-interventional score 8.41 ± 3.4 ($p < 0.05$). Paired t value computed at 22.038* was statistically significant at $p < 0.05$. which revealed that, there is significant increase in the mean post-interventional score. Significant association was observed at 0.01 level between lifestyle diseases with level of body balance.

Conclusion: The findings of the study confirmed that the foot massage was significantly effective in improving the body balance among elderly people.

Key Word: effectiveness, foot massage, body balance, elderly people, community areas.

I. Introduction

Balance (static and dynamic postural control) is essential for mobility, prevention of falls, and overall physical function—especially in older adults or in people with sensory/motor deficits (e.g. peripheral neuropathy, chronic ankle instability). One factor in balance control is sensory feedback from the feet: cutaneous, joint, and muscle receptors in the foot and ankle relay information to the CNS about pressure, position, and load. Massage of the feet and related manual therapies (including mobilization and stretching) are thought to enhance this somatosensory input, increase joint range of motion (ROM), reduce stiffness, and thereby improve balance^{1,2}.

A randomized, placebo-controlled, cross-over trial, 28 elderly individuals aged 65–95 years (mean \pm SD, 78.8 ± 8.5 yrs) residing in community nursing homes received one session of manual foot/ankle massage + mobilization, and in another session a placebo treatment. Outcomes assessed pre- and post-intervention included One-Leg Balance (OLB) test, Timed Up & Go (TUG) test, and Lateral Reach (LR) test. Results: Compared with placebo, the massage + mobilization condition produced significant improvements in OLB (mean increase $\sim 1.1 \pm 1.7$ s vs $\sim 0.4 \pm 1.2$ s; $p < 0.01$) and TUG (mean reduction $\sim 0.9 \pm 2.6$ s vs $\sim 0.2 \pm 1.2$ s; $p < 0.05$). No significant change was noted in LR³.

Objectives of the study

1. To assess the level of body balance among elderly people.
2. To evaluate the effectiveness of foot massage on improving the level of body balance among elderly people.
3. To find the association between the level of body balance and selected demographic variables among elderly people.

Hypotheses

- H₁- The mean post interventional level of body balance among elderly people will be significantly higher than mean pre interventional level.
- H₂- There will be significant association between level of body balance of elderly people with selected demographic variables.

II. Material and Methods

Research Approach: Pre- experimental approach.

Research Design: One group pre-test – post-test design.

Population: Elderly people.

Settings: selected community areas.

Sampling Technique: Purposive sampling technique.

Sample size: 60 elderly people.

Tools and Technique

I) Tool A: - Demographic Performa was used to collect socio demographic data such as age, Gender, religion, educational qualification, Marital Status, body build, food habits and any lifestyle disease.

II) Tool B: - flamingo test was used to assess static balance, especially in children, adolescents, elderly, and clinical populations

Method of Data collection: Data was collected for a period of one month [14th February 2018 to 15th March 2018].

After explaining the purpose and obtaining an informed consent, the pre-test was administered for the samples followed by foot massage. After a period of 07 days a post-test was carried out for the samples.

Inclusion criteria:

Elderly people who were willing to participate in the study.

Elderly people who were available at the time of data collection.

Exclusion criteria:

Elderly people who were sensitized to any research study on foot massage for past three months.

Elderly people who were psychologically and physically unfit during the time of data collection.

Statistical analysis:

Both Descriptive and Inferential statistics were used to analyse the data. Descriptive statistics such as Frequency distribution and percentage were used to describe the socio demographic data and Inferential statistics such as paired *t*-test was used to determine the difference between mean scores before and after the intervention. Chi-square was performed to find out the association between body balance and selected demographic variables. The level $P < 0.05$ was considered as the minimum accepted level of significance.

III. Results

Table 01: Frequency distribution and percentage of sample characteristics

(N=60)

Demographic variables		Frequency	Percentage
Age	60-65 Yrs.	06	10%
	66-70 Yrs.	30	50%
	71-75	18	30%
	>75 Yrs.	6	10%
Gender	Male	20	33.33%
	Female	40	66.7%
Religion	Muslim	30	50%
	Hindu	18	30%
	Others	12	20%
Educational qualification	Illiterate	9	15%
	Primary education	18	30%
	Secondary education	30	50%
	Graduation and above	3	05%
Marital Status	Married	36	60%
	Unmarried	9	15%
	Divorced	6	10%
	Widow/Widower	9	15%
Body build	Well nourished	3	5%
	Moderate nourished	18	30%
	Undernourished	36	60%
	Malnourished	3	05%
Food Habits	Vegetarian	14	23.3%
	Non vegetarian	27	45%
	Mixed	19	31.7%
Any lifestyle disease	Yes	15	25%
	No	45	75%

Table 02: Frequency distribution and percentage of pre-test and post-test level of body balance among elderly people.

Levels		Pre-test		Post-test	
		Frequency	Percent	Frequency	Percent
Body balance	Adequate	--	--	45	75%
	Moderate	6	10%	11	18.3%
	Inadequate	54	90%	4	6.67%
	Total	60	100%	60	100%

Figure 01: Bar Diagram showing frequency distribution and percentage of pre-test and post-test level of body balance among elderly people.

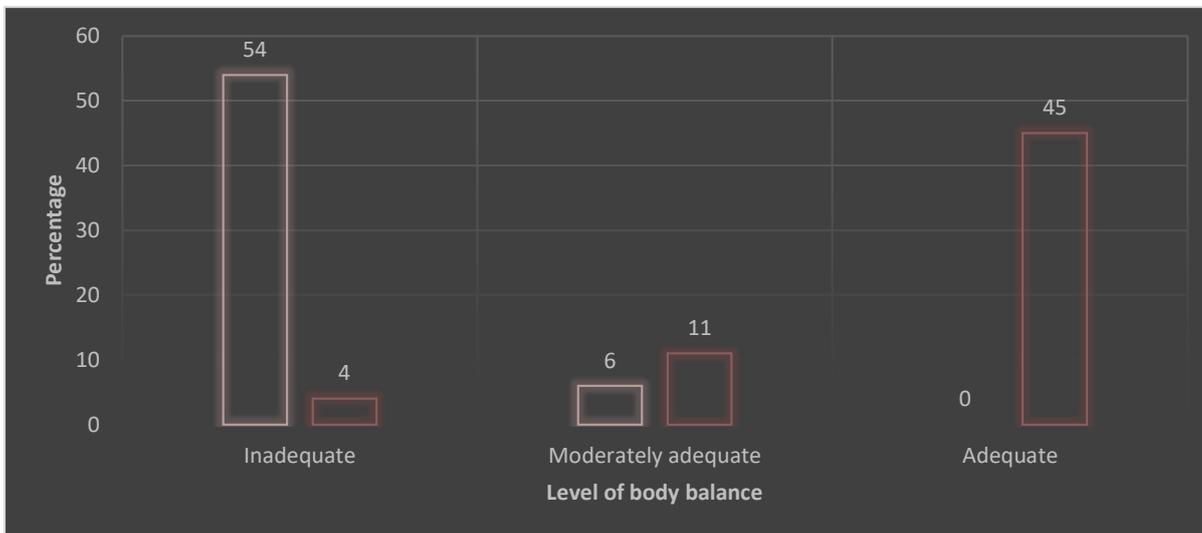


Table 03: Mean, Standard deviation and paired ‘t’ value of level of body balance among elderly people before and after foot massage. (N=60)

Stage	Mean	SD	Mean Difference	df	Paired t	p
Pre-test	8.41	3.4				
Post-test	20.93	3.78	12.52	59	22.038*	0.00

* Significant at 0.05 level

Table 03 shows that mean score before the foot massage was 8.41±3.4 and after the intervention, the mean score increased to 20.93±3.78. Increase in score after foot massage was statistically significant (p<0.05). Change in score at post-test was statistically significant. Hence research hypothesis (H₁) was accepted.

Table 04: Association between level of body balance among elderly people and selected demographic variables. (N=60)

Demographic variables	Body balance			Chi-square test (χ ²)	df P value
	Inadequate		Moderate		
	F	%	F		
Any lifestyle diseases					
Yes	09	31.66%	10	5.87 **	df=59 p=3.84S
No	30	68.33%	11		

**Significant at 0.01 level.

The above table depicts that the calculated χ² value for lifestyle diseases is significantly higher than the table value (p<0.01 level). So, there is association between lifestyle diseases with level of body balance. Hence the research hypothesis H₂ was accepted. The score changes also reflect the effectiveness of the intervention.

IV. Discussion

The findings in the present study revealed that the mean post-test score of level of body balance 20.93 ± 3.78 was significantly higher than the mean pre-test score 8.41 ± 3.4 ($p < 0.05$). Paired t value computed at 22.038^* was statistically significant at $p < 0.05$. The paired t value [22.038^* $df=59$] computed by comparison of the mean pre-test and post-test scores was statistically significant at $P < 0.05$ level. Therefore, it is interpreted that foot massage was significant in improving the level of body balance among elderly people.

This result is supported by various studies. A semi-experimental study was conducted on 3 groups of patients with ACS admitted to coronary care units (CCUs) of Baqiyatallah (AJ) hospital of Tehran, Iran. Samples of the study included 35 patients for each group (105 patients in all the groups) selected among the available hospitals and divided into 3 groups (foot reflexology massage, foot bath, and control) through random allocation. According to the related program, patients of the intervention groups were under intervention for 2 nights from the 2nd night of hospitalization and sleep quality was assessed through Verran and Snyder-Halpern (VSH) subjective sleep quality questionnaire before and after the intervention. Then, data analysis was done through SPSS version 21 by descriptive and inferential statistics. Results: There was no significant statistical difference among the 3 groups regarding sleep disturbance and supplementary sleep after interventions ($P > 0.05$), but there was a significant statistical difference between the groups and at different time regarding the effectiveness after intervention ($P < 0.05$). The obtained results indicated that each of the interventions alone can result in improvement of sleep quality, but there was no significant statistical difference among them. Conclusions: Foot massage and foot bath positive effect on the sleep quality of patients with ACS can be used as a complementary action⁴.

V. Conclusion

The study was conducted to assess the effectiveness of foot massage on body balance among elderly people. The results of the study undoubtedly confirm that the post-test level of body balance is significantly higher than the pre-test level of body balance. Therefore, it is concluded that foot massage is significantly effective in enhancing the level of body balance among elderly people.

Limitations

- The study was confined to specific geographical area, which imposed limits on generalization
- The limited sample size caused limit on generalization of the study findings
- The findings could be generalized only to that population, which fulfilled the criteria in the study
- No follow-up was made to measure the retention of knowledge.

Recommendations

- A descriptive study can be conducted to identify the level of knowledge among elderly people.
- The study can be repeated on a larger sample to generalize the findings
- A comparative study can be conducted to assess the effectiveness of foot massage among elderly people and middle aged.

ETHICAL CONSIDERATIONS

Following ethical clearance from the institutional committee, the researcher then obtained formal permissions from the concerned authorities to conduct the study. Also, a voluntary written informed consent was obtained from the study participants after explaining the objectives of the study. Confidentiality was ensured throughout the course of the study.

BUDGET

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CONFLICTS OF INTEREST

None

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References

1. Vaillant J, Rouland A, Martigné P, Braujou R, Nissen MJ, Caillat-Miousse JL, Vuillerme N, Nougier V, Juvin R. Massage and mobilization of the feet and ankles in elderly adults: effect on clinical balance performance. *Manual Therapy*. 2009;14(6):661-4.
2. Safakheil H, Olyaei GR, Abdolvahab M, Raji P, Attarbashi B, Baghestani AR. Randomized Clinical Trial of manual static stretch and massage of the feet and ankle joints on balance of male elderlies. *J Mod Rehabil*. 2013;7(3):11-17
3. Vaillant J, Rouland A, Martigné P, Braujou R, Nissen MJ, Caillat-Miousse JL, Vuillerme N, Nougier V, Juvin R. Massage and mobilization of the feet and ankles in elderly adults: effect on clinical balance performance. *Manual Therapy*. 2009;14(6):661-4
4. Naseri M. Effect of Foot Reflexology Massage and Foot Bath on the Sleep Quality of Patients with Acute Coronary Syndrome: A Comparative Study. *Journal of Critical Care Nursing*. 2016; doi:10.17795/CCN-10294