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International Journal of Clinical Nursing
Volume 1 Issue 1

A Study to Assess the Effectiveness of Reflexology on Pain among Osteoarthritis Patients in Selected Hospitals at Bangalore

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ABSTRACT

Patients with Osteoarthritis experience pain and loss of function especially in early morning almost for 30 minutes. The basic activities of everyday life, such as walking, running, housework, and the ability to exercise are impacted greatly for many Osteoarthritis sufferers. 72% respondents report being limited in doing every day or routine things. Treating Osteoarthritis patients with advanced Medical and surgical therapy will ends pain and restore the functional mobility. Less often but still worth are non-conventional therapies. One of these is reflexology. Reflexology is an alternative treatment for osteoarthritis. Reflexology is an alternative, non-conventional treatment given by is reflexologist. According to the reflexology, Association of America can be used with any medical or alternative therapy, or it can stand alone as an effective health maintenance technique.

Keywords: *Osteoarthritis, Reflexology Association of America, Advanced Medical and Surgical Therapy.*

INTRODUCTION

Osteoarthritis is the most common joint disorders and affects significant percentage of the elderly people. Osteoarthritis is occur due to degenerative of cartilage which result in joint inflammation [1].The loss of the cartilage cushion in joints causes friction between the bones. Pain is one of the most common symptom experiences by osteoarthritis patients it will mechanically irritate and stimulate new bone growth and ultimately limitation of joint mobility [2]. It is the major cause of morbidity and disability in the elderly [3]. Reflexology is an alternative practice of applying appropriate pressure to specific points by using the techniques [4]. Applying pressure at specific points potentially benefits the body from body of toxins. These toxins are drawn to the extremity by gravity and tend to coagulate and crystallize [5]. Boost the immune system, increase blood circulation, and promote healing band balance energy. Reflexology is one of the most important treatments for osteoarthritis patient. It is systematic, manual stimulation and reflexes the joints. Pressure is applied by using thumb; fingers and hand massage technique it supports to physical change. Reflexology is a non invasive, non pharmacological it can be apply as hand or foot or self foot reflexology [6].

Objectives of the Study

1) To assess the level of pain among osteoarthritis patients in both Experimental and Control group before and after the intervention.
2) To determine the effectiveness of reflexology on pain among osteoarthritis patients, compare the level of pain

between the experimental and control group before and after the intervention.

3) To find out the association of the level of pain with selected baseline variables in both Experimental and Control group.

Research Hypothesis

H_1: There will be a significant difference in the level of pain between the Experimental and control group before and after the reflexology.

H_2: There will be a significant association between the level of pain of Osteoarthritis patients and their Demography variables and selected baseline variables.

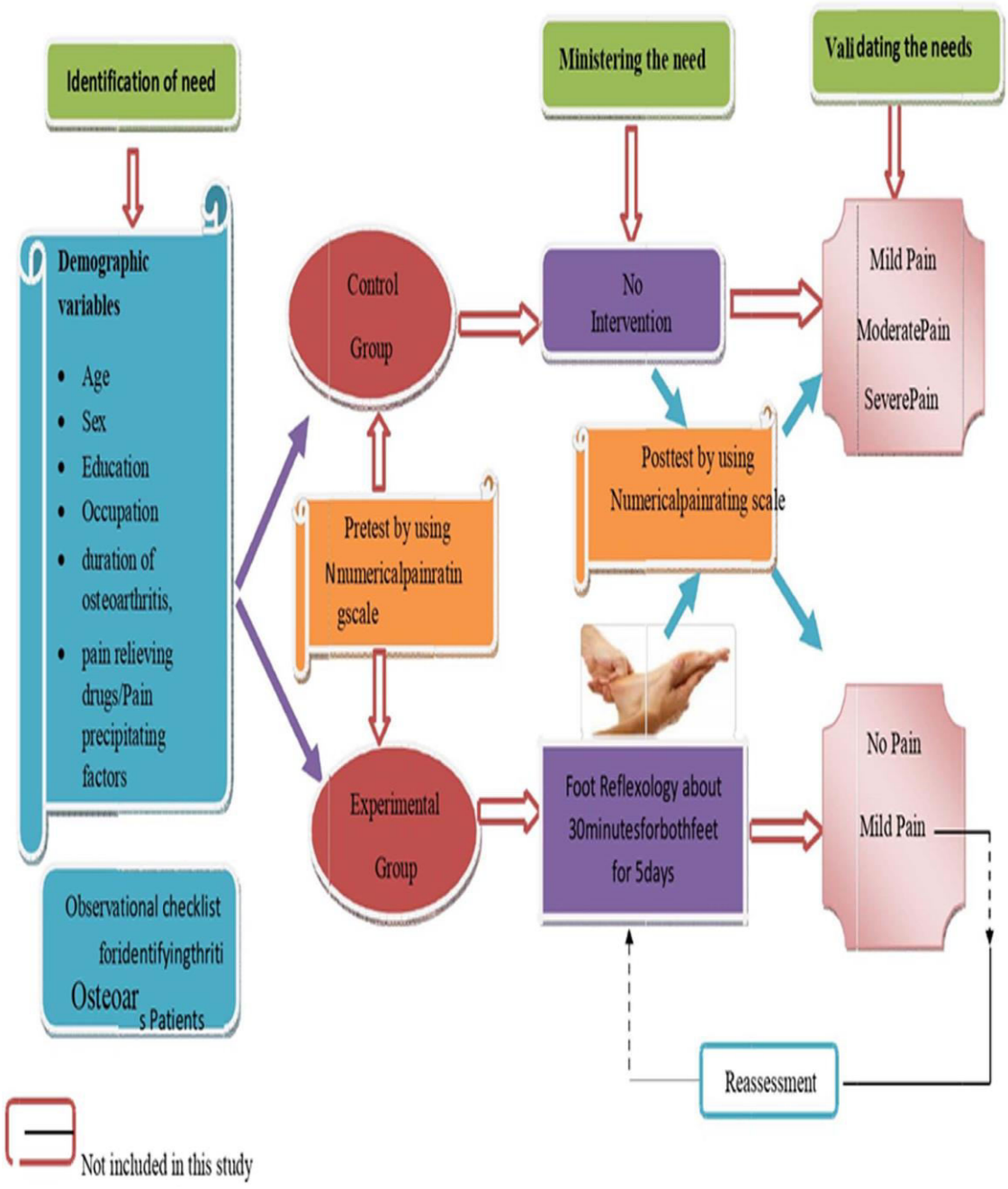

Fig. 1. Modified Ernestine Widenbach Helping Art of Clinical Nursing Theory Model (1964)

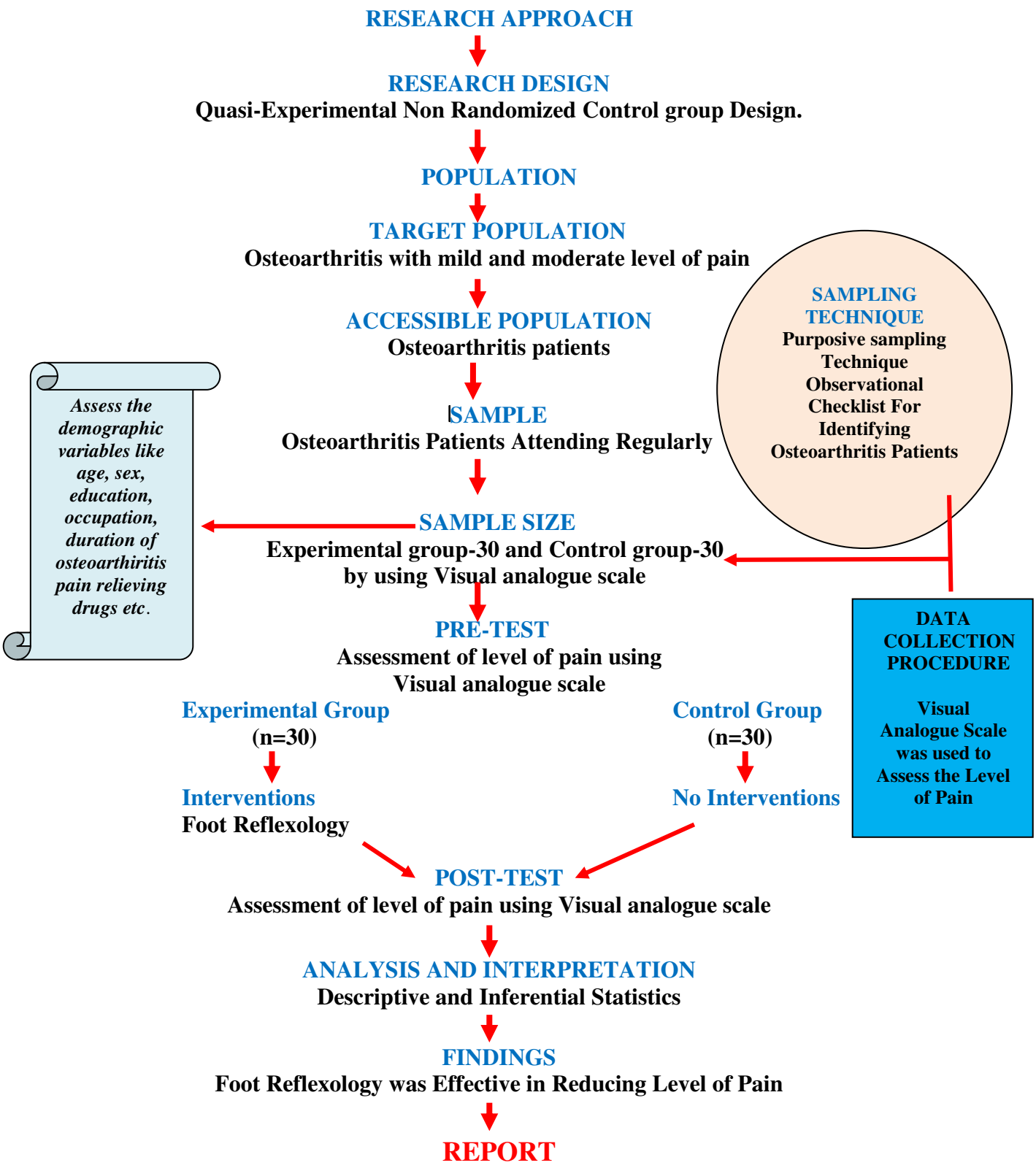

Fig. 2. Schematic Representation of Research Methodology

Data Collection Method
Method of data collection includes selection and development of tool and testing the tool of validity and reliability by administering on few samples.

Selection of the Tool
An instrument selected in research study is a device used to obtain data for drawing conclusions, which are pertinent to the study. As per the objectives, a structured knowledge questionnaire was prepared in order to assess.

Development of Tool
Structured knowledge questionnaire was developed by the following several steps like review of literature, preparation of blue print, expert's opinion and suggestions. For the selection and preparation of tool, related literature review like books, journals, articles, periodicals, published and unpublished research studies were reviewed. Opinion and suggestions were elicited from experts (guide, co-guide, statistician and subject expert from nursing) who help in determining the important areas to be included in the investigation.

Description of Tool
The structured knowledge questionnaire was divided into 2 parts which consists of multiple choice questions.
Part – I: Consists of 8 items related to demographic data which includes age, gender, religion, year of study, type of family, residential area, economic status of family, and sources of information.

Part – II: This section consists of 30 structured items with the option of multiple choices to assess the effectiveness of reflexology on pain among osteoarthritis. Patients in selected hospitals at Bangalore. These items were divided into three sections.

Data Collection Procedure
The pilot was conducted in Divisha arthritis and medical Centre 27/710/2018 to 31/10/2018. The prior permission from the concerned authority to conduct the study was obtained. An informed written consent was obtained from the subjects after explaining the purpose of the study. The Demographic and selected baseline variables data and pre–test pain level will be assessed before intervention in both experimental and Control group by using data collection tool. Then the intervention (that is the Reflexology) will be administered by the investigator for 5 days only to the experimental group.

The intervention will be given minimum 3 hours after the administration of analgesics, by the investigator 30 minutes duration 15 minutes for each foot. The post test pain level will be assessed after 5 days of intervention in both Experimental and Control group by the investigator herself. At the end of the Foot Reflexology Procedure the investigator will distribute Pamphlets' regarding foot reflexology to all the study participants in experimental group for further follow up.

ANALYSIS AND INTERPRETATION
The data was collected on the basis of the objectives and hypotheses formulated for the study. The analysis of the data is organized and presented under the following sections:
1) **Section I:** Description of demographic variables of the patients with osteoarthritis.
2) **Section II:** Assessment of the level of pain among patients with osteoarthritis in the and experimental control group.
3) **Section III:** Comparison of level of pain among patients with osteoarthritis in Experimental group and control group

4) **Section IV:** Association of posttest level of pain among patients with osteoarthritis in experimental and control group with their selected demographic variable.

SECTION I

Data on Demographic Variables of Patients with Osteoarthritis

Table 1: Frequency and Percentage Distribution of the Samples Based on Demographic Variables such as Age, Sex, Education, Occupation, Duration of Osteoarthritis, Pain Relieving Drugs *etc*.

(N=60)

Demographic variables	Experimental group		Control group	
	F	%	F	%
Age				
35-41 Years	8	26.6	10	33.3
42-48Years	11	36.6	9	30
49-55 Years	11	36.6	11	36.6
Sex				
Male	13	43.33	15	50
Female	17	56.66	15	50
Education				
Illiterate	6	20	7	23.33
Primary	14	46.66	13	43.33
Higher Secondary	6	20	7	23.33
Graduate	4	13.33	3	10
Occupation				
Sedentary Worker	6	20	7	23.33
Moderate Worker	15	50	14	46.66
Heavy Worker	9	30	9	30

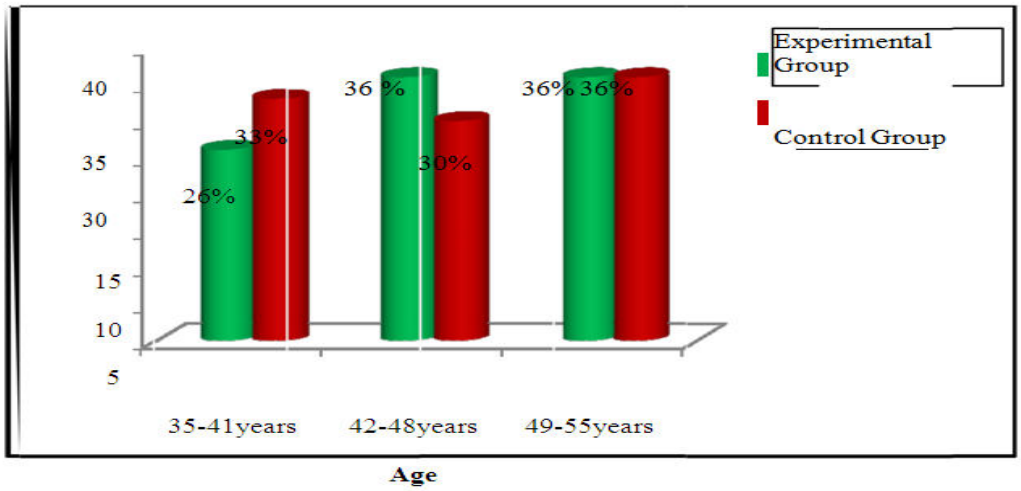

Fig 3: Percentage Distribution of Demographic Variables of Age in Experimental and Control Group

SECTION II

Assessment of the Level of Pain among Patients with Osteoarthritis in Experimental and Control Group

Table: 2 Assessment of pretest and posttest level of pain among experimental Group.

(N=30)

Level of Pain	Pre–test		Post–test	
	F	%	F	%
No Pain	-	-	17	56.6
Mild Pain	14	46.6	13	43.3
Moderate Pain	16	53.3	-	-
Severe Pain	-	-	-	-
Worst Pain	-	-	-	-

Table 2 reveals the frequency and percentage distribution of pre test and post test level of pain among experimental group. It is evident from the above table that during pretest, none of the patients had no pain, 14(46.6%) of the patients had mild pain,16(53.3%) of them had moderate pain, none of them had severe pain, and worst pain, where as in the post test level of pain among the experimental group 17(56.6%) of the patients had no pain, 13(43.3%) of them had mild pain, none of them had moderate pain, none of them had severe pain and worst pain.

SECTION III

Comparison of Level of Pain among Patients with Osteoarthritis in Experimental Group and Control

Table 4: Comparison of posttest level of pain between the experimental and control group

(N=60)

Group	Posttest		t Value
	Mean	Standard Deviation	
Experimental Group	0.43	0.49	5.62
Control Group	1.96	0.56	S

S =Significance

Table 3 reveals the unpaired `t' test to compare the posttest level of pain between experimental and control group was found that the `t' value was 5.62, indicating that there was significant difference in posttest level of pain between the experimental and control group at $p<0.05$ level. Hence the stated hypothesis, "the mean post test level of pain among experimental group will be significantly lower than the mean post test level of pain in the control group" was accepted.

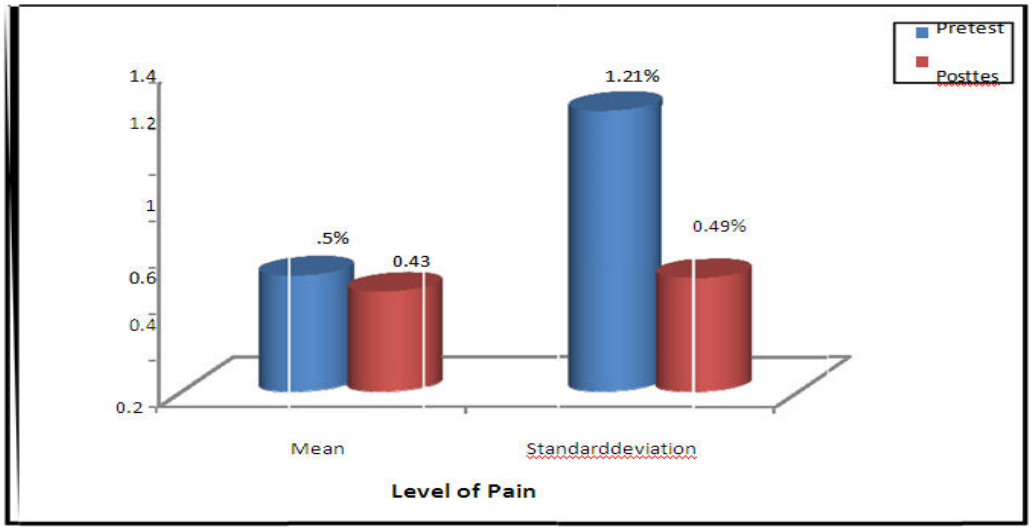

Fig. 4. Mean and Standard Deviation of Pre–test and Post–test Level of Pain among Patients with Osteoarthritis in Experimental Group.

SECTION IV

Association of Post Test Level of Pain Among Patients with Osteoarthritis in Experimental and Control Group with their selected Demographic variables.

Table 4: Association of Post–test Level of Pain among Patients with Osteoarthritis in Experimental Group with their Demographic Variables

(N=30)

Demographic Variables	Level of Pain										χ^2
	No Pain		Mild Pain		Moderate Pain		Severe pain		Worst pain		
	F	%	F	%	F	%	F	%	F	%	
Age											
35-41 Years	6	20	2	6.66	0	0	0	0	0	0	1.679 f=8 NS
42-48Years	6	20	5	16.66	0	0	0	0	0	0	
49-55 Years	5	16	6	20	0	0	0	0	0	0	
Sex											
Male	10	33.33	3	10	0	0	0	0	0	0	3.835 f=4 NS
Female	7	23.33	10	33.33	0	0	0	0	0	0	
Education											
Illiterate	3	10	3	10	0	0	0	0	0	0	0.763 f=12 NS
Primary	8	46.66	6	20	0	0	0	0	0	0	
Higher Secondary	3	20	3	10	0	0	0	0	0	0	
Graduate	3	13.33	1	3.33	0	0	0	0	0	0	
Occupation											
Sedentary Worker	4	13.33	2	6.66	0	0	0	0	0	0	1.218 f=8 NS
Moderate Worker	7	23.33	8	26.66	0	0	0	0	0	0	
Heavy Worker	6	20	3	10	0	0	0	0	0	0	

NS = Non-Significant.

Table 4 reveals the chi-square test to associate the posttest level of pain with the selected demographic variables like age, sex, education, occupation, duration of osteoarthritis, pain relieving drugs *etc*. in the control group. While analyzing the statistical significance at (P<0.05) level it shows that there was no significant association of the posttest level of pain with the selected demographic variables at P<0.05 level.

Table 5: Association of post test level of pain among patients with osteoarthritis in control with their demographic variables

(N=30)

Demographic Variables	Level of Pain										χ 2
	No Pain		Mild Pain		Moderate Pain		Severe pain		Worst pain		
	F	%	F	%	F	%	F	%	F	%	
Age											
35-41 Years	0	0	3	10	7	23.33	0	0	0	0	3.724
42-48Years	0	0	1	3.33	6	20	2	6.66	0	0	f=8
49-55 Years	0	0	1	3.33	8	26.66	2	6.66	0	0	NS
Sex											
Male	0	0	3	10	9	30	3	10	0	0	1.628
Female	0	0	2	6.66	12	40	1	3.33	0	0	f=4 NS
Education											
Illiterate	0	0	1	3.33	4	13.33	2	6.66	0	0	4.243
Primary	0	0	1	3.33	11	36.66	1	3.33	0	0	f=12
Higher Secondary	0	0	1	3.33	5	16.66	1	3.33	0	0	NS
Graduate	0	0	2	6.66	1	3.33	0	0	0	0	
Occupation											
Sedentary Worker	0	0	1	3.33	6	20	0	0	0	0	2.207
Moderate Worker	0	0	2	6.66	10	33.33	2	6.66	0	0	f=8
Heavy Worker	0	0	2	6.66	5	16.66	2	6.66	0	0	NS

NS=Non-Significant.

Table 5 reveals the chi-square test to associate the posttest level of pain with the selected demographic variables like age, sex, education, occupation, duration of osteoarthritis, pain relieving drugs *etc.* in the control group. While analyzing the statistical significance at (P<0.05) level it shows that there was no significant association of the posttest level of pain with the selected demographic variables at P<0.05 level. Hence the stated research hypothesis "there was significant association between post–test level of pain among experimental and control group with their selected demographic variables like age, sex, education, occupation, duration of osteoarthritis, pain relieving drugs *etc.* was rejected.

MAJOR FINDING OF THE STUDY

Findings related to demographic variables demographic such as age, sex, education, occupation, food habits, body weight, history of trauma, pain precipitating factors,

1) While considering the age, in the experimental group out of 30 patients, 8(26.66%) were between the age group of 35–41 years, 11(36.66%) were belongs to 42–48 years and 11(36.66%) were belongs to 49-55 years, whereas in the control group out

of 30 patients 10(33.33%)were between the age group of 35-41 years 9(30%) belongs to 42-48years and11(36.66%) patients belongs to 49-55 years.

2) With regard to sex, in the experimental group, out of 30 patients, 13 (43.33%) were males and 17(56.66%) were females, whereas in the control group out of 30 patients 15(50%)were males and remaining15(50%) were females.
3) Based on the educational status, in the experimental group, out of 30patients, 6(20%) were illiterate, 14(46.66%) had primary school education, 6(20%) had higher
4) Secondary school education, 4(13.33%) of them were graduate, where as in the control group out of 30 patients, 7(23.33%) were illiterate, 13(43.33%) had primary school education, 7(23.33%) had higher secondary school education, 3(10%) of them were graduate.
5) Regarding the occupation, in the experimental group among 30 patients with osteoarthritis, 6(20%) were sedentary workers, 15(50%) were moderate workers, and 9(30%) were heavy workers, whereas in the control group out of 30 patients, 7(23.33%) were sedentary workers, 14(46.66%) were moderate workers, 9(30%) were heavy workers.

Section 2: Assessment of the Level of Pain among Patients with Osteoarthritis in the Experimental and Control Group

1) It reveals the frequency and percentage distribution of pretest and post–test level of pain among experimental group. It is evident from the above table that during pretest, none of the patients had no pain, 14(46.6%) of the patients had mild pain, 16(53.3%) of them had moderate pain, none of them had severe pain, and worst pain, where as in the post test level of pain among the experimental group 17(56.6%) of the patients had no pain, 13(43.3%) of them had mild pain, none of them had moderate pain, none of them had severe pain and worst pain.
2) Shows the frequency and percentage distribution of pretest and posttest level of pain among control group from the above table it is revealed that in the pre–test level of pain among the control group, none of them had no pain, 16(53.33%) of them had mild pain, 14(46.66%) of them had moderate pain, none of them had severe pain, and none of them had worst pain, whereas in the post–test level of pain among the control group, none of them had no pain, 5(16.6%) of them had mild pain, 21(70%) of them had moderate pain, 4(13.33%) of them had severe pain, and none of them had worst pain.

Section 3: Comparison of Level of Pain among Patients with Osteoarthritis in Experimental Group and Control Group

1) It reveals the unpaired `t' test to compare the post–test level of pain between experimental and control group was found that the `t' value was 5.62, indicating that there was significant difference in posttest level of pain between the experimental and control group at $p<0.05$ level. Hence the stated hypothesis, "the mean post–test level of pain among experimental group will be significantly lower than mean post–test level of pain in the control group" was accepted
2) It reveals the paired `t' test to compare the pretest and posttest level of pain between experimental group was found that the't' value was 5.64 indicating that there was significant difference in pretest and posttest level of pain between the experimental at $p<0.05$ level.

   Hence, the stated hypothesis, "the mean post–test level of pain will be significantly lower than the mean

pretest level of pain in experimental group" was accepted.

Section 4: Association of Post–Test Level of Pain among Patients with Osteoarthritis in Experimental and Control Group with their Selected Demographic Variables.

1) It reveals the chi-square test to associate the posttest level of pain with the selected demographic variables like age, sex, education, occupation, duration of osteoarthritis, pain relieving drugs etc in the experimental group. While analyzing the statistical significance at ($P<0.05$) level it shows that there was no significant association of the posttest level of pain with the selected demographic variables at $P<0.05$ level.

   Hence, the stated research hypothesis "there will be significant association between posttest level of pain among experimental and control group with their selected demographic variables like age, sex, education, occupation, duration of osteoarthritis, pain relieving drugs *etc.* was rejected.

CONCLUSION

The focus of this study was to assess the effectiveness of reflexology on pain among osteoarthritis Patients in selected hospitals, at Bangalore. A pre experimental research approach and one group pre test post test research design was used in the study. The data was collected from 60 samples through purposive sampling technique. The data collected was subjected to analysis using descriptive statistics in terms of frequencies, percentage and inferential statistics like t–test, Pearsons Correlation Test and Chi–square test to find the association.

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