A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON REDUCTION OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS AT SELECTED HOSPITAL, IN COIMBATORE

BY

Reg. No: 301711901

A DISSERTATION SUBMITTED TO THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

BRANCH-I MEDICAL SURGICAL NURSING

CRITICAL CARE NURSING

OCTOBER 2019

A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON REDUCTION OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS AT SELECTED HOSPITAL IN COIMBATORE

BY

Ms.BEULAH VASTHI .N

---------- ----------

EXTERNAL **INTERNAL**

A DESSERTATION SUBMITTED TO THE TAMILNADU DR.MGR MEDICAL UNIVERSITY, CHENNAI.IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR AWARD OF THE DEGREE OF

MASTER OF SCIENCE IN NURSING

OCTOBER 2019

CERTIFIED THAT THIS IS THE BONAFIDE WORK OF

Ms.BEULAH VASTHI.N

ELLEN COLLEGE OF NURSING,
COIMBATORE, TAMILNADU.

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIERMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING TO THE TAMILNADU DR.MGR MEDICAL UNIVERSITY, CHENNAI.

COLLEGE SEAL :

PROF.Mrs.R.ARULMALAR, M.Sc. (N) MBA, M.Phil,
PRINCIPAL,
ELLEN COLLEGE OF NURSING,
COIMBATORE, TAMILNADU.

A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON REDUCTION OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS AT SELECTED HOSPITAL IN COIMBATORE

APPROVED BY THE DESSERTATION COMMITTEE ON

RESEARCH GUIDE: _____

PROF.Mr.ANNASAMY, M.Sc, and M.Phil. (Ph.D),
PROFESSOR,
ELLEN COLLEGE OF NURSING,
COIMBATORE, TAMILNADU.

CLINICAL GUIDE: _____

PROF.Mrs.R.ARULMALAR, M.Sc. (N)MBA,Mphil
PRINCIPAL,
ELLEN COLLEGE OF NURSING,
COIMBATORE, TAMILNADU.

MEDICAL EXPERT: _____

Dr.Sr.RANI AGNES., MD (taly), DNB, PGDGM,
St. MARY'S HOSPITAL,
PODANUR,
COIMBATORE

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.MGR MEDICAL UNIVERSITY, CHENNAI .IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR AWARD OF THE DEGREE OF MASTER OF SCIENCE IN NURSING

OCTOBER 2019

PLAGIARISM CERTIFICATE

This is to certify that this dissertation work titled **"A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON REDUCTION OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS AT SELECTED HOSPITAL, IN COIMBATORE**" Of the candidate **Ms. BEULAH VASTHI .N,** with registration number **301711901** for the award of M.Sc Nursing in the branch of **MEDICAL SURGICAL NURSING (Critical Care Nursing)**.I personally verified the **www.plagiarismcheckerx.com** website for the purpose of plagiarism checks. I found that the uploaded thesis file contains from introduction to conclusion pages and result shows **12 percentage** of plagiarism in the dissertation.

PRINCIPAL SIGNATURE **GUIDE SIGNATURE**

ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

"Unselfish and noble actions are the most radiant pages in the biography of souls."

Acquire the grateful habit, learn to see how blest you are. Nothing concrete can be achieved without an optimal inspiration during the course of work. There are several hands and hearts behind this work to bring it to this final shape for which I would like to express my gratitude

I sincerely thank Almighty God for his showering mercy, guidance and wisdom throughout my study and complete my project successfully. Glory to thy Lord…The worthy of all honor.

I express my sincere thanks to the pillar of the college who is none other than the **DR.A. Guna Singh Emmanuel MA, BL, Ph.D., and Mrs. Jasmine Guna Singh**, Ellen College of Nursing, Coimbatore, for all facilities provided to me in this institution.

I wish to express my deep sense of gratitude to my clinical guide and respected **Prof: Mrs. R. Arul Malar,M.Sc (N)., M.Phil Principal** in Ellen College of Nursing, Coimbatore. She instilled me a lot of courage and conflicts while doing the project her guidance enabled me to complete my project successfully.

My special thanks to **Dr.Sr.RaniAgnes, MD (taly). , DNB. , PGDGM., St.,Mary's Hospital, Podanur**. Coimbatore, for her permission, suggestion, guidance and diligent efforts till the completion of this project with success.

My special thanks to **Dr.SelvaKumar.K., PT, CMP.CONT, NDS (Australia certified)** Manual and sports therapist, who trained me in foot reflexology and his guidance till the end of this project with success.

My special thanks to **Mr.Thivyan Ravi Kumar.M.E.,B.ed.(Assistant professor)** English literature, and **Mrs. Joy Nancy M.Sc.,M.Ed (Assistant professor)** Tamil literature for their valuable correctness of Tamil language and English language used in presenting the paper is lucid, and free of grammatical or

spelling errors and apt for the purpose.

I extend my candid gratitude to my research guide, **Mr. Annasamy, M.Sc., and M.Phil. (Ph.D), Statistician** for his support and guidance in statistical analysis and interpretation of data, and for his encouragement to achieve this goal.

The project cannot be completed without validation. Hence I express my gratitude to all the respected professors who spent their valuable time in tool validation.

I express special thanks and humble regards to my teacher and guide in Ellen College of Nursing, Coimbatore, for their efficient guidance, encouragement motivation and valuable suggestions not only in the study but also throughout the academic career which helped me lay a strong foundation for this study.

My sincere gratitude and appreciation to faculties of Ellen College of Nursing, Coimbatore, for their tremendous help in projecting a relevant outlook of the research work.

Chief Librarian, Ellen College of Nursing, Coimbatore, or her generous help in collecting the materials needed for the study .With a deep sense of gratitude, I acknowledge all those who have contributed to my successful completion of the Endeavour.

I widen my genuine gratitude to the Dissertation Committee for offering constructive criticism and due sanction for carrying out this research work.

I am obliged to the Nursing experts for validating the tool and content used in this study.

I am extremely thankful to all the faculty members Ellen of College of Nursing for their timely help and support for completing this study.

I also express my sincere thanks to the Respondents who participated in the study for their co-operation in providing the required data for the study.

I would like to express my special thanks to, **Star Colour Park India Pvt. Ltd.,** for their excellent and untiring effort in materialization of my dissertation work.

I dedicate this dissertation to my loving parents **Mr.Nelson Devarajan** and **Mrs. Selva Sundary**, My brother **Mr.Thilak Rabuni Kumar** My Soul mate **Mr.Christopher** for their valuable and constant encouragement, concern, patience, sacrifice and fruitful prayers for the successful completion of this dissertation.

My heartfelt thanks to all my friends including **Meena, Jothi, Prasadh, Vijay**, who have directly and indirectly helped me in the successful completion of this study.

My sincere thanks and gratitude to all those directly or indirectly helped in the successful completion of the thesis.

.

ABSTRACT

ABSTRACT

Title of the study: A study to evaluate the effectiveness of foot reflexology on patients undergoing hemodialysis at selected hospital in Coimbatore.

Fatigue is one of the common symptom in patients with advanced kidney disease, with implications for quality of life and clinical outcomes .Fatigue is a complex ,multidimensional ,and multi factorial phenomenon ,which has been defined as 'extreme and persistent tiredness, weakness or Exhaustion mental ,physical or both". Can place severe limits on daily life , Recently complimentary therapy and alternative therapies are widely used by patients with chronic illness. Foot reflexology method is suggested by physiotherapist helps to decrease fatigue.

Experimental study to evaluate the effectiveness of foot reflexology on patients undergoing hemodialysis at selected hospital in Coimbatore was conducted as partial fulfillment of the requirement for the award of the degree of Master of Science in Nursing by 301711901 from Ellen College of Nursing under the Tamilnadu .Dr.M.G.R.Medical University, Chennai.

The objectives of the study were,

- To assess the level of fatigue among patients undergoing hemodialysis in experimental and control group.
- To evaluate the effectiveness of foot reflexology on fatigue on patients undergoing hemodialysis on experimental group.
- To find out the association between selected demographic variables and fatigue.

The research design adopted was a quasi experimental pretest and post test control group design. The population was patients with fatigue on undergoing hemodialysis. The conceptual framework of this research was based on Modified Wiedenbach's Helping Art of Clinical Nursing Theory. The study has adopted convenient sampling technique and the estimated sample size was 60 patients with fatigue on patients undergoing hemodialysis. Descriptive statistical were used to

analyze the data and to test the study by hypothesis. The result shoes that ,the pretest mean score was 30.3 and the post test mean score was 8.6, There will be a significant different pretest and post test mean symptoms score. The t value is in control group is t=2.3 and in experimental group t test value is t=12.1. There will be a significant difference between pre and post test.

The tool developed and used for data was FAS(fatigue assessment scale).The content validity of the tool was established by inter rated reliability, computed reliability coefficient r=0.88 was high. The pilot study was conducted.

The main study was conducted in St. Mary's Hospital, in Coimbatore. The information regarding demographic and clinical variables and data were collected from 60 on patients undergoing hemodialysis by using test and retest method. The intervention foot reflexology was for done for experimental group. Intervention was done at bed side of the patient.

The findings of the study revealed that there was a significant difference after the administration of foot reflexology on patients undergoing hemodialysis.

The study concluded that foot reflexology was an effective measure to reduce fatigue on patients undergoing hemodialysis. The implication, limitation, recommendation, and conclusion were stated.

TABLE OF CONTENTS

TABLE OF CONTENTS

CHAPTER	CONTENT	PAGE NO
I	**INTRODUCTION**	**1**
	➢ Need for the study	4
	➢ Statement of the problem	11
	➢ Objectives of the study	11
	➢ Operational definitions	12
	➢ Hypotheses	11
	➢ Assumption	12
	➢ Delimitation	12
	➢ Projected outcome	12
II	**REVIEW OF LITERATURE**	**13**
	➢ Reviews related to chronic renal failure on hemodialysis	13
	➢ Reviews related to foot reflexology	19
	➢ Reviews related to foot reflexology on fatigue and hemodialysis	24
	➢ Conceptual Framework	26
III	**RESEARCH METHODOLOGY**	**31**
	➢ Research Approach	31
	➢ Research design	32
	➢ Population	33
	➢ Setting of the study	33
	➢ Sample	33
	➢ Sample size	33
	➢ Sampling technique	33

	➢ Sample selection criteria	34
	➢ Variables	34
	➢ Development of the tool	35
	➢ Scoring procedure	35
	➢ Content validity	36
	➢ Reliability of the tool	36
	➢ Pilot study	36
	➢ Ethical consideration	37
	➢ Data Collection Procedure	37
IV	**DATA ANALYSIS AND INTERPRETATION**	**40**
V	**DISCUSSION**	**77**
VI	**SUMMARY, CONCLUSION AND RECOMMENDATION**	**85**
	REFERENCES	
	APPENDICES	

LIST OF TABLES

TABLE NO.	TITLE	PAGE NO.
4.1	Percentage distribution of samples according to their Demographic variables in experimental and control group	42
4.2	Frequency percentage distribution of pre and post test fatigue score of patients undergoing hemodialysis on experimental group	60
4.3	Frequency percentage distribution of pre and post test fatigue score of fatigue among patients undergoing hemodialysis in control group	62
4.4	Effectiveness of foot reflexology by the fatigue level of pre and post test for the fatigue on patients undergoing hemodialysis among experimental and control group	64
4.5	Association between pre and post test fatigue score and demographic variables of experimental group	66
4.6	Association between Experimental post test fatigue on patients undergoing hemodialysis	70

LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO
2.1	Modified Wiedenbach's Helping Art of Clinical Nursing Theory	29
3.1	Schematic representation of the study	39
4.1	Percentage distribution of samples according to their age in years in experimental and control group	46
4.2	Percentage distribution of samples according to their Gender in experimental and control group	47
4.3	Percentage distribution of samples according to their Qualification in experimental and control group	48
4.4	Percentage distribution of samples according to their Religion in experimental and control group	49
4.5	Percentage distribution of samples according to their Type of family in experimental and control group	50
4.6	Percentage distribution of samples according to their Type of family in experimental and control group	51
4.7	Percentage distribution of samples according to their Occupation in experimental and control group	52
4.8	Percentage distribution of samples according to their types of nutrition in experimental and control group	53
4.9	Percentage distribution of samples according to their previous Hb level before doing hemodialysis experimental and control group	54
4.10	Percentage distribution of samples according to their Number of hemodialysis in experimental and control group	55

4.11	Percentage distribution of samples according to their experiencing fatigue during hemodialysis in experimental and control group	56
4.12	Percentage distribution of samples according to their experiencing fatigue during hemodialysis in experimental and control group	57
4.13	Percentage distribution of samples according to their co-morbid illness in experimental and control group	58
4.14	Percentage distribution of samples according to their blood transfusion in experimental and control group	59
4.15	Frequency percentage distribution of pre and post test fatigue score of patients undergoing hemodialysis on experimental group	61
4.16	Frequency percentage distribution of pre and post test fatigue score of fatigue among patients undergoing hemodialysis in control group	63

LIST OF ANNEXURES

S. NO	TITLES
A	Letter seeking permission to conducting the study
B	Letter seeking and granting permission for conducting the study
C	Letter seeking experts opinion for content validity
D	Certificate of content validity
D1	Certificate of content validation
D2	Certificate of content validation
D3	Certificate of content validation
D4	Certificate of content validation
D5	Certificate of content validation
E	Letter granting permission to conduct the study
F	Training certificate for foot reflexology
G	List of experts for content validity
H	Content validity of statistician
I	Certificate of English editing
J	Certificate of Tamil editing
K	Plagiarism report
L	Structured English questionnaire
M	Structured Tamil questionnaire
N	Fatigue assessment scale (FAS)
O	Foot reflexology procedure
P	Informed consent form
Q	Photographs

CHAPTER - I

INTRODUCTION

CHAPTER I

INTRODUCTION

"Your body is a temple, but only if you treat it as one."

- Astrid Alauda

Chronic kidney diseases have become a major cause of global Morbidity and mortality even in developing countries. The burden of chronic kidney disease (CKD) in India cannot be assessed accurately the approximate of CKD is 800per million population (pmp), and the incidence of end-stage renal disease (ESRD) is 150–200 pmp. The most common cause of CKD in population- based studies is diabetic nephropathy chronic diseases have become a major cause of global morbidity and mortality. Earlier considered to be a health problem only in developed countries, 4 out of 5 chronic diseases deaths now occur in low- and middle-income countries.

Chronic renal disease is a serious condition associated with premature mortality, decreases the quality of life, and increases health care expenditure. Chronic renal disease refers to an irreversible loss of renal function that develops due to a multifactorial etiology over a period of a few years. Initially it starts as a biochemical abnormality and progresses in stages. Earlier stages of chronic renal disease can be detected through routine laboratory measurements like urea, creatinine, serum electrolytes. Loss of renal function happens progressively leading to loss of excretory, metabolic and endocraine functions.

Kidney damage for three or more months, as defined by structural or functional abnormalities the kidney, with or without decreased glomerular filtration rate (GFR) manifest by either pathological abnormalities; or markers of kidney damage, including abnormalities in the composition of the blood or urine, or abnormalities in imaging tests

Chronic renal disease is found in persons of all ages. The normal annual mean decline in the glomerular filtration rate with age from the peak glomerular filtration rate (approximately 120 ml/min/1.73 m2) attained during the third decade of life is approximately 1 ml/min/1.73 m2, reaching a mean value of 70 ml/min/1.73 m2 at age

70 years. Nonetheless, in the United states, the highest incidence rate of End stage renal disease occurs in patients older than 65 years

Worldwide, Chronic kidney disease population accurately detecting elderly persons, females or other ethnic groups such as Asians. Chronic kidney disease worldwide populations are 237 to 65181. The median prevalence of chronic kidney disease was 7.2% in persons aged 30 years or older. In persons aged 64 years or older 3 prevalence of chronic kidney disease varied from 23.4% to 35.8%.

In India the projected number of deaths due to chronic diseases. traditionally, health programs for prevention of chronic diseases have mainly focused on hypertension, diabetes mellitus and cardio vascular disease (CVD), however, the increase in the prevalence of chronic kidney disease (CKD) progressing to end-stage renal disease (ESRD) and the consequent financial burden of renal replacement therapy (RRT), in both developed as well as developing nations has highlighted the importance of CKD and its risk factors1,783,000 patients worldwide were receiving treatment for ESRD, of which 77%were on dialysis and 23%had a functioning renal transplant (RT), and this number is increasing at a rate of 7% every year.

Hemodialysis, a dialysis machine and a special filter called an artificial kidney, or a dialyzer, are used to clean the blood the need of dialysis is if kidneys no longer remove enough wastes and fluid from the body to keep our healthy. This usually happens when we have only 10 to 15 percent of your kidney function left we may have symptoms such as nausea, vomiting, swelling and fatigue.

Fatigue is a common symptom in patients with advanced kidney disease, with implications for quality of life (QoL) and clinical outcomes. Fatigue is a complex, multidimensional, and multi factorial phenomenon, which has been defined as ‘extreme and persistent tiredness, weakness or Exhaustion mental, physical or both’. Common symptoms also include reduced motivation and physical Activity, in addition to general lethargy. Physical fatigue is the transient inability of a muscle to maintain optimal physical performance, and is made more severe by intense physical exercise. Mental fatigue is a transient decrease in maximal cognitive performance resulting from prolonged periods of cognitive activity. It can manifest as somnolence,

lethargy, or fatigue. Medically, fatigue is a non-specific symptom, which means that it has many possible causes.

A natural healing art based on the principle that there are reflexes in the feet, hands and ears and their referral areas within zone related areas, which correspond to every part, gland and organ of the body. Through application of pressure on these reflexes without the use of tools, the feet being the primary area of application, reflexology relieves tension, improves circulation and helps promote the natural function of the related areas of the body.

Reflexology is a form of foot massage designed to harmonize bodily functions and thus have a healing and relaxing effect. Reflexology is based on the premise that "there are reflex areas in the feet and hands that correspond to all of the glands, organs, and parts of the body". Reflexology has been used since ancient times to promote relaxation.

In recent years, it has been used as an alternative or complementary therapy to relieve stress and tension, improve the blood supply, and promote homeostasis. Explanations for its effects are based on several theories. For example, the energy theory proposes that organs communicate via an electromagnetic field and reflexology assists energy to re circulate through blocked pathways. The lactic acid theory states that lactic acid is deposited as micro crystals in the feet and reflexology crushes the crystals and allows for the free flow of energy. The theory of proprioceptive nervous receptors states that a connection exists between the areas of the feet and the Body organs and that refluxing the feet affects the organs. Foot reflexology produces its relaxing effect by relieving tension and stress related to physical problems. This relaxation affects the autonomic response, which, in turn, affects the endocrine, immune, and neuropeptide systems. Finally, the psychological explanation states that reflexology is simply a method of showing care and concern for patients.

On the physical level, reflexology relieves muscle tension, reduces muscle spasms, improves joint flexibility and range of motion, improves posture, lowers blood pressure, slows heart rate, promotes deeper and easier breathing and improves the health of the skin. On mental level, reflexology induces a relaxed state of alertness, reduces mental stress, fatigue and increases the capacity for clearer thinking

On emotional level reflexology satisfies the need for caring and nurturing touch, increases the feeling of wellbeing, decreases mild depression, enhances self-image, reduces the level of anxiety and fatigue, increases awareness of mind-body connection .

Foot reflexology is a non-invasive , complimentary modality involving thumb and finger technique so apply alternating pressure to reflex maps of the body located on the feet, hands and outer ears ,foot reflexology is based on the premise that there are zones and reflex areas in the feet which corresponds all over the body. The premise is that the 7200 nerve endings in each foot, communicate with the nerves in the spine ,and from there ,with the brain ,which produces an immediate reactions. it stimulate balance and normalization of the body naturally. Finally it promotes the body homeostasis, it reduces stress and bring back the freshness in the body, it improves the circulation and the delivery of oxygen and nutrients to the cells.

NEED FOR THE STUDY

Human body is the most beautiful and generous creation of God. It has the ability to adapt to the various situations provided, but vigorous changes in climatic conditions, factors especially the ones resulting from vigorous industrialization, food pattern, and personal habits can harm it drastically and force it to death.

Fatigue, a common symptom reported by people with end-stage renal disease (ESRD), is a nonspecific and invisible symptom and is a phenomenon that is poorly understood by healthcare professionals. There is limited understanding of the level of fatigue experienced by people with ESRD, with research currently limited to people treated with hemodialysis.

Prevalence was estimated to be 8-16% worldwide; complications include all causes and cardiovascular mortality, kidney-disease progression, acute kidney injury, cognitive decline, anemia, mineral and bone disorder, and fractures. Worldwide, diabetes mellitus is the most common cause of chronic kidney disease, but in some region other causes, such as herbal and environmental toxin, are more common. The poorest populations are at highest risk. Screening and intervention can prevent chronic renal disease, and where management strategies have been implemented the incidence of end-stage kidney disease has been reduced. Awareness of the disorder however

remains low in many communities and among many physicians. Strategies to reduce burden and costs related to chronic kidney disease need to be included in national programs for non-communicable disease. Lancet.JhaV, Garcia-Garcia G, Iseki K, Li Z, Naicker S, Plattner B, Saran R, Wang A Y, Yang CW. 2013.

A systematic review and meta-analysis were conducted. Electronic database and manual searches were conducted on all published studies reporting the effects of foot reflexology. Forty four studies were eligible including 15 studies associated with fatigue, 18 with sleep, and 11 with pain. The effects of foot reflexology were analyzed using Comprehensive Meta-Analysis Version 2.0

Foot reflexology is a non-invasive, cost effective method used for the reduction of fatigue. It is a readily available, painless procedure that can be applied to any person without consideration of time and place. This form of treatment demands no special devices or requirements. In his study he explained.

Healing art based on the principle that there are reflexes in the feet, hands and ears and their referral areas within zone related areas, which correspond to every part, gland and organ of the body. Through application of pressure on these reflexes without the use of tools, crèmes or lotions, the feet being the primary area of application, reflexology relieves tension, improves circulation and helps promote the natural function of the fatigue and anxiety and promotes healing throughout the body.

Research demonstrates that reflexology can reduce depression (11 studies) and anxiety (9 studies).Complements cancer care: Pain, nausea, vomiting, fatigue and/or anxiety eased for chemotherapy patients, chronic diseased patients and dialysis patients 12 following reflexology work as shown by 16 studies from 7 countries. Eases pregnancy, delivery and post-partum effects: Women who received reflexology experienced shorter labor times and used less analgesia. In addition, reflexology showed a positive impact on postpartum depression, anxiety, fatigue, urination and bowel movements. Due to these above mentioned benefits the researcher considered that this therapy which would be better for the patients to overcome the fatigue which is the basic nursing care a nurse can meet successfully.

National kidney foundation (2010)

There are approximately 7.85 million people suffering from chronic kidney failure in India. It is estimated that there are between 11 to 30 million people with chronic Kidney disease or other evidence of kidney disease in India. In India 90% patients who suffer from kidney disease are not able to afford the cost of treatment10% of the population worldwide is affected by chronic kidney disease (CKD), and millions die each year because they do not have access to affordable treatment.

India is on report from personal experience. There are three population based studies in India commenting on the magnitude of chronic kidney disease. In a prevention program started at community level in Chennai, the reported prevalence is 0.86% in the project population and 1.39% in the control region. The second study is based on Delhi involving 4972 urban patients. The prevalence of chronic renal failure (Defined as serum creatinine more than 1.8 mg/dl) to be 0.79% or 7852 per million Populations. The third study perhaps the only longitudinal study to identify the incidence of end stage renal disease is based on 572,029 subjects residing in city of Bhopal were 151 and 232 per million population respectively. Government of India and the general public. Prabahar MR, Chandrasekaran V, Soundararajan P.

Global Burden of Disease study (2010)

Chronic kidney disease was ranked 27th in the list of causes of total number of deaths worldwide in 1990. Over 2 million people worldwide currently receive treatment with dialysis or a kidney transplant to stay alive, yet this number may only represent 10% of people who actually need treatment to live. Of the 2 million people who receive treatment for kidney failure, the majority are treated in only five countries – the United States, Japan, Germany, Brazil, and Italy. These five countries represent only 12% of the world population. Only 20% are treated in about 100 developing countries that make up over 50% of the world population. More than 80% of all patients who receive treatment for kidney failure are in affluent countries with universal access to health care and large elderly populations.

World health organization (2008)

It is estimated that number of cases of kidney failure will increase disproportionately in developing countries, such as China and India, where the number of elderly people are increasing. In middle-income countries, treatment with dialysis or kidney transplantation creates a huge financial burden for the majority of the people who need it. In another 112 countries, many people cannot afford treatment at all, resulting in the death of over 1 million people annually from untreated kidney failure. In the US, treatment of chronic kidney disease is likely to exceed $48 billion per year. Treatment for kidney failure consumes 6.7% of the total Medicare budget to care for less than 1% of the covered population.

Medline publishers (2005)

In people aged 65 through 74 worldwide, it is estimated that one in five men, and one in four women, have CKD. Chronic kidney disease is a worldwide health crisis. For example, in the year 2005, there were approximately 58 million deaths worldwide, with 35 million attributed to chronic disease, according to the World Health Organization. Chronic kidney disease can be treated. With early diagnosis and treatment, it's possible to slow or stop the progression of kidney disease.

Imam-Ali and Iran-mohair (2010) -Conducted a clinical trial with before and after design was conducted in hemodialysis patients attending Imam-Ali and Iran-mohair clinic in Bonnard, using randomized sampling 78 patients were allocated into three groups: intervention, placebo, and control group. The patients in intervention group received foot reflexology, and simple foot reflexology without pressing certain parts of the foot was done in placebo group. The patients in control group received only routine care. Piper Fatigue Scale was used to measure fatigue level before and after the intervention. Data was analyzed using descriptive statistics, one-way ANOVA and paired t-test. he got the result like a significant difference between fatigue scores in intervention and control groups before and after the intervention ($P<0$. after the foot reflexology, the fatigue score in intervention group reduced to 3.8 ± 1.27 (vs. 4.34 ± 1.35 before the intervention), while the fatigue score in control group increased to 5.19 ± 0.87 (vs. 4.91 ± 1.04 before the intervention) ($P<0.05$). The placebo group showed no significant difference before and after the intervention ($P=0.9$). I am going

to interpret the result of Imam Ali and Iran-mohairs clinical study with FAS (Fatigue assessment scale)

Masoumeh Bagheri-Nesami1- (2011.)- In his study he applies the foot reflexology on Pain and fatigue are among the complications after coronary artery bypass graft surgery (CABG). Non- pharmacological methods are more favorable than pharmacological agents. This study assessed the effects of foot reflexology massage on pain and fatigue in patients after (CABG). A randomized controlled clinical trial was conducted in 80 patients hospitalized in Mahindra Heart Center, 2011. the samples were allocated based on their accessibility .they were age and gender matched and then divided randomly into two groups of case and control. The case group received reflexology massage on left foot for 20 minutes from the second day after surgery for four consecutive days. In control group, the left foot of the patients was moisturized for one minute without applying any pressure. The intensity of pain and fatigue were recorded before and after the intervention using visual analogue scale. Descriptive and inferential statistics were used to analyze the data. He applied foot reflexology on fatigue among CABG patients. the result was showed significant differences in pain and fatigue levels after the intervention among both groups (P= 0.0001) I am going to apply foot reflexology between hemodialysis patient to find the result among control group and experimental group.

Horigan, A. E., Schneider, S. M., Docherty, S., & Barroso-In this study Fatigue is a common and debilitating symptom for adult patients with end stage renal disease on hemodialysis and has been associated with decreased survival and quality of life. Patients on hemodialysis must find ways to manage their fatigue and mitigate its effects on their lives. Currently, there is no description of the experience of fatigue for patients on hemodialysis living in us, nor is there any description of the ways in which they manage their fatigue. The purpose of this qualitative descriptive work was to describe the experience and self-management of fatigue. Several themes were identified which included: the nature of fatigue, management of fatigue, consequences of fatigue, and factors associated with fatigue. This information will be valuable to nephrology nurses as they continue to care for and educate patients on hemodialysis. Fatigue is an often debilitating symptom in those with ESRD on hemodialysis. As common and extreme as the symptom is in this population, little evidence is available

that describes what the experience of fatigue is like for patients on hemodialysis or how they mitigate its effects. This exploratory study sought to elicit a description of fatigue for patients on hemodialysis in the US and to identify ways patients have been able to manage fatigue. It further expands understanding of fatigue in patients on hemodialysis by offering a detailed description of the consequences and factors associated with fatigue that is not found in existing literature. I am going to prove the fatigue among undergoing hemodialysis patients which is controlled by foot reflexology in Coimbatore city in India**.**

Lee, Jeongsoon1·Han, Mistook

The purpose of this study was to evaluate the effectiveness of foot reflexology on fatigue, sleep and pain. This meta-analysis indicates that foot reflexology is a useful nursing intervention to relieve fatigue and to promote sleep. Further studies are needed to evaluate the effects of foot reflexology on outcome variables other than fatigue, sleep and pain .he got a best result regarding fatigue compared to pain and sleep. I am going to prove the foot reflexology only on fatigue.

In addition to recognizing fatigue and its severity, it is important to consider the socio demographic physiological and psychological correlates of fatigue in chronic kidney disease (CKD) end-stage renal disease, and transplantation in order to develop and test treatment and test treatment models specific to these settings. The purpose of this review is to discuss the assessment methods, prevalence, correlates, and the main outcomes associated with fatigue in patients with kidney disease. This review also examines possible interventions to improve fatigue and concludes by defining some future research directions.

Many end-stage renal disease (ESRD) patients experience debilitating fatigue. Fatigue, which can be conceptualized on a continuum from extreme tiredness to high energy, has been reported to affect 60% to 97%of chronic dialysis patients. Fatigue is important to patient ,as 94% of surveyed dialysis patients would accept more frequent hemodialysis if it would increase their energy ,whereas only 19% would exchange more frequent treatments for a 3-yr increase in survival .despite the high prevalence of fatigue in ESRD, we know little about its correlates, severity, and clinical implications .

WHO (world health organization) statistics

In India nearly 710+ hemodialysis units with 2,500+ dialysis Stations there are around 20,000 patients undergoing dialysis at every day. however , the increase in the prevalence of chronic kidney disease (CKD) progressing to end-stage renal disease (ESRD) and the consequent financial burden of renal replacement therapy (RRT) in both developed as well as developing nations has highlighted the importance of CKD and its risk factors. However, few data about the fatigue of people undergoing HD in India are available and basic demographic information, such as prevalence and incidence rates are not completely known. As fatigue can have a negative effect on hemodialysis patients, it is important to develop a deeper understanding of the phenomenon and its meaning for the hemodialysis patients. Thus, this study examined the level of fatigue and the relationship between the affected.

No larger studies have focused on the experience of fatigue among hemodialysis patients. As fatigue can have negative effect on hemodialysis patients, it is important to develop deeper understanding of the phenomenon fatigue and its meaning for the hemodialysis patients. The purpose of the study is to illuminate meanings of fatigue as experienced by the patients who receive regular hemodialysis. Researchers have concluded that the foot reflexology is an effective treatment in controlling of fatigue.

Overall the study about fatigue among hemodialysis proves there is a correlation between fatigue and hemodialysis but no larger studies have focused on foot reflexology that helps the body functioning normally that reduces the muscle ,mind and body fatigue .in my study fatigue is a worst symptom on hemodialysis patient because fatigue is a debilitating symptom experienced by patients undergoing dialysis, but there is only limited information on its prevalence and its association with patient outcomes.

During the dialysis unit posting, the investigator taking care of undergoing hemodialysis patient. One day I saw a patient Mrs.Karunya. She is 40 years old patient who suffer with fatigue on during her hemodialysis that time the investigator applying some reflexes in her foot then she became calm and quite comfortable. This incidence encouraged me to do a research study on “to find out the effectiveness of foot reflexology on reduction of fatigue among patients undergoing hemodialysis”.

Statement of the problem;

A study to evaluate the effectiveness of foot reflexology on reduction of fatigue among patients undergoing hemodialysis in selected hospitals in Coimbatore.

Objectives of the statement

The aim of the study is to evaluate the effectiveness of foot reflexology on reduction of fatigue among patients undergoing hemodialysis.

- To assess the level of fatigue among patients undergoing hemodialysis in experimental and control group.
- To evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis on experimental group.
- To find out the association between selected demographic Variables and fatigue.

Operational Definitions

Evaluate:

In this study to evaluate the quality of foot reflexology interventions among patients undergoing hemodialysis.

Effectiveness:

It refers to the reduction of fatigue after implementation of foot reflexology among patients undergoing hemodialysis, as measured by using a FAS (fatigue assessment scale), as determined by the difference in pre and post test scores and which is statistically significant.

Foot reflexology:

It refers to the therapeutic application of five steps of massage to both feet for patients undergoing hemodialysis for a period of 10 minutes on each foot, for 5 consecutive days as a relaxation therapy.

Fatigue:

Fatigue is a debilitating symptom experienced by patients undergoing hemodialysis. A condition characterized by a lessened capacity for work and reduced

efficiency of accomplishment, usually accompanied by a feeling of weariness and tired.

Hemodialysis:

Hemodialysis also spelled hemodialysis, or simply dialysis, is a process of purifying the blood of a person whose kidneys are not working normally.

Hypothesis:

H_1: There will be significant difference between pretest and post test level of fatigue among patients undergoing hemodialysis in experimental group..

H_2: There will be significant difference between post test level of fatigue on control group and experimental group.

H_3: There will be significant association between the level of fatigue among patients in any undergoing hemodialysis in selected demographic variables in both experimental and control group.

Assumptions:

- The fatigue level experienced by hemodialysis differs from patients to Patients.
- The non pharmacological intervention is one of the measures to reduce fatigue among hemodialysis patients.
- Foot reflexology is a good technique in diverting fatigue perception

Delimitations:

Periods of data collection

- Limited to patients undergoing hemodialysis.
- Data collection procedure is limited to 4weeks.
- Limited to one hospital

Projected outcome:

The result of the study helps to the investigator to know the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis. This study helps the hemodialysis patients to take measures to reduce fatigue.

CHAPTER - II

REVIEW OF LITERATURE

CHAPTER- II
REVIEW OF LITERATURE

"A great literature is chiefly the product of inquiring minds in revolt against the immovable certainties of the notion."

- H.L.MENKEN

Review of literature refers to an extensive, exhaustive and systematic of publication relevant to research project. Nursing research may be considered, as a continuing process in which knowledge gained from earlier studies is an integral part of the research in general.

Review of literature is defined as a broad, comprehensive, in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials and audio visual materials and personal communications. Therefore, an intensive review of literature has been done from published and unpublished thesis.

Major goal is to develop a strong knowledge base to carry out research and other non research scholarly activities in educational and clinical practice setting.

Research and non research literature related to the present study in reviewed and organized under the following headings.

- Reviews related to fatigue on chronic renal failure on hemodialysis.
- Reviews related to foot reflexology.
- Reviews related to foot reflexology on fatigue and hemodialysis.

Reviews related to fatigue on chronic renal failure on hemodialysis.

Hayah Abou El AzayiemBayumi (2015), Conducted a descriptive study, in which 59 patients with chronic renal failure treated with hemodialysis at Qena University Hospitals in Upper Egypt .Data collection tool was a personal information questionnaire based on demographic characteristics The second data collecting tool was the fatigue severity scale. . In this study fatigue showed an increase with the increase of dialysis history but this was significant only in terms of disease history. The frequency of fatigue is high in chronic renal failure patients. Overall, men have

more fatigue than women when treated with hemodialysis distributed for each patient admitted to chronic renal failure unit.

United States Renal Data System (2012), conducted a descriptive study in which patients with chronic renal failure account for approximately 92% of the overall dialysis population and endure a high symptom burden as they may experience troubling symptoms such as fatigue, decreased appetite, trouble concentrating, swelling in their feet and hands, muscle cramps, and itching].

ManishaJhamb et al., (2008). Conducted a study in which fatigue is a debilitating symptom or side effect experienced by many patients with chronic renal failure on long-term dialysis. The lack of a reliable, valid, and sensitive fatigue scale complicates the accurate identification of this symptom. In conclusion, fatigue is an important and often under-recognized symptom in the dialysis population. Possible interventions for minimizing fatigue in patients on long-term dialysis should be aimed at improving health care provider awareness, developing improved methods of measurement, better understanding of the pathogenesis, as well as management of known contributing factors.

Pereger TV, Leski M (2006), conducted comparative study to assess the health status in chronic renal failure patients: Generic questionnaire, specific questionnaire and open questions (n=83). Results revealed that chronic renal failure patients and significantly lower scores than general population, especially physical functioning (-1.2 standard deviation (SD) units, P<0.001) and general health (-1.2 SD, P<0. 001),

Horigan, A. E. (2012), in his study he said the end stage renal disease is common chronic illness increasing in incidence and prevalence. Although kidney function is partially replaced through dialysis, patients endure many symptoms of the disease such as fatigue. Many factors have been studied regarding their relationship with fatigue in this population. There is little knowledge regarding the experience of fatigue for patients on hemodialysis and there has been little success identifying demographic, psychosocial, or physiological factors that are consistently related to fatigue. further work in this area of inquiry would be of benefit and may shed light on the domains of life that are affected by fatigue for hemodialysis patients. It also may

help deepen our knowledge regarding correlates that could identify hemodialysis patients who are at increased risk for fatigue.

Artom,M.,Moss et.al.(2014), In his study he said fatigue is commonly experienced in patients with advanced kidney disease and associated with poor outcomes. The prevalence of fatigue ranges from 42% to as high as 89% according to treatment modality and the measurement instruments used. This paper reviews studies examining socio demographic, biological, and psychological factors associated with fatigue in advanced kidney disease. The association between fatigue and psychological factors, such as depression and anxiety, behavioral factors, such as sleep and nutrition, and cytokines, such as IL-6 and CRP corroborates the view of fatigue as a multidimensional and multi factorial problem. To date, results of non pharmacological interventions are promising, with physical exercise and cognitive-behavioral therapy showing beneficial results.

Song, H. J., & Kim, H. J. (2007),In his study said a fatigue associated with kidney disease symptoms in female patients undergoing hemodialysis. In this Journal of Korean Academy of Fundamentals of Nursing, 14(4),Purpose: this study was done to provide fundamental data for nursing interventions to prevent and reduce fatigue and to identify fatigue and kidney disease symptoms in female patients on hemodialysis and evaluate factors associated with this fatigue a cross-sectional study design was used with self-administered questionnaires which included general characteristics and the fatigue scale. From eight dialysis units, 84 women were enrolled. Data were analyzed using the SAS program. Mean score for fatigue was 49.4 and fatigue by research variables was significantly different by age (0.046), employment status (0.041), menopause (0.009), hypo albuminemia (0.022), length of time on dialysis (0.48) and kidney disease symptoms (0.000). Correlations between fatigue and lack of strength, dizziness, and cramps after dialysis were significantly higher. Factors affecting fatigue were kidney disease symptoms and length of time on dialysis, explaining 49.2% of fatigue

Egypt. J Biol Agric Healthcare,et.al. (2017), In this study said fatigue in Patients with Chronic Kidney Disease evidence as many as 70% to 97% of individuals with chronic kidney disease (CKD) report fatigue. Fatigue is one of the common, troubling symptoms that affect one's quality of life. This narrative review summarizes the

evidence and gaps about the epidemiology, causative factors, and assessment of fatigue in individuals with CKD. Most studies are focused on the hemodialysis population, with very few focused on the peritoneal dialysis and transplant populations in which fatigue is also prevalent. Understanding fatigue and its correlates can help in assessing fatigue and in implementing interventions to alleviate fatigue.

Lee, B.O., et.al. (2007),In his study he said the fatigue experience of hemodialysis patients in Taiwan. In the book of Journal of clinical nurses.To expand the theoretical understanding of fatigue, this study used in-depth interview to explore the fatigue experience from hemodialysis patients' perspectives. Fatigue is a common symptom experienced by the people with chronic diseases including those with renal failure requiring hemodialysis. Data were collected in a hemodialysis unit of a hospital in South Taiwan. Purposive samples of 14 participants were interviewed in-depth. Colaizzi's methods were used to analyze transcripts of the interviews. Ten themes were delineated and classified into three domains. The findings identify that fatigue is a multi-dimensional concept.

Balouchi, A.et.al (2016). In his study Comparison of effects of orange and lavender extract on fatigue in hemodialysis patients. This study aimed at comparing the effects of inhaling lavender and orange extracts in hemodialysis patients. This randomized clinical trial (crossover) was conducted on 30 hemodialysis patients. Patients were divided into two groups of 15, each of which separately received orange and lavender aromatherapy.. The demographic questionnaire included age, sex, marital status, occupation, education, and duration of dialysis. Descriptive statistics and paired t-test were used for data analysis. Paired t-test showed a significant relationship between fatigue levels and inhalation of orange extract at the end of the first week (P=0.002); however, no significant relationship was observed in the second week. No significant relationship was observed between fatigue levels and inhalation of lavender.

Johansen, et.al. 2005,The study of Neural and metabolic mechanisms of excessive muscle fatigue in maintenance hemodialysis patients. In the book of American Journal of Physiology-Regulatory, Integrative and Comparative Physiology, 289 Conducted with a small group of fairly high-functioning individuals on dialysis treatment. These results probably underestimate the true degree of muscle fatigue among the hemodialysis population, because less able dialysis patients were precluded from

participation. Therefore, the results likely under represent the degree of skeletal muscle abnormalities in the general hemodialysis population .in conclusion;

Soliman, H. (2015). The study effect of intra dialytic exercise on fatigue, electrolytes level and blood pressure in hemodialysis patients: in this book of Journal of Nursing Education and Practice, 5(11). Hemodialysis is a physically stressful procedure and most of the patients will have fatigue and thereby an alteration in the electrolytes, hemoglobin level. physical exercises provided during hemodialysis session do not cost patients extra time and will be effective in reducing fatigue level and enhancing potential for performing their activities of daily living & may increase the waste removal. Main objective of this study was conducted to determine the impact of an eight-week Intradialytic range of motion exercise program consisting of 15 minutes low-intensity exercise during the first 2 hours of Hemodialysis on fatigue, electrolytes levels, hemoglobin and blood pressure. Using a randomized controlled pre test post test design was utilized in this study in a hemodialysis unit, a total of 30 hemodialysis patients were enrolled into the study and randomly allocated into two groups. The experimental (The exercise group) (n = 18) and the control group (n = 12). Range of Motion Exercises were done in the experimental group for 15 min/day, three times a week for 2 months. Fatigue was measured via a Iowa fatigue scale (IFS) and physiologic parameters form to measure serum electrolyte level, hemoglobin and blood pressure pre and post as well as at the end of each month after the intervention in both groups. hemoglobin level. Systolic and diastolic blood pressure changed significantly in the exercise group ($p < .05$).

Motedayen,Z.et.alB.(2014),The study of the effect of the physical and mental exercises during hemodialysis on fatigue: a controlled clinical trial. Fatigue is a frequent symptom shared by all patients on long-term dialysis. In the current study, 65.2% of the patients had experienced fatigue. The positive effects of exercise, regarding performance time and method, on improvement of the quality of life, reduction of cardiovascular complications, mortality rate, depression, sleep, and fatigue has been documented clearly. the study showed that simple intra -dialytic physical and mental exercises programs, with no need to expensive and highly-morbid procedures, can decrease the fatigue in patients on hemodialysis. Therefore, this therapeutic method is recommended for this group of patients. The mean of the

fatigue score within the research units was 42.37. Overall, 42.2% and 56.1% of the participants experienced medium and severe fatigue, respectively.

Horigan, A. E., & Barroso, J. V. (2016),A comparison of temporal patterns of fatigue in patients on hemodialysis. Nephrology nursing journal: journal of the American Nephrology Nurses' Association, 43 qualitative study describes the temporal patterns of fatigue found as part of a larger study designed to elicit a description of the experience and self-management of fatigue for patients on hemodialysis. Two patterns of fatigue were identified. The first pattern, continuous fatigue, was characterized by participants who experienced fatigue at all times, which was their normal, baseline feeling. Within this group, two subgroups were identified. The second pattern of fatigue, post-dialysis fatigue only, was characterized by participants who experienced fatigue only after their hemodialysis session.

Karakan S, Sezer S, Ozdemir FNClin Nephrol (2015),In this study they found that 83.8% of their patients reported moderate to severe fatigue intensity, as measured with the Piper Fatigue Scale. found that patients on hemodialysis had high scores on the Fatigue Severity Scale, indicating a more severe level of fatigue. The current study expands these findings by measuring fatigue intensity over time and relating fatigue severity to the timing of hemodialysis sessions. Participants with post-dialysis fatigue only had less severe fatigue than those who experienced continuous fatigue. The severity of fatigue for patients with post-dialysis fatigue only did not reach higher than 6 on a 0 to 10 scale. However, those with continuous fatigue experienced fatigue severity 6 or more on a 0 to 10 scale often for extended periods of time. these findings are important to consider because future research could investigate the possible etiology of fatigue intensity and recovery time.

Tayyebi, A., Savari, et.al. (2013),In this study said the effect of Vitamin B12 supplemention on fatigue in hemodialysis patients fatigue is a frequent symptom in hemodialysis patients that impairs the quality of life and like pain and fever; it is an important biological warning for human health. So far, despite the many interventions to reduce fatigue in hemodialysis patients, still this phenomenon is reported with high prevalence. It was a semi experimental study with the method of before-after, which has been done on 86 hemodialysis patients with a Purposive sampling method within three months in 2011 in one and two chosen hospitals. The intervention was an

intravenous injection of 100 mcg/ml of vitamin B12 after dialysis process which has been done three times a week; within two months and by the end of the intervention in order to assess sustainability of the effect of vitamin B12 there was no interventions for one month. . The results indicate the effectiveness of vitamin B12 on the reduction of fatigue in hemodialysis patients. Thus intravenous injection of 100 mcg/ml of Vitamin B12 weekly after dialysis is recommended for hemodialysis patients

Reviews regarding foot reflexology

Miss. Sasi priya –(2016),Conducted a study was to evaluate the effectiveness of Foot reflexology on blood pressure among patients with hypertension at selected hospital, Coimbatore. Quasi experimental pre-test post-test control design was adopted. The study was conducted in the in-patient wards of Kongunadu Hospital, Coimbatore. 60 samples (30 each in experimental and control group) were selected using non probability purposive sampling technique. The conceptual framework selected for the study was based on Wiedenbach's Helping Art of Clinical Nursing Theory (1970). The intervention given was foot reflexology, once daily with duration of 20 minutes for 5 consecutive days. Pre-test was done for both groups using semi- structured interview schedule and blood pressure chart was maintained for 5 consecutive days. post test was conducted in both. The findings of the study revealed that foot reflexology reduced the high blood pressure among patients with Hypertension.

Pelletier et al; Shelomaiet al.,(2015),Conducted the present study compared the effects of aromatherapy massage and foot reflexology on fatigue and cardiovascular parameters in older female patients with acute coronary syndrome conducted with 135 older female patients with acute coronary syndrome who were hospitalized on a cardiac care unit . The fatigue severity and cardiovascular parameters were assessed through the Rhoten fatigue scale and a checklist. Measurements in the groups were performed before and immediately after the intervention data analysis was performed using descriptive and analytical statistic. Aromatherapy massage significantly decreased fatigue, systolic blood pressure, and mean arterial pressure and O2 saturation more than the reflexology intervention. However, reflexology reduced patient's heart rates more than an aromatherapy massage ($P < 0.05$). Moreover, no significant changes were observed in patients diastolic blood pressures when

compared to the control group (P = 0.37). The foot reflexology is more effective than the aromatherapy.

Iran J Critical care Nurse. (2014), Conducted the effect of foot reflexology massage on the-level of pain during chest tube removal after open heart surgery pain due to the removal of the chest tube is one of the important complications after open heart surgery. In the case of inadequate pain management, sympathetic system is stimulated and can lead to irreversible complications. This randomized clinical study with control group. 90 samples were divided into three experimental, control and placebo-treated groups based on randomized allocation. Pain level was measured through Numerical Rating Scale (NRS) in all the three groups before intervention. in the experimental group center of the anterior one-third and in the placebo treated group, posterior one-third of the left foot was being massaged for ten minutes before chest tube removal.

R Quattrin, R., Zanini,et.al. (2006),Use of reflexology foot massage to reduce anxiety in hospitalized cancer patients in chemotherapy treatment: methodology and outcomes. To examine the effectiveness of reflexology foot massage in hospitalized cancer patients undergoing second or third chemotherapy cycles. Since the late-1970s, studies have been conducted to assess the efficacy of behavioral and relaxation approaches in controlling nausea/vomiting, anxiety and other side-effects associated with chemotherapy. The study consisted of 30 patients being admitted to the oncology unit at a Scientific Research Hospital in Italy. Only 15 of the 30 participants received therapeutic massage. The subjects' self-reports of anxiety (measured by the Spielberg State-Trait Anxiety Inventory) were recorded before, after and 24.points in the control group (points on the state-anxiety scale in the treatment group and of 0.8 There was an average decrease of 7.9P <0.0001).

Holt, j., et. al. (2009),In this study to determine whether foot reflexology a complementary therapy, has an effect greater than sham reflexology on induction of ovulation. Sham-controlled randomized trial with patients and statistician blinded.Women were randomized to receive eight sessions of either genuine foot reflexology or sham reflexology with gentle massage over 10 weeks. The primary outcome was ovulation detected by serum progesterone level of >30 nmol/L during the study period. Twenty-six patients were randomized to genuine reflexology and 22

to sham (one randomized patient was withdrawn). Patients remained blinded throughout the trial. The rate of ovulation during true reflexology was 11 out of 26 (42%), and during sham reflexology it was 10 out of 22 (46%). Pregnancy rates were 4 out of 26 in the true group and 2 out of 22 in the control group. Because of recruitment difficulties, the required sample size of 104 women was not achieved. Patient blinding of reflexology studies is feasible.

Preethy Mary et al., (2014),Conducted a quasi-experimental study to assess effect of foot reflexology on psychological wellbeing of 30 elderly in selected old age home of Indore using random sampling technique. Modified Psychological General Wellbeing Index (Modified PGWBI) was used to assess the level of psychological wellbeing. After 15 days of intervention of foot reflexology findings showed that the mean score level of psychological wellbeing was 58.3 at pre-test which was increased to 60.27 at post-test which was statistically significant at $p < 0.001$. The result confirmed that foot reflexology was effective in enhancing the level of psychological wellbeing for elderly.

Jipi Vargheseet. al., (2014), Conducted a randomized control trial to determine the effect of foot reflexology on intensity of pain and quality of sleep in 60 post caesarean mothers in Dakshina Kannada. The tools used were Pittsburgh Sleep Quality Index (PSQI) and Visual Analogue Scale (VAS). Experimental group received a single 15-minute foot reflexology session at the same time each evening for five consecutive days. After 5 days of treatment, results showed that the mean PSQI were found to be significantly lower in the intervention group ($p<0.001$) than in the control group. The post-test mean score of pain in experimental group was significantly lower than of control group ($X = 4.75$, $X =7.65$, $t = -10.627$, $p<.001$). Also, there was a significant difference between groups in terms of the pain intensity and requesting for analgesic ($p < .001$).

Saeed Babajani et al., (2014), Conducted a randomized clinical study to determine the effect of foot reflexology on the level of pain during chest tube removal after open heart surgery in Baqiyatallah Medical Sciences University among ninety samples. Pain level was measured through Numerical Rating Scale (NRS). In the experimental group, centre of the anterior one-third of the left foot and in the placebo-treated group, posterior one-third of the left foot was being massaged for ten minutes before chest

tube removal. Pain was not increased due to the chest tube removal in the experimental group (p=0.08), while placebo-treated and control groups had significant increase of the pain (p=0.001 and p=0.000 respectively). It was concluded that foot reflexology was a useful nursing intervention in reducing pain in subjects during chest tube removal after open heart surgery.

Gholamhosyn Mahmoudirad et al., (2013), Conducted a quasi-20 experimental study to evaluate the effect of foot reflexology among 70 patients undergoing coronary artery angiography in Iran using convenience sampling method. Tools used were a semi-structured questionnaire and Spielberg's anxiety questionnaire. Samples in experimental group received foot reflexology for 20 minutes. The results showed that there was significant difference in the mean anxiety score in intervention group before, immediately after and half an hour after intervention when compared with control group at $p<0.001$.

Wyatt GA (2012), Conducted a longitudinal study on health-related Quality-of-Life with Reflexology for 385 patients with advanced stage Breast Cancer using convenient sampling method. Women were randomized into three primary groups: reflexology (n = 95), lay foot manipulation (LFM) (n = 95), or conventional care (n = 96). Two preliminary reflexology (n = 51) and LFM (n = 48) test groups were used to establish the protocols. A longitudinal comparison revealed that significant improvements in physical functioning was observed for the reflexology group when compared to the control group ($p = 0.04$). Severity of dyspnea was reduced in the reflexology group when compared to the control group ($p < 0.01$) and the LFM group ($p=0.02$). No differences were found on breast cancer-specific HRQOL, depressive symptomatology, state anxiety, pain, and nausea.

Lee YM (2006) conducted an experimental study to identify the effects of a self-foot reflexology massage on depression, stress responses and functions of the immune system of 46 middle-aged women from Community Health Centre in Busan city, Korea. Subjects were trained in self-foot reflexology massage for 2 weeks, and then practiced for 6 weeks by self (2 days at the research centre, 5 21 days at home).The outcome variables were measured 4 times, (i.e) at baseline, pre training, after training, and after the intervention. The results showed that there was a statistically significant difference in perceived stress, depression, systolic blood pressure, natural-killer cells

and IgG. However, there was no significant difference in diastolic blood pressure, pulse or serum cortisol.

Jin SJ, Kim YK (2005),Conducted a quasi-experimental study to investigate the effects of foot reflexology massage on sleep and fatigue of 100 elderly women in University of Pusan. The foot reflexology massage was performed for 45 minutes every three days for experimental group. The results showed that the sleep and fatigue scores of the experimental group were significantly higher and lower than that of the control group respectively. It was observed that the sleep score was increased and that of fatigue was relieved gradually as the frequency of the foot reflexology massage increased for the experimental group.

Mahboubeh Valiani et al., (2005),Conducted a quasi-experimental study to compare the effects of reflexology methods and ibuprofen administration on dysmenorrhea among 80 students using simple random sampling method in Isfahan University of Medical Sciences. Visual Analog Scale (VAS) and Pain Rating Index (PRI) scale was used. In the reflexology group, ten days before the probable menstruation time, reflexology was done for 20 minutes on each foot during two consecutive days for two consecutive menses cycles The Ibuprofen group received Ibuprofen (400 mg) once every eight hours for 3 days during 3 consecutive menses cycles. Independent and Paired t-test showed that there was a significant difference in the two groups between intensity and duration of menstrual pain using VAS and PRI in each of the 3 cycles between reflexology and Ibuprofen groups ($p < 0.05$).

Kang HS, et al., (2004) conducted a quasi-experimental study to identify the effects of self-foot reflexology on urinary incontinence symptoms, vaginal contraction and daily life discomfort among 39 middle-aged women with urinary incontinence. In the experimental group, self-foot reflexology was applied for 30 minutes, three times a week for 4 weeks. The findings indicated that self-foot reflexology was an effective method for reducing urinary incontinence symptoms and daily life discomfort and for increasing pressure of vaginal contraction of middle-aged women.

Stephenson NL et al., (2000) conducted a quasi-experimental study to test the effects of foot reflexology on anxiety and pain among patients with breast and lung cancer in the South-eastern United States. Foot reflexology was performed to both feet for 30

minutes and a control condition for each patient (with at least a two-day break). It was found that following the foot reflexology intervention, samples experienced a significant decrease in anxiety and pain.

Review regarding Foot reflexology on hemodialysis and fatigue

Abeer Mohamed EL- Shateby Mours-(2014),Conducted the study to detect the effect of foot reflexology massage on leg cramps for patient on Hemodialysis in Taiwan. Leg cramps are common problems in patients undergoing hemodialysis. It often results in the early termination of a hemodialysis session. It was conducted at the hemodialysis units. The sample included 66 adult patients undergoing hemodialysis, divided equally into study a control groups, 33 patients each. Three tools were used to collect necessary data, hemodialysis patient's assessment, and leg cramps intensity scale and leg cramps assessment. the findings of the study revealed that there was no statistical significant difference between the study and control groups in relation to leg cramps intensity, duration, alleviating factors, and frequency before interventions. While, patients on hemodialysis experienced significantly decreased leg cramps intensity, duration and frequency throughout the nine massage sessions among the studied patients over the control groups. This study concluded that hemodialysis patients who receive reflexology foot massage had significant decrease in leg cramps intensity levels, frequency and duration**.**

Letchmi,S.,Das,S.,Halm.et.al (2011), The present cross-sectional study was conducted from January to April 2009 in three hemodialysis units in Kuala Lumpur, Malaysia .his study the fatigue is observed in patients who are undergoing dialysis is usually associated with an impaired quality of life, the multidimensional fatigue inventory and depression anxiety and Stress Score were used to determine the level of fatigue, depression, anxiety, and stress of patients who were undergoing dialysis. The data were calculated sample of 116 and a total of 103 respondents participated in the study. A total of 56 (54.4%) and 47 (45.6%) respondents experienced a high level and a low level of fatigue, respectively. there was a significant relationship between the duration of treatment and the level of fatigue. There was a significant difference in relation to the age of the participants regarding the level of fatigue. No significant relationship between the sex of the participants, anemia, depression, anxiety, stress, and the level of fatigue was observed. He said special attention needs to be paid to

both the younger and older adults who are receiving treatment. In addition, proper planning is needed for the patients regarding their daily activities in order to reduce fatigue

Unal, K. S., & Akpinar, R. B. (2016), Conducted the cross sectional study to evaluate the effect of foot reflexology and back massage on hemodialysis patients' fatigue and sleep quality. the aim of this study is to examine the effectiveness of foot reflexology and back massage on optimizing the sleep quality and reducing the fatigue of hemodialysis patients. The study includes 105 volunteer patients who were registered at a private dialysis clinic and were receiving hemodialysis treatment. Foot reflexology and back massage were administered to the patients two times a week for four weeks. The Visual Analogue Scale for Fatigue and the Pittsburg Sleep Quality Index were used to collect data. Find the differences between the pretest and posttest score averages of the patients on the Visual Analogue Scale for Fatigue and the Pittsburg Sleep Quality Index were statistically significant ($p < 0.001$). Foot reflexology and back massage were shown to improve the sleep quality and reduce the fatigue of hemodialysis patients. in this study compared to back massage, foot reflexology was determined to be more effective.

Lee, J., Han, et.al. (2011), Conducted the study to assess the effects of foot reflexology on fatigue, sleep and pain .a systematic review and meta-analysis were conducted. Electronic database and manual searches were conducted on all published studies reporting the effects of foot reflexology on fatigue, sleep, and pain. The effects of foot reflexology were analyzed using Comprehensive meta-analysis version 2.0. The homogeneity and the fail-safe N were calculated. Moreover, a funnel plot was used to assess publication bias. No publication bias was detected as evaluated by fail-safe N. Foot reflexology had a larger effect on fatigue and sleep and a smaller effect on pain. This meta-analysis indicates that foot reflexology is a useful nursing intervention to relieve fatigue and to promote sleep.

CONCEPTUAL FRAMEWORK

The conceptual framework is the processor of theory. It provides a broad perspective for nursing practice, research and education. Conceptual framework plays several interrelated roles in the progress of science. Their overall purpose is to make scientific findings meaningful and generalizable.

The conceptual framework is a group of related ideas, statement or concepts. The term conceptual model is often used interchangeably with conceptual framework and sometimes with grand theories those that articulate a broad range of the significant relationship among the concepts of a discipline, **Kozeir Barbar. (2005).**

Polit and Hungler (1995) state that, conceptual framework is interrelated concept or abstractions that are assembled together in some rational scheme by virtue of their relevance to a common theme. It is a device that helps to stimulate research and extension of knowledge by providing both direction and impetus. The conceptual framework for the present study was adopted from Wiedenbach's Helping Art of Clinical Nursing Theory (1970). This theory directs action towards the explicit goal.

It consists of three factors:

- Central purpose
- Prescription
- Realities

Central Purpose

Central purpose refers to what the nurse wants to accomplish. It is the overall goal towards which the nurse strives. It transcends the immediate intent of the task by specifically directing activities towards the objectives. In this study, central purpose refers to reduction of fatigue in patients undergoing hemodialysis.

Prescription

Prescription refers to the plan of action for individual. It specifies the nature of the action that will fulfill the nurse's central purpose and the rationale for that action.

In this study, prescription refers to assessing the demographic variables of patients with fatigue and their fatigue before administration of foot reflexology.

Realities

Realities refer to the physical, physiological, emotional and spiritual factors that come into play in a situation involving actions. The five realities identified by Wiedenbach's are agent, recipient, goal, means and framework.

Agent-, Agent is the researcher or designee who has the personal attributes capacities, capabilities, commitment and competence to provide action.

Recipient- Patients with fatigue on undergoing hemodialysis

Goal-Goal refers to researcher's desired outcome.

Mean-The activities and devices used by the researcher to achieve the goal.

Framework

It refers to the facilities in which area nursing is practiced.

The conceptualization of the nursing practice for the present study has 3 steps.

Step I: Identifying a need for help

Identifying need for help determines patient's need for help based on the existence of a need. In this study a need for help was identified by assessing the demographic variables of patients with fatigue on undergoing hemodialysis patients before administration of foot reflexology.

Step II: Ministering a needed help

Ministration refers to provision of needed help. It requires an identified need and a patient who wants help. After identifying the need for help, intervention has to be implemented. In this study, ministering a needed help was provided as follows,

Agent : Investigator

Recipient: Recipient is one who receives an intervention or action goal refers to researcher's desired outcome, who is all admitted in selected Hospitals.

Goal : To reduce the fatigue,

Mean : Foot Reflexology

Framework : Selected Hospital, Coimbatore.

Step III: Validating that a need for help was met

Validation refers to collection of evidence that shows a patient's need have been met and that his functional ability has been restored as a direct result of the nurse's actions. In this study, evaluation is established by determining the difference in pre and post-test assessment of fatigue among patients undergoing hemodialysis.

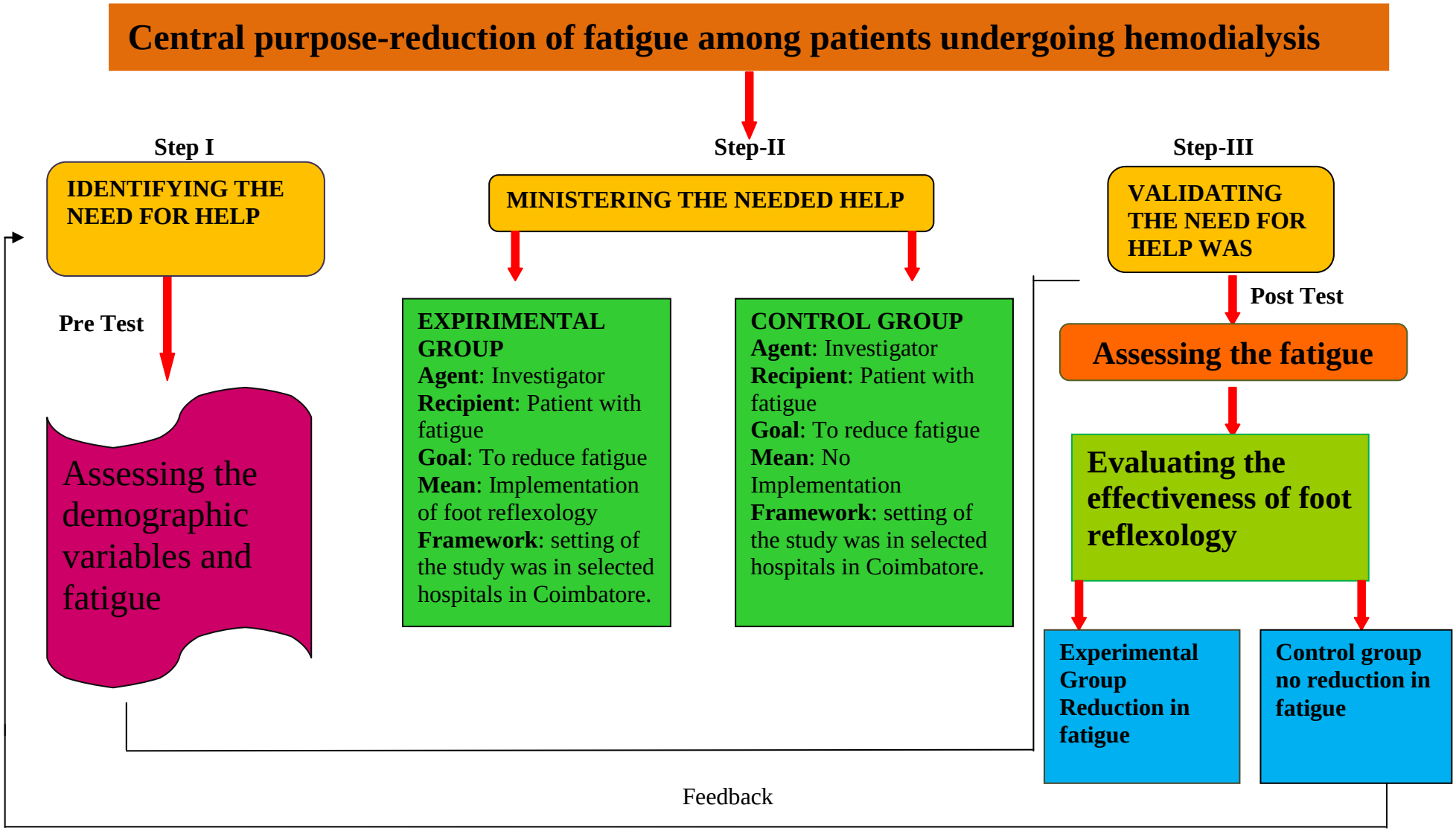


FIGURE 2.1 : WIEDENBACH"S HELPING ART OF CLINICAL NURSING THEORY (1970)

SUMMARY

This chapter dealt with introduction, need for the study and statement of the problem, objectives, operational definition, assumption, hypothesis, delimitations, projected outcome and conceptual frame work.

CHAPTER - III

METHODOLOGY

CHAPTER – III
METHODOLOGY

According to **Polit and Beck, (2004),** methodology of research refers to investigation of way of obtaining, organizing and analyzing data. Methodological studies address the development, validation and evaluation of research tool and methods.

The methodology of research indicates the general pattern to gatherical data for the problem under investigation. Research methodology includes research approach, research design ,the settings , the population the dialysis patients, criteria for undergoing dialysis patients selection, method of sampling technique, method of data connection, description of the tool, validity, pilot study, plan for data analysis and ethical consideration. The presence study is aimed at evaluating the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis.

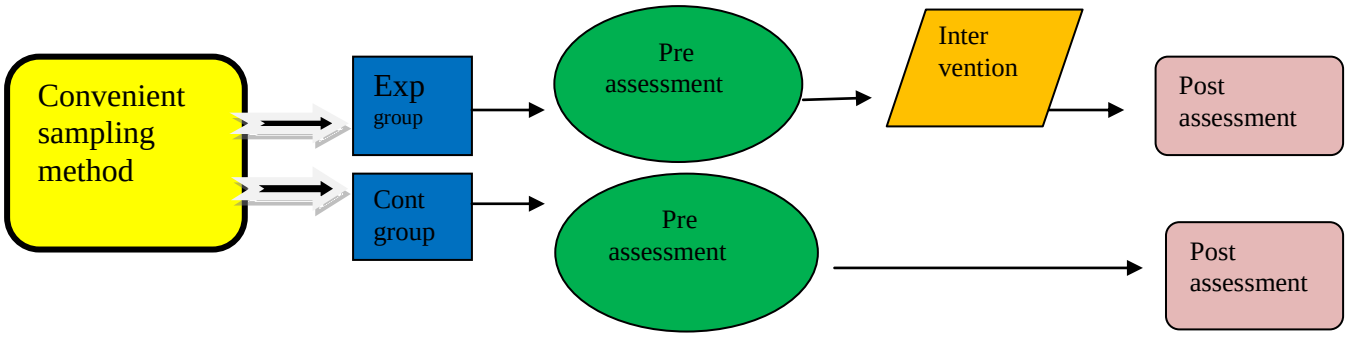
Research Approach

Research approach is an important element of the research design, which governs it. It involves the description of the plan to investigate the phenomenon under study in a structured method. The approach used in this study was quantitative evaluative approach.

Research Design

Denise.E.Polit, (2008) defines research design as the overall plan for addressing a research question including specification for enhancing the study's 26 integrity.

The research design selected for the present study is a quasi experimental research design in this study the subject are assigned by convenient sampling technique to either the experimental or the control group. The effect of the dependant variable on both the groups is seen before the treatment. Later, the treatment is carried out in experimental group only, and after treatment observation of the dependant variable is made for both the groups to examine the effective of the manipulation on independent variable on dependant variable. (Dr. Suresh K. Sharma)



Quasi Experimental pre-test post-test control group design was selected to evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis.

E	**O_1**	**X**	**O_2**
C	**O_1**	**_**	**O_2**

O_1 - Experimental and Control group pre test

O_2 - Experimental and Control group post test

X - Foot reflexology

E - Experimental group

C - Control group

Population

Polit and Hungler, (1999) defined population as the entire aggregation of cases that meet a designed set of criteria. The populations of the present study were patients undergoing hemodialysis who are admitted in hospitals.

Target population-It refers to which researcher wants to generalize the research findings. In the present study the target population is fatigue among hemodialysis patients.

Accessible population-The part of the target population that is available to the investigator

Setting of the Study

Polit and Hungler, (1999) States that setting is the physical location and condition in which data collection takes place. Setting of the study is the essential constituent to ensure effective planning to conduct a research study. This study was conducted in the dialysis unit department of St. Mary's Hospital, Coimbatore. St.Mary's Hospital Multi-Specialty Hospital with 24 hours emergency service and diagnostic facilities. It is situated in Podanur in Coimbatore. The hospital comprises of 4 floors with all facilities, out-patient department and in-patient department, cardiac units, intensive care unit and 27 operation theatre facilities.

The hospital receives an average of 250 patients every day. The average number of CKD patients in the ward is about 50-70 patients per day. It provides tertiary health care services to public, who come from various parts of Tamilnadu.This hospital is selected as per the convenience of the investigator. Formal permission would be obtained from Dr.Agnes MD. The concerned authorities for conducting this study.

Sampling

Sample

Polit and Hungler, (1999) defined sample as the subset of population selected to participate in a research study.

The sample of the present study was patients undergoing hemodialysis in St.Mary's Hospital, Coimbatore. In this present study the sample consisted of 60 subjects who were having fatigue patients undergoing hemodialysis. The convenient sampling technique adopted to the select the subject.

Sample size

The sample comprised of 60 patients undergoing hemodialysis, comprising of 30 samples in experimental group and 30 in control group.

Sampling technique

Polit and Hungler, 1999 defined sampling technique is the process of selecting a portion of the population to represent the entire population.

Convenient sampling was selected for the present study. The required numbers of subjects with fatigue on patients undergoing hemodialysis were in selected hospital.

Sampling criteria:

Inclusion criteria:

The study includes:

- Below the age group of 20-60 years.
- Diagnosed as CKD and undergoing hemodialysis for 6 years.
- Patients who are willing participate.
- Who were available at the time of data collection.

Exclusion criteria:

- Patients on other relaxation techniques and exercises
- Patients who have psychologically unstable
- Athlete's foot(itchy, stinging, and burning)
- Who have foot ulcers, blisters, corns, plantar fasciitis,.
- Patients on neuropathies, heal spur, gout, fungal nail infection, Morton's neuroma, Sesamoiditis.

Variables

Variables are qualities, properties or characteristics of person, things, or situations that change or vary. Variables are classified based on their nature, actions, and effects on the variables

Independent variable

The independent variable of the study was foot reflexology which was given during dialysis.

Dependent variable

Fatigue on undergoing hemodialysis.

Extraneous variable

Any uncontrolled variable that greatly influences the result of the study .in this study extra extraneous variables are the demographic characteristics , which improved age, education, religion type of family, number of hemodialysis, duration of

hemodialysis, hours of dialysis, and sitting of hemodialysis, number of blood transfusion during hemodialysis.

Development of the tool

The investigator prepared and developed a structured interview schedule as a tool for the present study after exploring the various sources of information. The performer had a tool to assess the demographic data and the clinical details of fatigue patients were developed by the investigator. FAS (fatigue assessment tool) were used to record the fatigue level of the subjects.

Section –A

It consists of demographic variables such as Age, Gender, Qualification, Religion, Type of family, Marital status, Occupation, Type of nutrition, Pre dialysis Hb level, Practice of regular exercise or other relaxation technique.

Section -B

It consists of clinical variables of Patients undergoing hemodialysis, such as Number of hemodialysis, duration period of hemodialysis, hours of hemodialysis, sitting of hemodialysis, activity during on hemodialysis, regularity of Iron supplementary Medication, years of taking medication, Co-morbid illness, number of blood transfusion during hemodialysis .Previous exposure of blood transfusion during hemodialysis.

Section -C

Scoring procedure

A FAS(fatigue assessment scale) was used to assess the effectiveness of foot reflexology on fatigue. The scoring is (1-5).

The response will score as follows.

- Never
- Sometimes(about monthly or less)
- Regularly(about a few times a month)

- Often(about weekly)
- Always(about every day)

FAS scores -10-21: No Fatigue

22-34 : Fatigue

> 35 ; Extreme fatigue.

Content validity

Polit and Hungler, 1999 defined content validity as the degree of which the item in an instrument adequately represents the universe of the Content.

Validity refers to the degree to which an instrument measures what it is supposed to do. The prepared along with the objectives, operational definitions, hypothesis, and tool is submitted to the experts in the field of nephrologists A few suggestions were given to modify and simplify the wordings of some items. The modification was made in tool accordingly.

Reliability of the tool

According to **Polit and Hungler, 1999** reliability refers to the degree of consistency or dependability with which an instrument measures the attribute it is designed to measure. Reliability of the tool was established by inter rater method and the obtained 'r' value is 0.88. Hence the tool was found reliable and considered for proceeding.

Pilot study

According to **Polit and Hungler, (1999)** pilot study refers to a small scale version or trial run done in preparation for a major study. Pilot study tests the reliability, practicability, appropriateness and feasibility of the study and the tool.

Pilot study was done among twelve patients undergoing hemodialysis in the month of July 2018 after obtaining permission from the concerned authority. The setting was dialysis unit in St.Mary's Hospital, Coimbatore. Data was obtained from all the samples and pre-test was conducted. Foot Reflexology was done for 10 minutes on both feet, once daily for 5 consecutive days for all the samples in the experimental group. Post test was conducted 30 min after pre-test in all the samples.

Pilot study confirmed the adequacy of the tool and technique. Hence there were no modifications required in the main study. The tool was found to be satisfactory in terms of simplicity and clarity based on the findings of the pilot study. It was calculated that it was feasible and practicable to conduct the main study and criterion measures were found to be effective.

Ethical consideration

Research proposal was approved by experts prior to the pilot study and permission for the main study was obtained from the ethical committee, Head of the department, Department of Medical surgical department in Nursing, Permission was obtained from the HOD of Chief Medicine Department. A written consent of each study subjects was obtained before starting the data collection, assurance was given to the subjects that confidentiality and privacy would be maintained .Due permission was sought from the hospital authority including ethical committee clearance report. Informed verbal consent was obtained from all the samples. Assurance was given for the confidentiality of the information given by the samples. Routine care was not altered or withheld. Samples were allowed to withdraw from the study at any time.

Data collection procedure

Formal written permission to conduct the study in Hospital was obtained. During the 1stvisit ,The researcher introduced herself and explained the purpose of the study and confirmed the willingness of the patients with Fatigue on patients undergoing hemodialysis to participate in the study by getting consent from them as per the inclusion criteria.

Data was collected during the month of December. The patients undergoing hemodialysis who fulfilled the inclusion criteria were selected by convenient sampling technique. The purpose of the study was explained to the samples after self introduction of the researcher. Informed verbal consent 60 was obtained from the samples. The demographic data was collected through structured interview schedule in Tamil. Fatigue was measured and recorded in the FAS(Fatigue assessment chart) for 5 consecutive days. Routine care was provided to all the samples included in this study. Foot reflexology was implemented. Post-test fatigue score was taken for all the samples after 30 min duration of the pre-test. Ethical aspects were considered

throughout the study. The same procedure was continued for other days till the needed data was collected for this study.

Plan for Data collection

Pilot (1995) states that data analysis is a systemic organization of the research data and testing of research hypothesis using data. Descriptive statistics (frequency, percentage and standard deviation) was used to analyze the study findings. Inferential statistics t-test and Chi square used to find out the association of foot reflexology.

Plan for data analysis

After the data collection, the collected data were organized, tabulated, summarized and analyzed. The data were analyzed according to the objectives of the study using descriptive and inferential statistics.

The data were edited, coded and entered in the master sheet. The data were analyzed using descriptive and inferential statistics.

The data were analyzed as follows:

- To Analysis of the frequency and percentage of the demographic data.
- Hypothesis related to the effectiveness of Foot reflexology technique was tested using paired "t" test, mean, and standard deviation and Mc Nemar Chi – square test, test of significance.
- Student independent "t" test were used to find out the association between the level of fatigue control and selected demographic variables (age, gender, occupation, Type of nutrition ect.)

SCHEMATIC REPRESENTATION OF THE STUDY

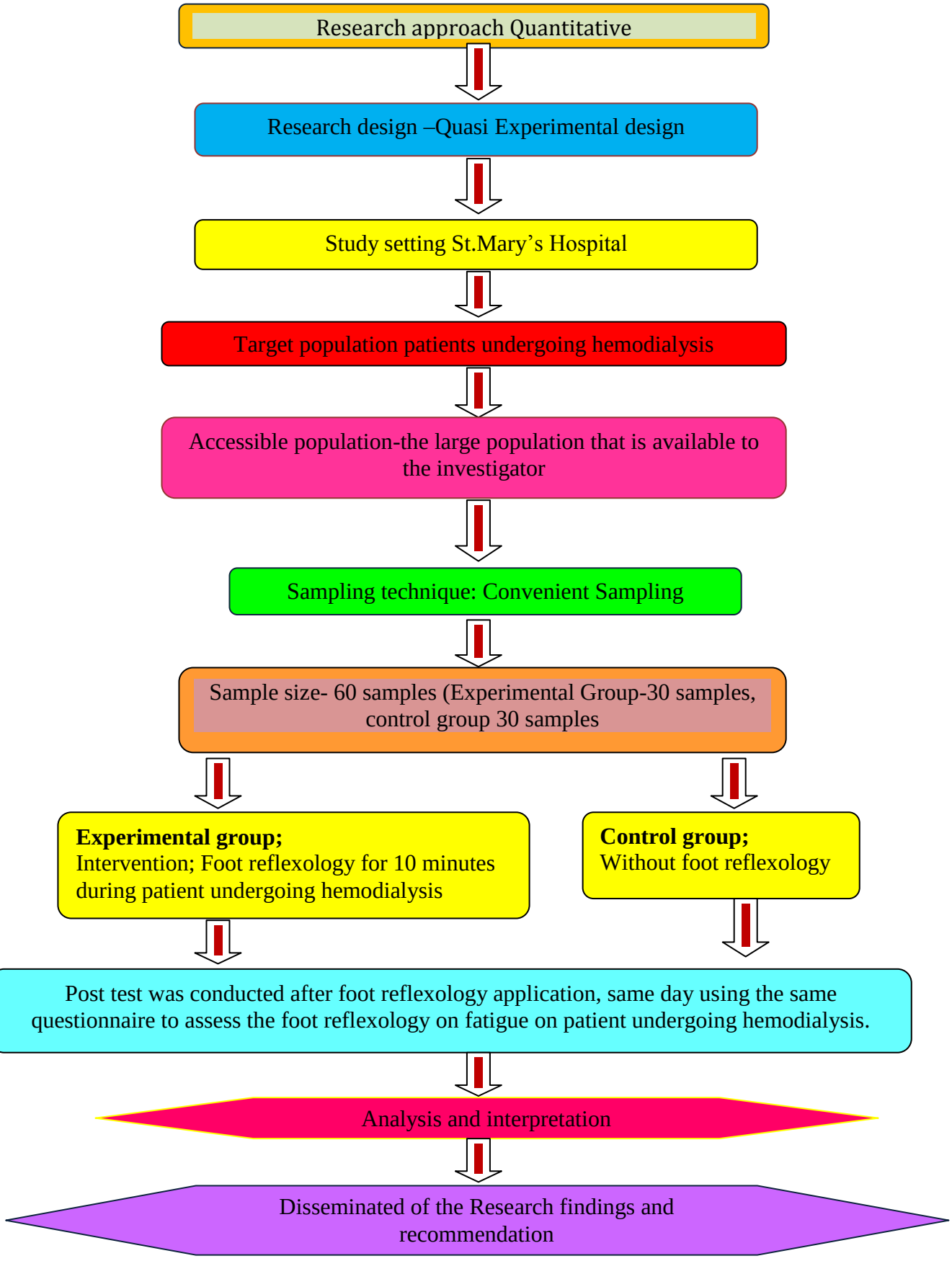


FIGURE – 3.1 : SCHEMATIC REPRESENTATION OF THE STUDY

CHAPTER - IV

DATA ANALYSIS AND INTERPRRETATION

CHAPTER IV

DATA ANALYSIS & INTERPRETATION

According to **Polit and Hungler (2006),** analysis is a method of rendering data in quantitative, meaningful and intelligible manner, so that research problem can be studied and tested and the relationship between the variables can be found.

This chapter deals with analysis and interpretation of data collected from 60 patients with fatigue at St, Mary's Hospital, and Coimbatore in order to evaluate the effectiveness of foot reflexology on fatigue among patient undergoing hemodialysis.

The data collected were analysed using descriptive and inferential statistics which are necessary to provide substantive summary by the results in relation to the objectives.

Objectives

- To assess the fatigue on patients undergoing hemodialysis with in experimental and control group.
- To evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis in experimental group.
- To associate the pre and post-test fatigue assessment scores with their selected demographic variables in both experimental group and control group.

Presentation of Data

The findings of the study were grouped, analysed, organized and presented under the following sections;

Section A:

Percentage distribution of patients with fatigue according to their demographic variables in experimental and control group.

Section B:

Frequency and percentage distribution of pre and post test score of patients undergoing hemodialysis on experimental group.

Section C: Testing hypotheses

- Comparison of pre-test and post-test Fatigue assessment scores among experimental group.
- Comparison of post-test fatigue scores among experimental and control group.
- Association between the pre and post-test fatigue score of samples and their selected demographic variables.

Section A

Table 4.1 : Percentage distribution of samples according to their Demographic variables in experimental and control group

Sl. No.	Demographic Variable	Experimental		Control Group	
		Frequency n-30	Percentage %	Frequency n=30	Percentage %
1.	**Age**				
	20-30 Years	5	17%	2	7%
	31-40 Years	10	33%	10	33%
	41-50 Years	12	40%	13	43%
	51-60 Years	13	10%	5	17%
2.	**Gender**				
	Male	19	63%	15	50%
	Female	11	37%	15	50%
3.	**Qualification**				
	Illiterate	2	7%	5	17%
	School Level	21	70%	15	50%
	College Level	7	23%	10	33%
4.	**Religion**				
	Christian	7	23%	2	7%
	Hindu	18	60%	21	70%
	Muslim	5	17%	7	23%
5.	**Type of family**				
	Nuclear	28	93%	20	67%
	Joint	2	7%	10	33%
6.	**Marital status**				
	Married	24	80%	21	70%
	Unmarried	5	17%	4	13%
	Divorced	1	3%	2	7%
	Widow/Widower	0	0	3	10%
7.	**Occupation**				
	Sedentary worker	4	13%	4	13%
	Moderate worker	19	64%	18	60%
	Heavy worker	7	23%	8	27%
8.	**Type of Nutrition**				
	Vegetarian	6	20%	3	10%
	Non Vegetarian	24	80%	22	84%
	Semi Vegetarian	0	0	1	3%
	Egg Vegetarian	0	0	1	3%
9.	**Hb Level Before doing Hemodialysis**				
	0-5 gm/dl				
	6-10gm/dl	1	3%	0	0%
	11-15gm/dl	21	70%	21	70%
	16-20gm/dl	8	27%	9	30%
		0	0%	0	0%

10.	**Other Exercises/ Techniques**				
	Yes	0	0%	0	0%
	No	30	100%	30	100%
11.	**No of Hemodialysis**				
	<10	0	0%	0	0%
	11-20	5	17%	2	7%
	21-30	10	33%	18	60%
	>30	15	50%	10	33%
12.	**Duration of Hemodialysis**				
	Days	1	3%	1	3%
	Months	9	30%	6	20%
	Years	20	67%	23	77%
13.	**Hours of Hemodialysis**				
	2hrs	10	33%	11	37%
	3hrs	9	30%	13	43%
	4hrs	11	37%	6	20%
14.	**Sitting of Hemodialysis**				
		18	60%	15	50%
	Once	12	40%	13	43%
	Twice	0	0%	2	7%
	Thrice				
15.	**Experience of Fatigue during Hemodialysis**				
	First hours	6	20%	2	7%
	Middle hours	20	67%	16	53%
	Last hours	4	13%	12	40%
16.	**Fatigue restricts activity**				
	Yes	23	77%	21	70%
	No	7	23%	9	30%
17.	**Iron Supplementary Intake**				
	Yes	23	77%	23	77%
	No	7	23%	7	23%
18.	**Years of Iron Supplementary Intake**				
	1-3 years	20	67%	18	87%
	4-6years	3	33%	5	13%
19.	**Co-morbid illness**				
	Yes	17	57%	15	50%
	No	13	43%	15	50%

20.	**Blood transfusion during Hemodialysis**				
	Yes	15	50%	19	63%
	No	15	50%	11	37%
21.	**Duration years of blood transfusion**				
	< 5 years	12	40%	10	33%
	>5 years	13	10%	9	30%

Table 4.1 shows Percentage distribution of samples according to their Demographic variables in experimental and control group

- In experimental group, 5 (17%) samples belong to 20-30years, 10(33%) samples belong to 31 to 40years and 12 (40%) samples belong to 41-50 years.13(10%)were in 31 to 40 years. 41-50 years percentage frequency is high in experimental group ,20-30 years percentage frequency is low in experimental group in control group, 2 (7%) samples belong to 20-30 years to is low frequency percentage on control group, 13(43%) samples belong to 41 to 50 years is high frequency percentage in control group.
- In experimental group, 19(63%) samples belong to male having high frequency, 11(37%) samples belong to female having low frequency in experimental group. In control group, 15(50%) samples belong to both male and female frequency got equal percentage.
- In experimental group, 21(70%) samples belongs to School level having high percentage in frequency, 2(7%) samples belong to Illiterate having low percentage in frequency in experimental group. In control group, 15(50%) samples belong to School level having high percentage in frequency, and 5(7%) belongs to Illiterate having low percentage in frequency.
- In experimental group, 18(60%) samples belongs to Hindu having high percentage in frequency, 5(17%) samples belong to Muslim having low percentage in frequency in experimental group.In control group, 21(70%) samples belong to Hindu having high percentage in frequency, and 2(7%) belongs to Christian having low percentage in frequency .
- In experimental group, 28(90%) samples belongs to Nuclear having high percentage in frequency, 2(7%) samples belong to joint having low percentage in frequency in experimental group. In control group, 20(67%) samples belong

to Nuclear having high percentage in frequency, and 10(33%) belongs to having low percentage in frequency.

- In experimental group, 24(80%) samples belongs to Married having high percentage in frequency, 0(0%) samples belong to widow having low percentage in frequency in experimental group. In control group, 21(70%) samples belong to Married having high percentage in frequency, and 2(7%) belongs to Divorced having low percentage in frequency.
- In experimental group, 19(64%) samples belongs to moderate worker having high percentage in frequency, 4(13%) samples belong to sedentary worker having low percentage in frequency in experimental group. In control group, 18(60%) samples belong to moderate worker having high percentage in frequency, and 4(13%) belongs to sedentary worker having low percentage in frequency.
- In experimental group, 24(80%) samples belongs to Non vegetarian worker having high percentage in frequency, 6(20%) samples belong to sedentary worker having low percentage in frequency in experimental group. In control group, 25(84%) samples belong to non vegetarian having high percentage in frequency, and 1(3%) belongs to having low percentage in frequency.
- In experimental group, 21(70%) samples belongs to 6-10gm/dl having high percentage in frequency, 0(0%) samples belong to 16-20gm/dl having low percentage in frequency in experimental group. In control group, 21(70%) samples belong to 6-10gm/dl having high percentage in frequency, and 0(0%) belongs to 16-20gm/dl having low percentage in frequency.
- In experimental group, 15(50%) samples belongs to >30 times having high percentage in frequency, 1(3%) samples belong to <10 times having low percentage in frequency in experimental group. In control group, 18(60%) samples belong to 21to30 times having high percentage in frequency, and 0(0%) times belongs to 16-20gm/dl having low percentage in frequency.
- In experimental group, 20(67%) samples belongs to middle hours of hemodialysis having high percentage in frequency, 4(13%) samples belong to last hours of fatigue on hemodialysis having low percentage in frequency in experimental group. In control group, 16(53%) samples belong to middle

hours having high percentage in frequency, and 2(7%) times belongs to first hours having low percentage in frequency.

- In experimental group, and control group 23(77%) samples belongs yes (in taking of iron supplementary) high percentage in frequency, both experimental and control group are having 7(23%)lower percentage in frequency.
- In experimental group 15(50%) are equal percentage in yes and no(blood transfusion), In control group, 19(63%) samples belong to yes and 11(37%)belongs to no(blood transfusion) having percentage in frequency

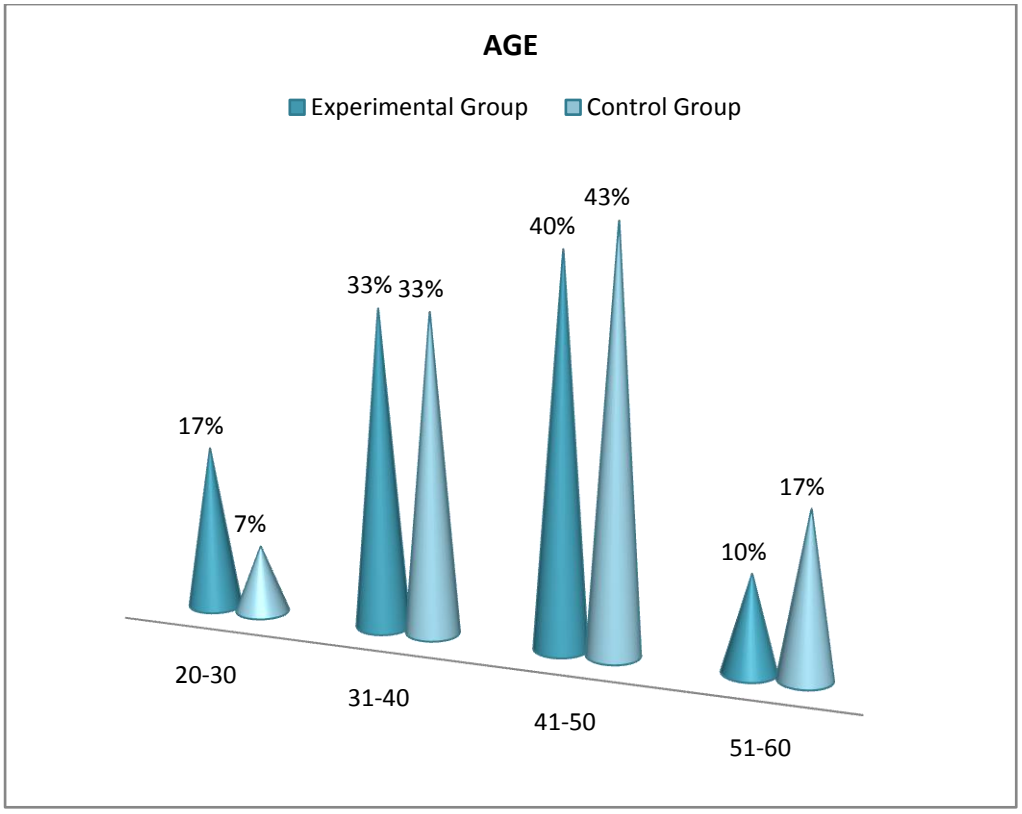


Figure 4.1: Percentage distribution of samples according to their age in years in experimental and control group

The above figure 4.1 shows that in experimental group, 5 (17%) samples belong to 20-30years, 10(33%) samples belong to 31 to 40years and 12 (40%) samples belong to 41-50 years.13(10%)were in 31 to 40 years. 41-50 years percentage frequency is high in experimental group ,20-30 years percentage frequency is low in experimental group.

In control group, 2 (7%) samples belong to 20-30 years to is low frequency percentage on control group, 13(43%) samples belong to 41 to 50 years is high frequency percentage in control group

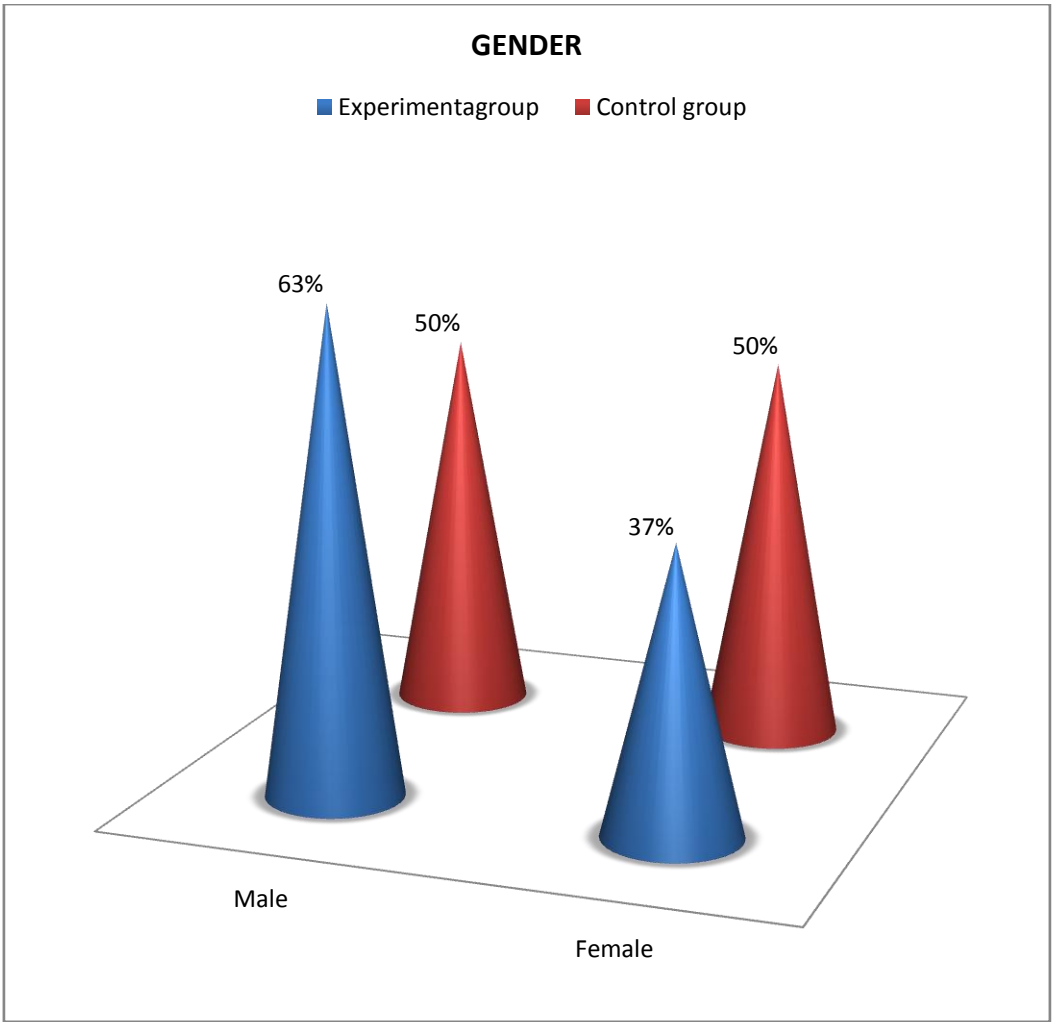


Figure 4.2: Percentage distribution of samples according to their Gender in experimental and control group

The above figure 4.2 shows that in experimental group, 19(63%) samples belong to male having high frequency, 11(37%) samples belong to female having low frequency in experimental group.

In control group, 15(50%) samples belong to both male and female frequency got equal percentage.

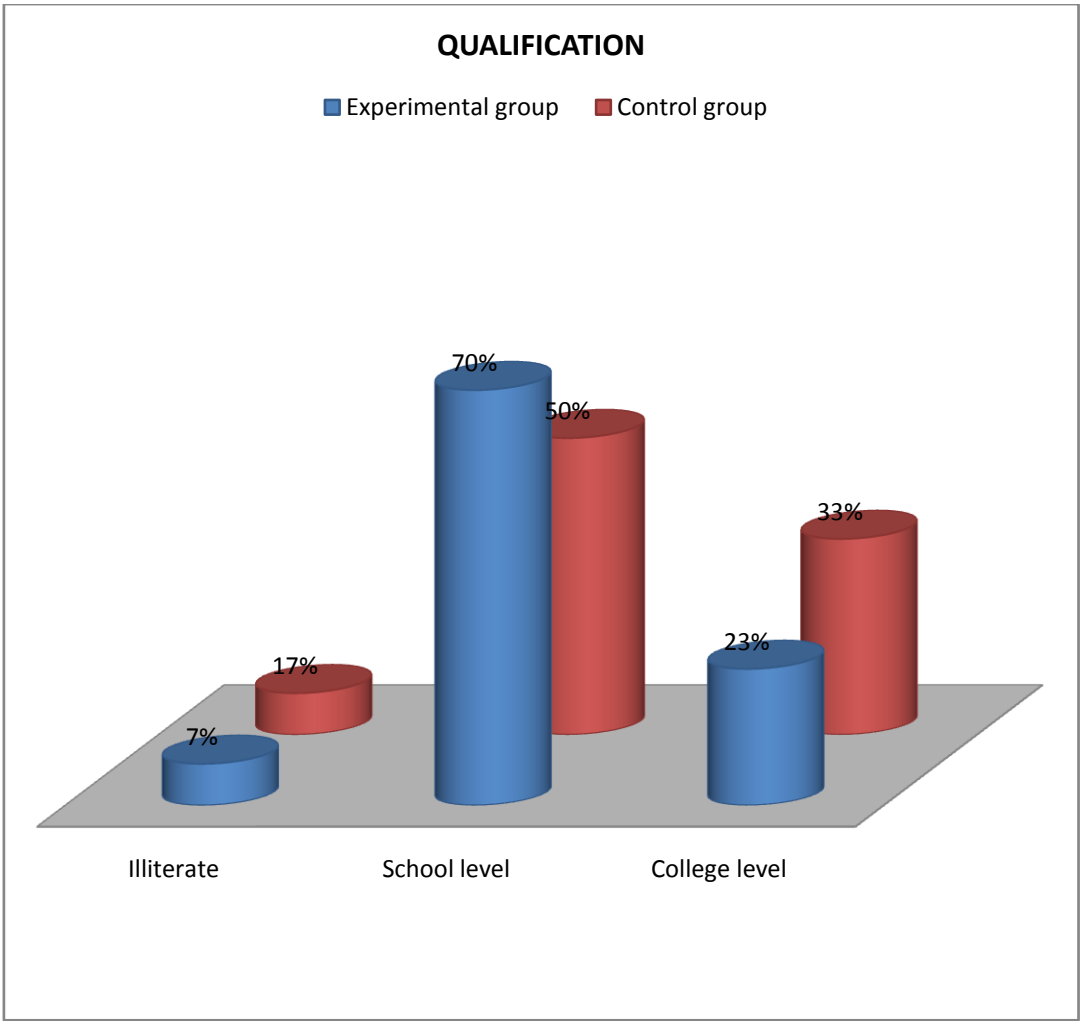


Figure 4.3: Percentage distribution of samples according to their Qualification in experimental and control group

The above figure 4.3 shows that in experimental group, 21(70%) samples belongs to School level having high percentage in frequency, 2(7%) samples belong to Illiterate having low percentage in frequency in experimental group.

In control group, 15(50%) samples belong to School level having high percentage in frequency, and 5(7%) belongs to Illiterate having low percentage in frequency .

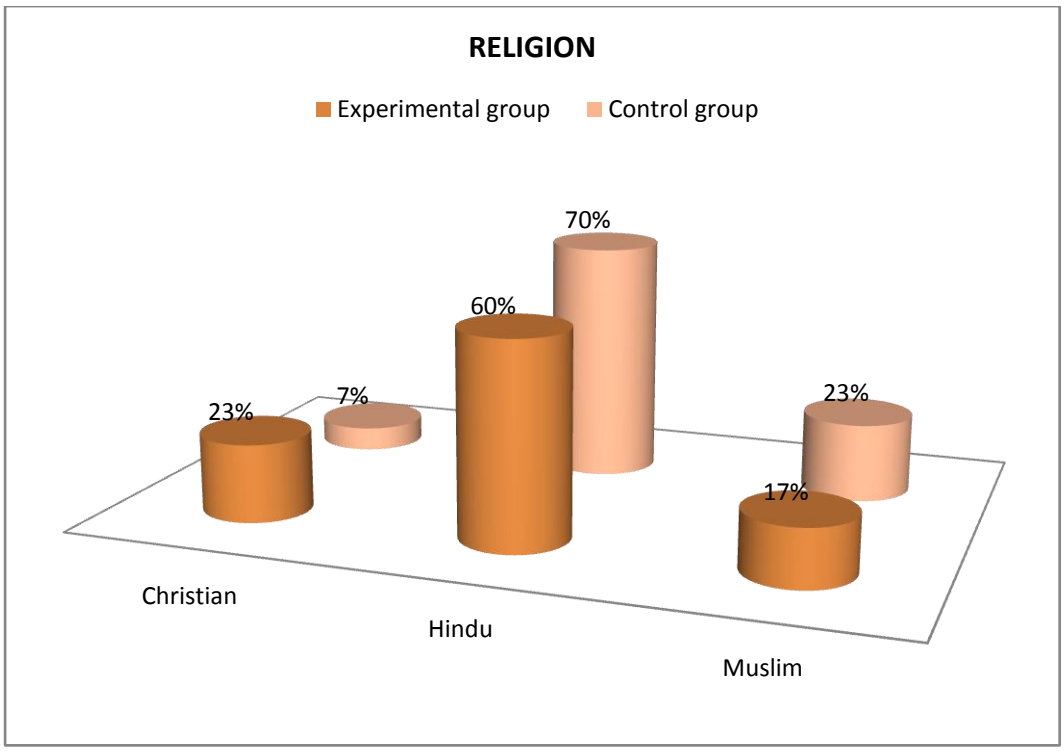


Figure 4.4: Percentage distribution of samples according to their Religion in experimental and control group

The above figure 4.4 shows that in experimental group, 18(60%) samples belong to Hindu having high percentage in frequency, 5(17%) samples belong to Muslim having low percentage in frequency in experimental group.

In control group, 21(70%) samples belong to Hindu having high percentage in frequency, and 2(7%) belongs to Christian having low percentage in frequency.

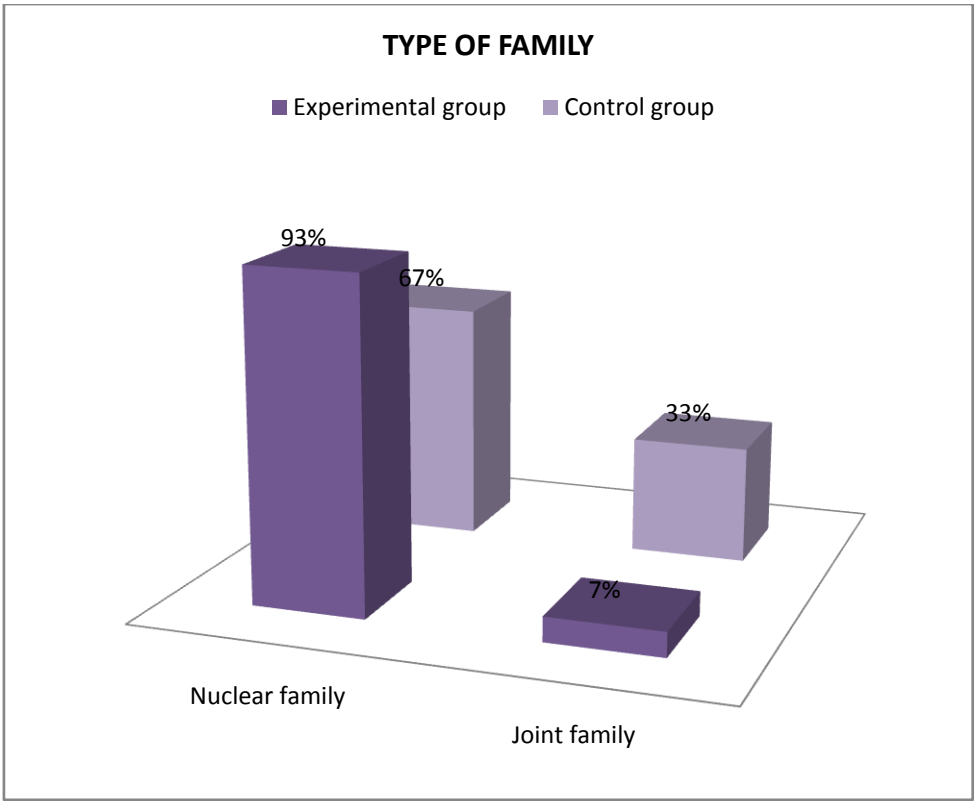


Figure 4.5: Percentage distribution of samples according to their Type of family in experimental and control group

The above figure 4.5 shows that in experimental group, 28(90%) samples belong to Nuclear having high percentage in frequency, 2(7%) samples belong to joint having low percentage in frequency in experimental group.

In control group, 20(67%) samples belong to Nuclear having high percentage in frequency, and 10(33%) belongs to having low percentage in frequency.

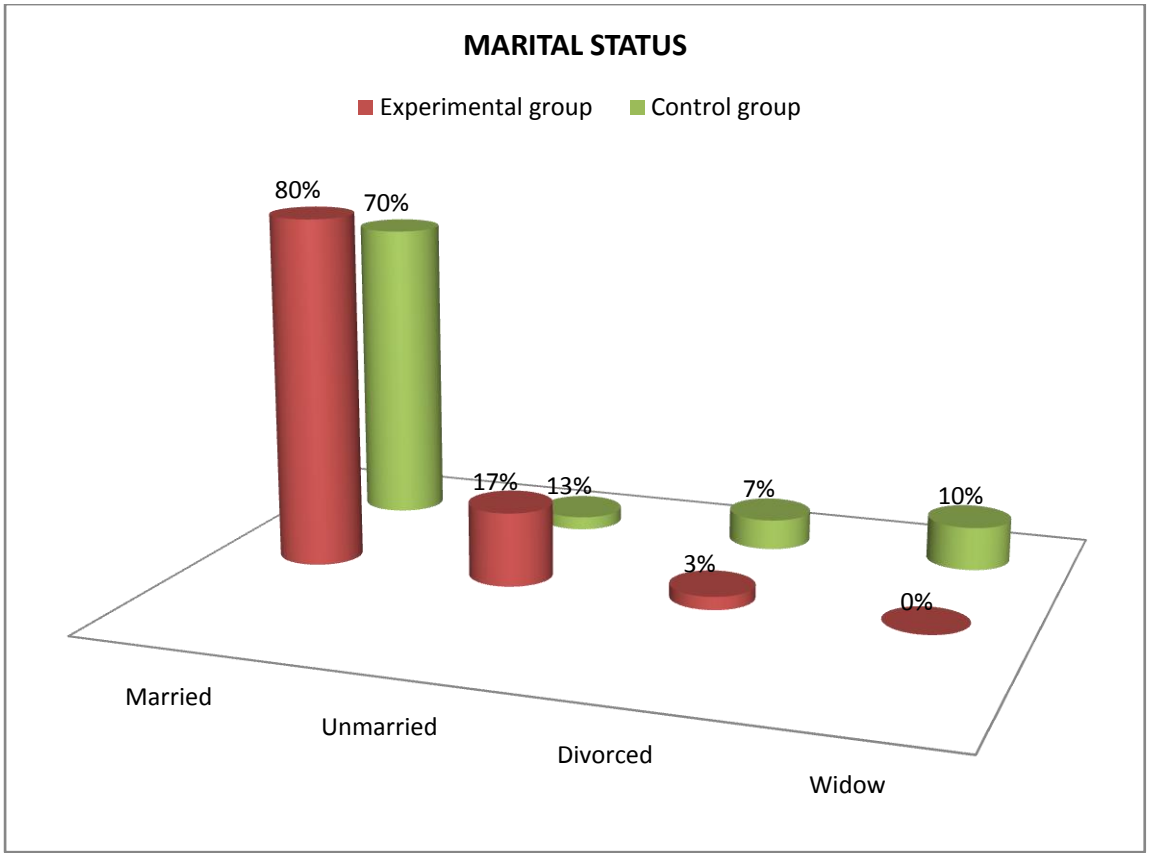


Figure 4.6: Percentage distribution of samples according to their Type of family in experimental and control group

The above figure 4.6 shows that in experimental group, 24(80%) samples belongs to Married having high percentage in frequency, 0(0%) samples belong to widow having low percentage in frequency in experimental group.

In control group, 21(70%) samples belong to Married having high percentage in frequency, and 2(7%) belongs to Divorced having low percentage in frequency .

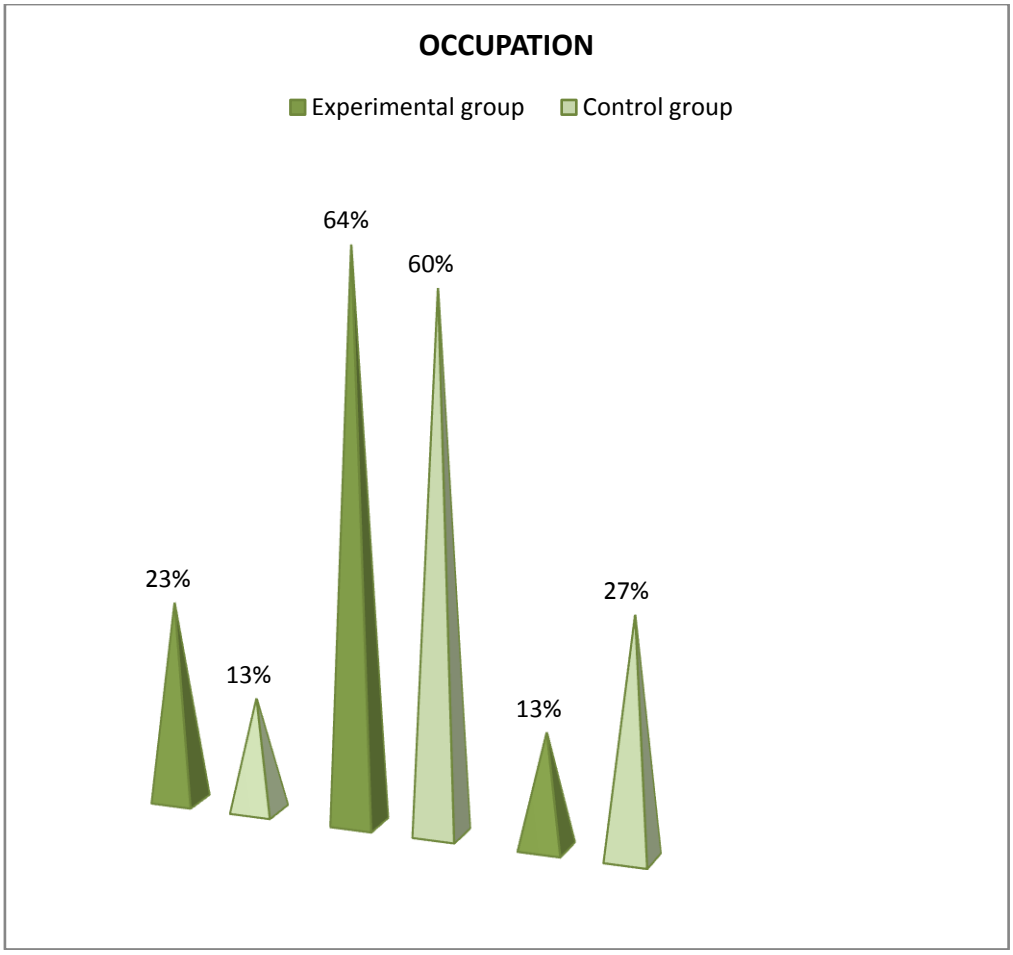


Figure 4.7: Percentage distribution of samples according to their Occupation in experimental and control group

The above figure 4.7shows that in experimental group, 19(64%) samples belongs to moderate worker having high percentage in frequency, 4(13%) samples belong to sedentary worker having low percentage in frequency in experimental group.

In control group, 18(60%) samples belong to moderate worker having high percentage in frequency, and 4(13%) belongs to sedentary worker having low percentage in frequency.

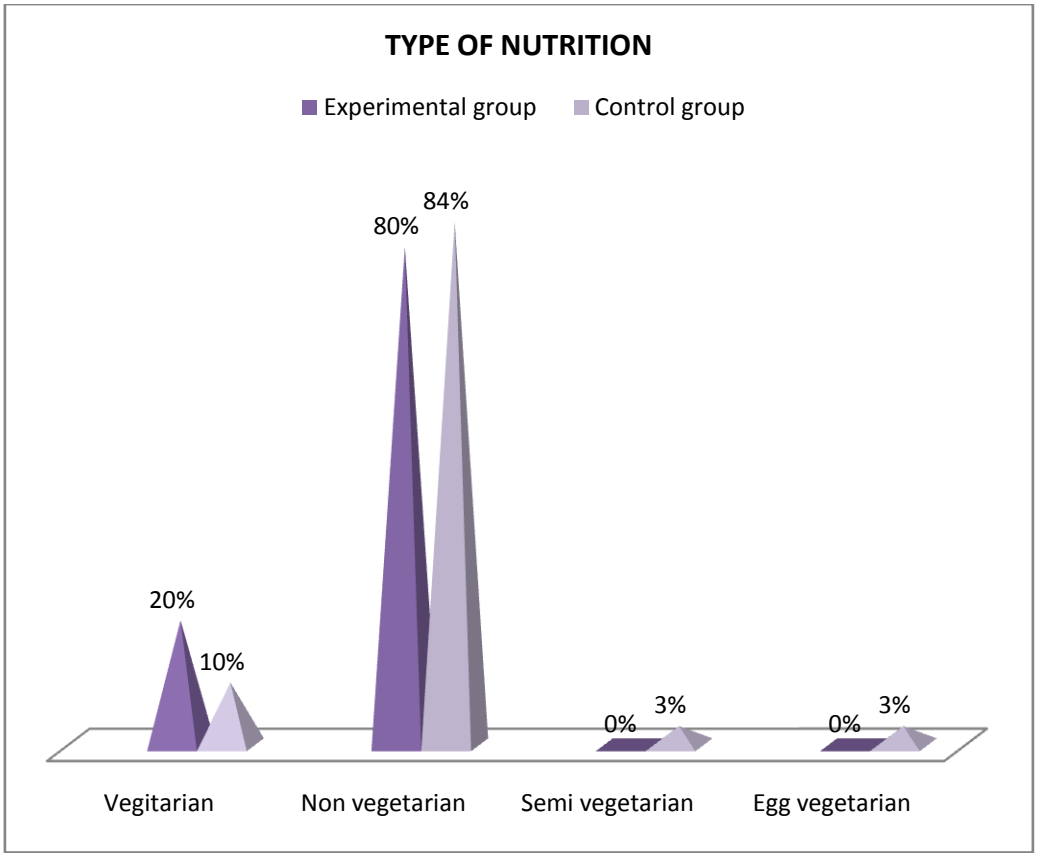


Figure 4.8: Percentage distribution of samples according to their types of nutrition in experimental and control group

The above figure 4.8 shows that in experimental group, 24(80%) samples belong to Non vegetarian worker having high percentage in frequency, 6(20%) samples belong to sedentary worker having low percentage in frequency in experimental group.

In control group, 25(84%) samples belong to non vegetarian having high percentage in frequency, and 1(3%) belongs to having low percentage in frequency.

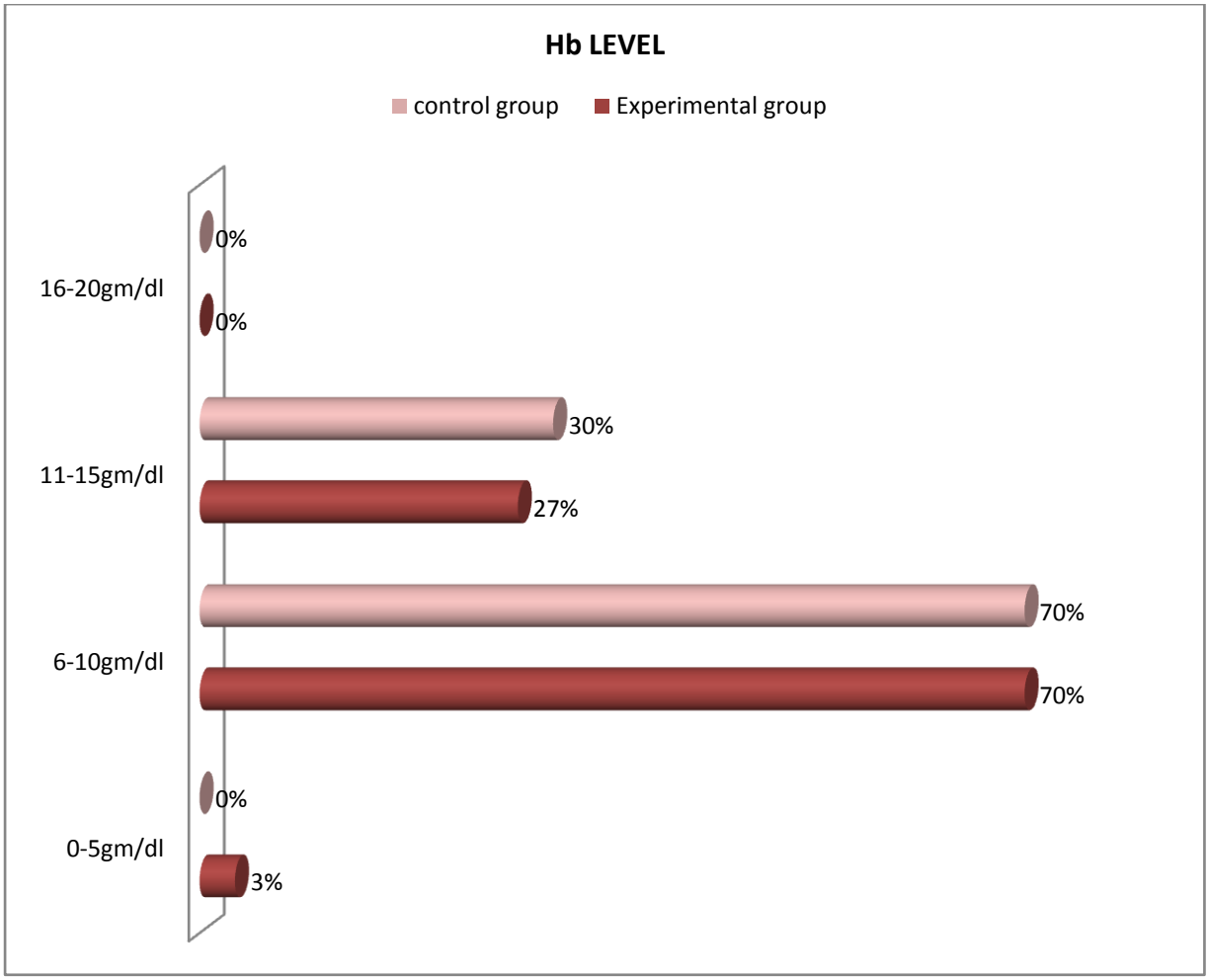


Figure 4.9: Percentage distribution of samples according to their previous Hb level before doing hemodialysis experimental and control group

The above figure 4.9 shows that in experimental group, 21(70%) samples belong to 6-10gm/dl having high percentage in frequency, 0(0%) samples belong to 16-20gm/dl having low percentage in frequency in experimental group.

In control group, 21(70%) samples belong to 6-10gm/dl having high percentage in frequency, and 0(0%) belongs to 16-20gm/dl having low percentage in frequency.

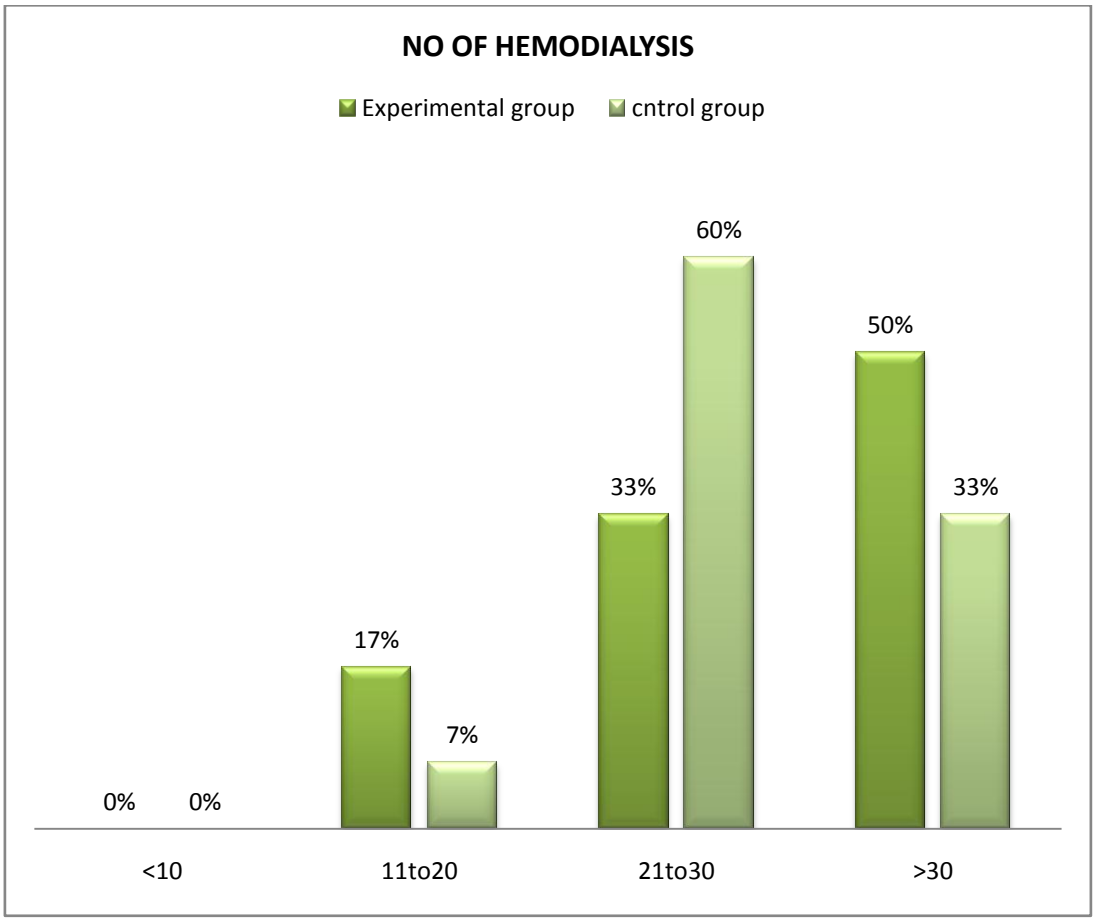


Figure 4.10: Percentage distribution of samples according to their Number of hemodialysis in experimental and control group

The above figure 4.10 shows that in experimental group, 15(50%) samples belongs to >30 times having high percentage in frequency, 0(0%) samples belong to <10 times having low percentage in frequency in experimental group.

In control group, 18(60%) samples belong to 21to30 times having high percentage in frequency, and 0(0%) times belongs to 16-20gm/dl having low percentage in frequency.

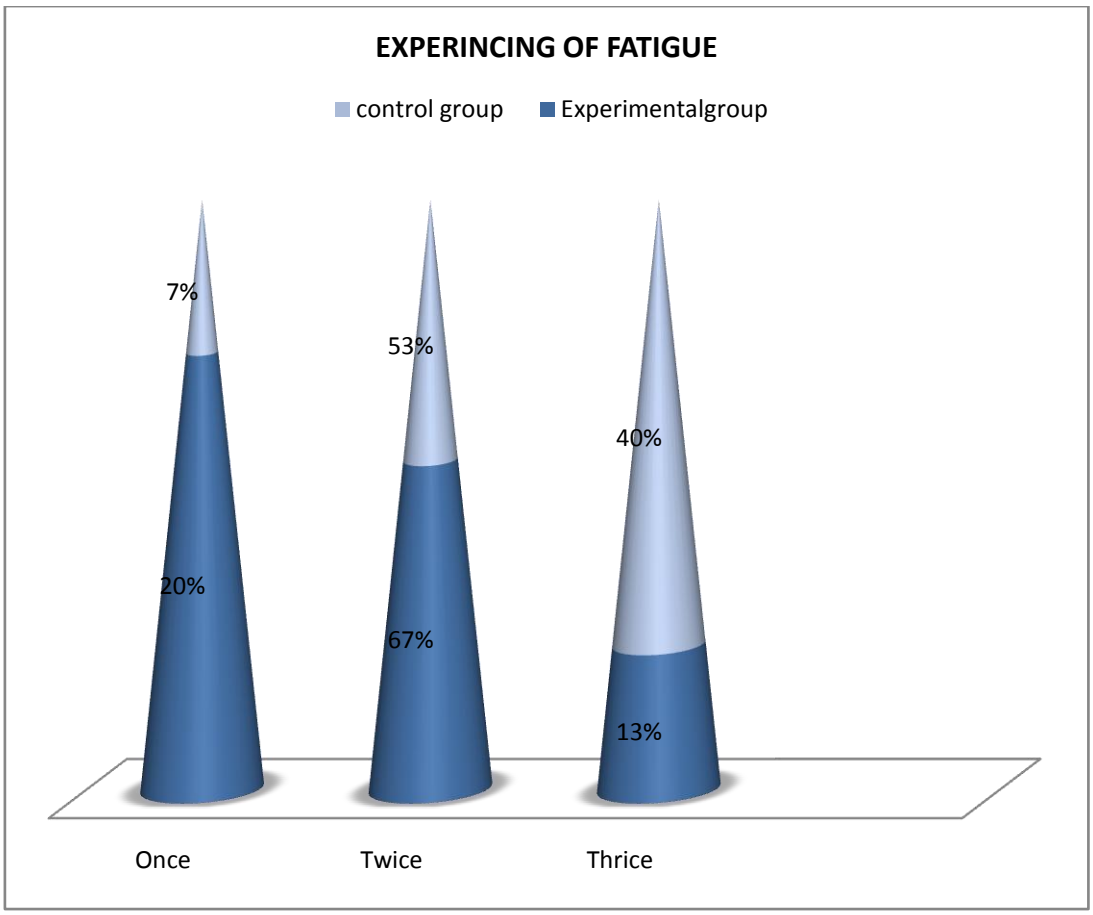


Figure 4.11: Percentage distribution of samples according to their experiencing fatigue during hemodialysis in experimental and control group

The above figure 4.11 shows that in experimental group, 20(67%) samples belong to middle hours of hemodialysis having high percentage in frequency, 4(13%) samples belong to last hours of fatigue on hemodialysis having low percentage in frequency in experimental group.

In control group, 16(53%) samples belong to middle hours having high percentage in frequency, and 2(7%) times belongs to first hours having low percentage in frequency.

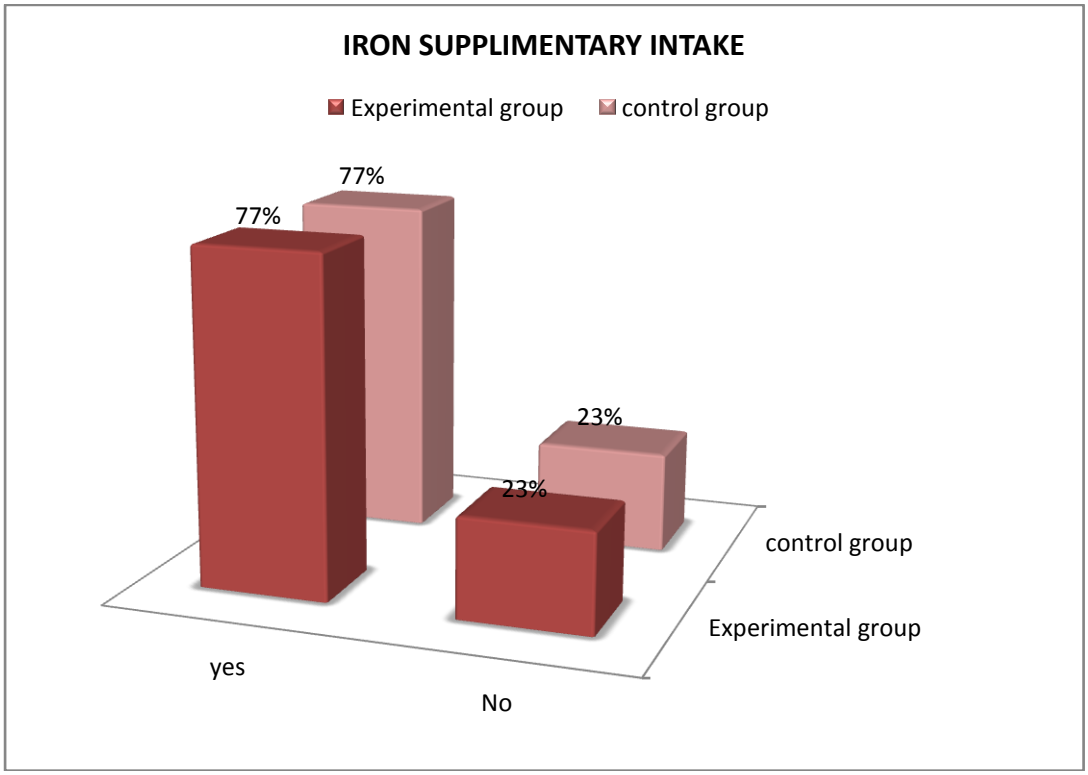


Figure 4.12: Percentage distribution of samples according to their experiencing fatigue during hemodialysis in experimental and control group

The above figure 4.12 shows that in experimental group, and control group 23(77%) samples belongs yes (in taking of iron supplementary)high percentage in frequency ,both experimental and control group are having 7(23%)lower percentage in frequency.

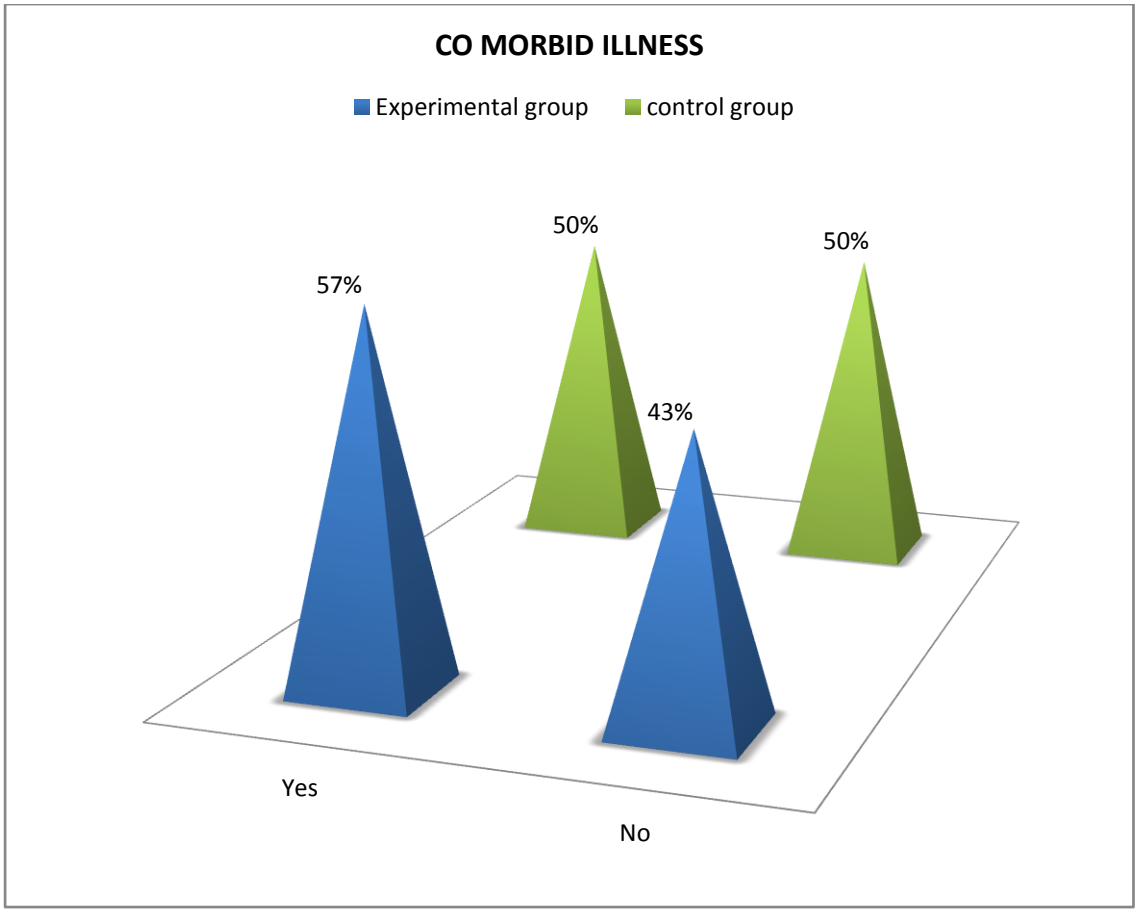


Figure 4.13: Percentage distribution of samples according to their co-morbid illness in experimental and control group

The above figure 4.13 shows that in experimental group, 17(57%) samples belongs to yes (co-morbid illness) having high percentage in frequency, 13(43%) samples belong No (co-morbid illness) having low percentage in frequency in experimental group.

In control group, 15(50%) samples belong to yes and no (co-morbid illness) having equal percentage in frequency.

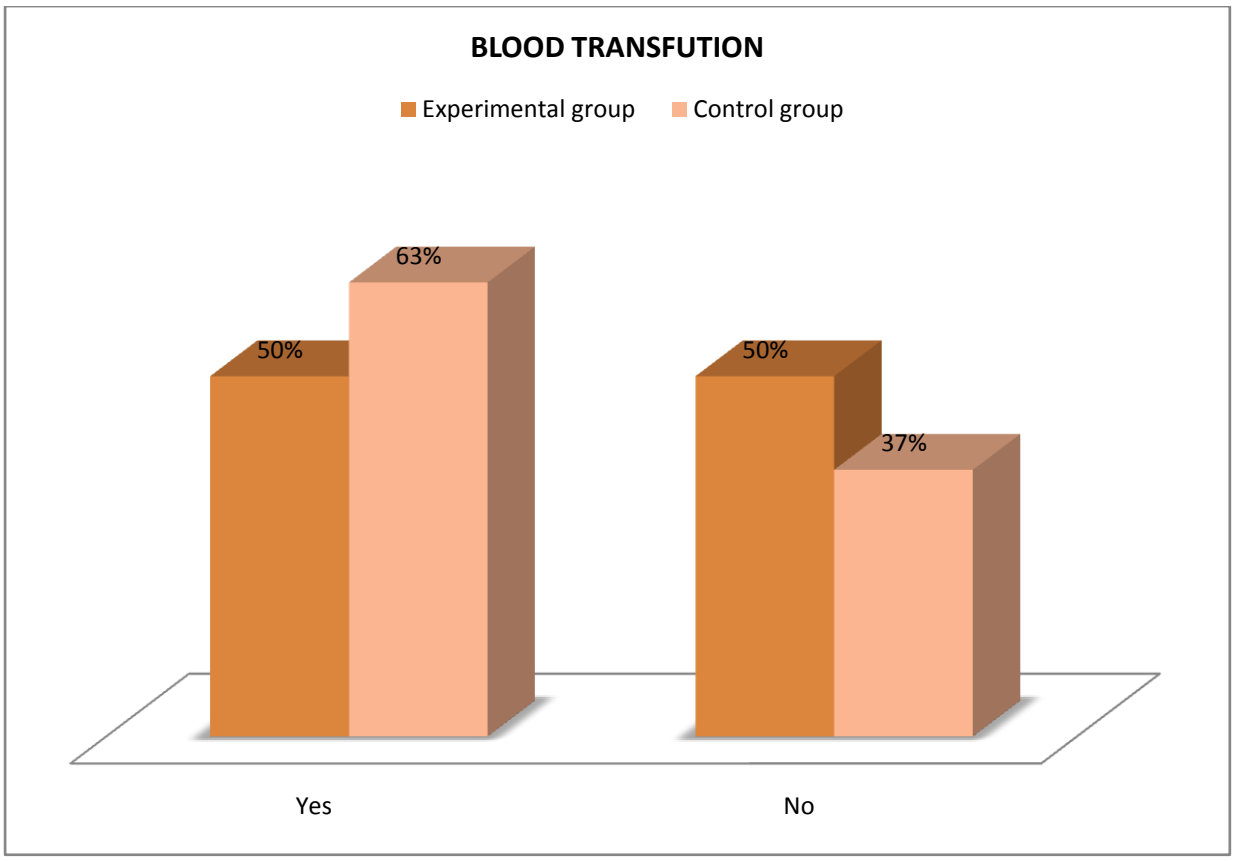


Figure 4.14: Percentage distribution of samples according to their blood transfusion in experimental and control group

The above figure 4.14 shows that in experimental group 15(50%) are equal percentage in yes and no (blood transfusion),

In control group, 19(63%) samples belong to yes and 11(37%) belongs to no (blood transfusion) having percentage in frequency.

SECTION-II

FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRE AND POST TEST FATIGUE SCORE OF PATIENTS UNDERGOING HEMODIALYSIS ON EXPERIMENTAL GROUP

Table 4.2: Frequency percentage distribution of pre and post test fatigue score of patients undergoing hemodialysis on experimental group

S.No	Fatigue level	Experimental pre test fatigue score		Experimental post test fatigue score	
		Frequency	Percentage	Frequency	Percentage
1	No Fatigue	0	0%	22	73%
2	Fatigue	12	40%	8	27%
3	Extreme fatigue	18	60%	0	0%

Table 4.2 Showed that 0(0%) no fatigue, 12(40%) fatigue, 18(60%) extreme fatigue in experimental pre test fatigue score and 22(73%) No fatigue, 8(27%) fatigue,0%Extreme fatigue in experimental post test fatigue score .

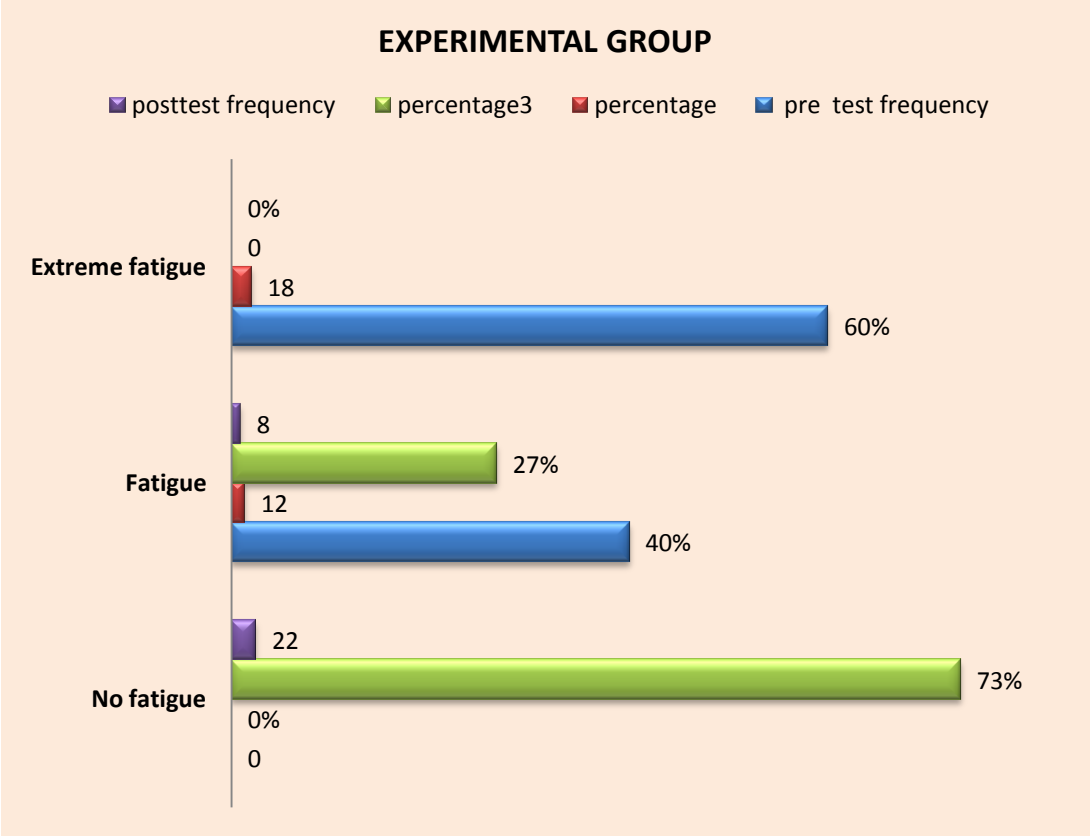


Figure 4.15: Frequency percentage distribution of pre and post test fatigue score of patients undergoing hemodialysis on experimental group

Figure No: 4.15 Shows that 0% no fatigue,12(40%) fatigue,18(60%) extreme fatigue in experimental pre test fatigue score and 22(73%) No fatigue,8(27%) fatigue,0% Extreme fatigue in experimental post test fatigue score .

FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRE AND POST TEST FATIGUE SCORE OF PATIENTS UNDERGOING HEMODIALYSIS ON EXPERIMENTAL GROUP

Table 4.3.Frequency percentage distribution of pre and post test fatigue score of fatigue among patients undergoing hemodialysis in control group

S. No.	Fatigue score	Control group pre test		Control group post test	
		FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
1	No Fatigue	0	0%	0	0%
2	Fatigue	4	13%	2	7%
3	Extreme fatigue	26	87%	28	93%

Table 4.3 shows that 0%No fatigue in both pretest and post test control group, in pretest4 members having (13%) Fatigue, 26 members having (87%) Extreme fatigue .In post test 2 members having (7%) fatigue, and 28 members having (93%) extreme fatigue.

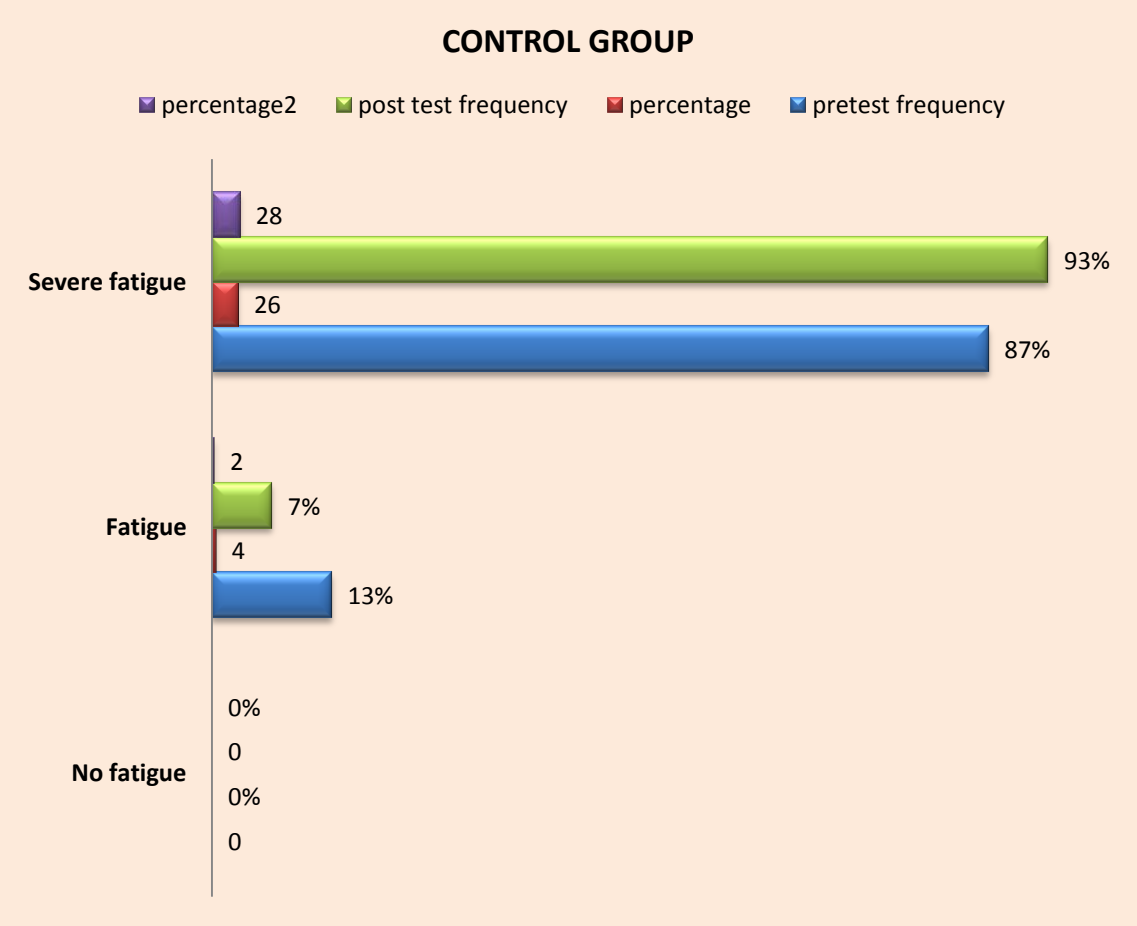


Figure 4.16: Frequency percentage distribution of pre and post test fatigue score of fatigue among patients undergoing hemodialysis in control group

Figure 4.16 shows that 0(0)%No fatigue in both pretest and post test control group, in pretest4 members having (13%) Fatigue, 26 members having (87%) Extreme fatigue .In post test 2 members having (7%) fatigue, and 28 members having (93%) extreme fatigue.

SECTION III

DATA ON EFFECTIVENESS OF FOOT REFLEXOLOGY BY THE LEVEL OF PRE TEST AND POST TEST FOR THE FATIGUE ON PATIENTS UNDERGOING HEMODIALYSIS ON EXPERIMENTAL AND CONTROL GROUP

Table 4.4 Effectiveness of foot reflexology by the fatigue level of pre and post test for the fatigue on patients undergoing hemodialysis among experimental and control group

n=30

S.NO	Characteristic	Mean	Standard Deviation	't'-test value
1	Control group pre test	25.7	6.9	2.3
2	Control group post test	34.4	5.6	
3	Experimental pre test	30.3	4.3	12.1*
4	Experimental post test	14.5	8.6	

T.Value-3.5 **Highly significant>12.1***

The above table 4.4 portraits the paired't' test value which was calculated to analyze the effectiveness of foot reflexology on foot reflexology level among experimental group. The calculated t value (12.1) was greater than the table value (3.5) It shows that foot reflexology was effective on reducing the fatigue among the patients undergoing hemodialysis.

The control groups pre test mean (25.7) and post test was (34.4) the standard deviation of pre test (6.9) and post test (5.6).the t-test value of control group pre test and post test t(2.3) ,the table value is (3.5) compared to table value calculated value is less than table value so no significant between pretest and post test of control group.

The Experimental pre test mean (30.3) and post test (14.5) ,the standard deviation of pre test (4.3) and post test (8.6) and the t-test value of experimental pretest and post test value is (12.1) compared to table value (3.5) the value of t-test Value (12.1) is significant between pre and post test in experimental group.

The observed value of control group t test= (2.4) and experimental group t test= (12.1) compared to control group t test value experimental group t test value is highly significant on foot reflexology that reduces fatigue among patient undergoing hemodialysis.

SECTION IV

ASSOCIATION BETWEEN THE LEVEL OF FATIGUE SCORE OF EXPERIMENTAL PRE TEST GROUP AND DEMOGRAPHIC VARIABLES

Table 4.5 Association between pre and post test fatigue score and demographic variables of experimental group

S. NO	DEMOGRAPHIC VARIABLES	NO FATIGUE	FATIGUE	EXTREME FATIGUE	Chi Square χ^2
1	Age				
	20 – 30 years	0	4	0	1.32 P=7.81
	31 – 40 years	0	9	2	
	41 – 50 years	0	10	2	
	51 – 60 years	0	3	0	
2	Gender				
	Male	0	17	3	0.1 P=3.84
	Female	0	9	1	
3	Qualification				
	Illiterate	0	1	0	1.45 P=5.99
	School level	0	18	2	
	College level	0	7	2	
4	Religion				
	Christian	0	5	1	1.14 P=5.99
	Hindu	0	15	3	
	Muslim	0	6	0	
5	Type of family				
	Nuclear family	0	22	4	0.65 P=3.84
	Joint family	0	4	0	

6	Marital status				
	Married	0	20	4	1.36 P=7.81
	Unmarried	0	4	0	
	Divorced	0	1	0	
	Widow/widower	0	1	0	
7	Occupation				
	Sedentary workers	0	9	0	2.78 P=5.99
	Moderate workers	0	12	2	
	Heavy workers	0	5	2	
8	Type of Nutrition				
	Vegetarian	0	10	0	2.31 P=7.81
	Non vegetarian	0	26	4	
	Semi vegetarian	0	0	0	
	Egg vegetarian	0	0	0	
9	Hb level before hemodialysis				
	0-5 gm /dl	0	1	0	2.66 P=7.81
	6-10gm/dl	0	18	3	
	11-15gm/dl	0	7	1	
	16-20gm/dl	0	0	0	
10	Exercise/other techniques				
	Yes	0	26	4	0 P=3.84
	No	**0**	**0**	**0**	

11	Number of hemodialysis				
	<10	0	0	1	6.62 P=7.81
	11-20	0	2	1	
	21-30	0	10	0	
	>30	0	14	2	
12	Duration of hemodialysis				
	Days	0	1	0	2.05 P=5.99
	Months	0	6	2	
	Years	0	19	2	
13	Hours of hemodialysis				
	2 hours	0	9	1	0.05 P=5.99
	3 hours	0	8	1	
	4hours	0	9	2	
14	Sitting of hemodialysis				
	Once	0	16	2	0.18 P=5.99
	Twice	0	10	2	
	Thrice	0	0	0	
15	Fatigue experiencing hours				
	First hours	0	5	1	0.44 P=5.99
	Middle hours	0	18	2	
	Last hours	0	3	1	

16	If fatigue restricts your activities				
	Yes	0	21	2	1.45 P=3.84
	No	0	5	2	
17	Iron intake				
	Yes	0	20	3	0 P=5.99
	No	0	6	1	
18	Years of iron supplementary intake				
	1-3 years	0	19	4	1.54 P=5.99
	4-6 years	0	7	0	
19	Co morbid illness association				
	Yes	0	14	3	0.09 P=5.99
	No	0	12	1	
20	Blood transfusion during hemodialysis				
	Yes	0	12	3	1.14 P=5.99
	No	0	4	1	
21	Duration of blood transfusion				
	<5 times	0	8	4	1.87 P=5.99
	>5times	0	3	0	

Table 4.5 Reveled that there is association between pre test of experimental group of patient undergoing hemodialysis and their demographic variables in Iron intake ,Hours of hemodialysis, If they are following any exercises and other techniques ,Gender, age , qualification , religion , types of family , Marital status ,

occupation , number of hemodialysis , duration of hemodialysis , experiencing fatigue during hemodialysis , fatigue restricts activities , duration of iron intake , blood transfusion during hemodialysis and duration of blood transfusion in demographic variables. There is association between pre test of experimental group of patients undergoing hemodialysis and there demographic variables. Compared to calculate value table values are high so highly significant so alternative hypothesis is present .it was conformed using chi square test.

ASSOCIATION BETWEEN THE LEVEL OF FATIGUE SCORE AMONG POST TEST OF EXPERIMENTAL GROUP IN SELECTED DEMOGRAPHIC VARIABLES

Table 4.6 Association between Experimental post test fatigues on patients undergoing hemodialysis

S. No	Demographic variables	No fatigue	Fatigue	Extreme Fatigue	Chi square χ^2
1	Age				
	20-30years	3	2	0	3.58 P=7.81
	31-40years	8	2	0	
	41-50years	10	2	0	
	51-60years	1	2	0	
2	Gender				
	Male	14	5	0	0 P=3.84
	Female	8	3	0	
3	Qualification				
	Illiterate	1	1	0	0.47 P=5.99
	School level	16	5	0	
	College level	5	2	0	
4	Religion				
	Christian	7	0	0	5.6 P=5.99
	Hindu	13	5	0	
	Muslim	2	3	0	
5	Type of family				
	Nuclear family	20	8	0	0.7
	Joint family	2	0	0	

6	Marital status				
	Married	16	7	0	
	Unmarried	4	0	0	
	Divorced	1	1	0	2.08 P=7.81
	Widow	1	0	0	
7	Occupation				
	Sedentary worker	2	0	0	
	Moderate worker	17	5	0	3.05 P=5.99
	Heavy worker	3	3	0	
8	Types of Nutrition				
	vegetarian	4	2	0	
	Non vegetarian	18	6	0	0.78 P=7.81
	Semi vegetarian	0	0	0	
	Egg vegetarian	0	0	0	
9	Hb level before doing hemodialysis				
	0-5gm/dl	2	0	0	
	6-10gm/dl	16	6	0	1.07
	11-15gm/dl	4	3	0	P=7.81
	16-20gm/dl	0	0	0	
10	Previous using of exercise or other techniques				
	Yes	22	8	0	
	No	0	0	0	0 P=7.81

11	Number of hemodialysis				
	<10	0	1	0	8.49 P=7.81
	11to20	1	3	0	
	21to30	7	2	0	
	>30	14	2	0	
12	Duration of hemodialysis				
	Days	1	0	0	0.63 P=5.99
	Months	6	3	0	
	Years	15	5	0	
13	Hours of hemodialysis				
	2 hours	5	4	0	2.03 P=5.99
	3 hours	8	2	0	
	4 hours	9	2	0	
14	Sitting of hemodialysis				
	Once	11	3	0	6.94 P=5.99
	Twice	11	3	0	
	Thrice	0	2	0	
15	Fatigue experience during hemodialysis				
	First hours	4	2	0	2.93 P=5.99
	Middle hours	5	4	0	
	Last hours	13	2	0	
16	If fatigue restricts your activities				

	Yes	19	4	0	4.67 P=5.99
	No	3	5	0	
17	Iron supplementary intake				
	Yes	17	6	0	0.02 P=5.99
	No	5	2	0	
18	Duration of iron supplementary intake				
	1-3 years	13	7	0	0.81 P=5.99
	4-6 years	2	1	0	
19	Co morbid illness				
	Yes	12	5	0	0.09 P=5.99
	No	10	3	0	
20	Blood transfusion during hemodialysis				
	Yes	8	7	0	0.57 P=5.99
	No	14	1	0	
21	How many times you are administered blood transfusion				
	<5	5	7	0	3.66 P=5.99
	>5	2	1	0	

Table 4.6 Revealed that there is a association between the post test fatigue score perception of patients undergoing hemodialysis and their demographic variables like Gender (0), Previous using of other exercises/techniques (0), Iron supplementary intake (0.02, age (3.58) ,religion(5.6),qualification(0.47),religion (5.6),type of family (0.7),marital status(2.08), occupation(3.05),type of nutrition(0.78),Hb level before doing hemodialysis(1.07) , no of hemodialysis(8.49), duration of hemodialysis (0.63) ,hours of hemodialysis (2.03),sitting of hemodialysis (6.94),fatigue experience during hemodialysis (2.93),fatigue restricts activity (4.67),duration of iron supplementary

intake(0.81),co-morbid illness(0.09), blood transfusion during hemodialysis(0.57),duration time of blood transfusion during hemodialysis(3.66). Compared to calculate value table values are high so highly significant alternative hypothesis is present .it was confirmed by using chi square test.

CHAPTER - V

DISCUSSION

CHAPTER - V

DISCUSSION

This chapter deals with the discussion of the study with appropriate literature review, statistical analysis and findings of the study based on objectives of the study. The aim of the study to evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis admitted in dialysis unit in St.Mary's Hospital, Podanur.

A Quasi experimental 2 group equivalent pretest, post-test design was used to assess the effectiveness of foot reflexology on fatigue among patients with patients undergoing hemodialysis .Total 60 patients undergoing hemodialysis were selected from the dialysis unit.

The samples were selected by convenient sampling method. A pre-test was conducted with FAS (fatigue assessment score) for the patients undergoing hemodialysis and the patients with fatigue score more than 25 were selected for the study. The conceptual framework of this research was based on Modified Wiedenbach's Helping Art of Clinical Nursing Theory (1970).Descriptive statistics were used to analyze the data and to test the study hypothesis.

Discussion of socio demographic variables and clinical variable:

In experimental group, 5 (17%) samples belong to 20-30years, 10(33%) samples belong to 31 to 40years and 12 (40%) samples belong to 41-50 years.13(10%)were in 31 to 40 years. 41-50 years percentage frequency is high in experimental group ,20-30 years percentage frequency is low in experimental group in control group, 2 (7%) samples belong to 20-30 years to is low frequency percentage on control group, 13(43%) samples belong to 41 to 50 years is high frequency percentage in control group.

In experimental group, 19(63%) samples belong to male having high frequency, 11(37%) samples belong to female having low frequency in experimental group. In control group, 15(50%) samples belong to both male and female frequency got equal percentage.

In experimental group, 21(70%) samples belongs to School level having high percentage in frequency, 2(7%) samples belong to Illiterate having low percentage in frequency in experimental group. In control group, 15(50%) samples belong to School level having high percentage in frequency, and 5(7%) belongs to Illiterate having low percentage in frequency.

In experimental group, 18(60%) samples belongs to Hindu having high percentage in frequency, 5(17%) samples belong to Muslim having low percentage in frequency in experimental group. In control group, 21(70%) samples belong to Hindu having high percentage in frequency, and 2(7%) belongs to Christian having low percentage in frequency .

In experimental group, 28(90%) samples belongs to Nuclear having high percentage in frequency, 2(7%) samples belong to joint having low percentage in frequency in experimental group. In control group, 20(67%) samples belong to Nuclear having high percentage in frequency, and 10(33%) belongs to having low percentage in frequency.

In experimental group, 24(80%) samples belongs to Married having high percentage in frequency, 0(0%) samples belong to widow having low percentage in frequency in experimental group. In control group, 21(70%) samples belong to Married having high percentage in frequency, and 2(7%) belongs to Divorced having low percentage in frequency.

In experimental group, 19(64%) samples belongs to moderate worker having high percentage in frequency, 4(13%) samples belong to sedentary worker having low percentage in frequency in experimental group. In control group, 18(60%) samples belong to moderate worker having high percentage in frequency, and 4(13%) belongs to sedentary worker having low percentage in frequency.

In experimental group, 24(80%) samples belongs to Non vegetarian worker having high percentage in frequency, 6(20%) samples belong to sedentary worker having low percentage in frequency in experimental group. In control group, 25(84%) samples belong to non vegetarian having high percentage in frequency, and 1(3%) belongs to having low percentage in frequency.

In experimental group, 21(70%) samples belongs to 6-10gm/dl having high percentage in frequency, 0(0%) samples belong to 16-20gm/dl having low percentage in frequency in experimental group. In control group, 21(70%) samples belong to 6-10gm/dl having high percentage in frequency, and 0(0%) belongs to 16-20gm/dl having low percentage in frequency.

In experimental group, 15(50%) samples belongs to >30 times having high percentage in frequency, 1(3%) samples belong to <10 times having low percentage in frequency in experimental group. In control group, 18(60%) samples belong to 21to30 times having high percentage in frequency, and 0(0%) times belongs to 16-20gm/dl having low percentage in frequency.

In experimental group, 20(67%) samples belongs to middle hours of hemodialysis having high percentage in frequency, 4(13%) samples belong to last hours of fatigue on hemodialysis having low percentage in frequency in experimental group. In control group, 16(53%) samples belong to middle hours having high percentage in frequency, and 2(7%) times belongs to first hours having low percentage in frequency.

In experimental group, and control group 23(77%) samples belongs yes (in taking of iron supplementary)high percentage in frequency ,both experimental and control group are having 7(23%)lower percentage in frequency.

In experimental group 15(50%) are equal percentage in yes and no (blood transfusion), In control group, 19(63%) samples belong to yes and 11(37%)belongs to no(blood Transfusion) having percentage in frequency.

Findings based on the objectives

The first objective was to assess the level of fatigue among patients undergoing hemodialysis in experimental and control group

This was assessed by using the following tools, symptom of fatigue was assessed by modified FAS (fatigue assessment scale), and prepared demographic variables and clinical variables questionnaire. Patients reported there is a significant difference between experimental and there is no significant difference in control group.

In experimental group pre test 0 members having (0%) no fatigue in both group, 12 member having (40%) fatigue, 18 members having (60%) extreme fatigue .In experimental post test fatigue score and 22 members having (73%) No fatigue, 8 members having (27%) fatigue, 0 members having 0% extreme fatigue. compared to pre and post test in experimental group there are 40% fatigue that decreased into 13% fatigue level in fatigue group. In pre test 60% of extreme fatigue was decreased into 33% fatigue. so there is a significant difference between experimental pre test and post test.

In control group pre test that 0 members having (0%)No fatigue in both pretest and post test control group, in pretest4 members having (13%) Fatigue, 26 members having (87%) Extreme fatigue .In post test 2 members having (7%) fatigue, and 28 members having (93%) extreme fatigue. Compared to pre test and post test fatigue level was decreased 6% and extreme fatigue was increased 6% fatigue .so there is no significant difference between pre and post test of control group.

The present study is consistent with the study of **Jeong, IS.(2006)** conducted a true experimental study to know the effect of Self-Foot Reflexology on Peripheral Blood Circulation and Peripheral Neuropathy in patients with Diabetes Mellitus. The study of 80 subjects (40 control and 40 experimental). The reflexology was given for about 30 minutes each. Findings shown that there is a significantly greater decrease in symptoms of fatigue, fatigue, depression and physiologic measures of stress for reflexology treatment group than for those in the control group. These clinical findings support the use of reflexology in peripheral blood circulation and peripheral neuropathy patients. Data were analyzed by using descriptive statistics and t-test and pre-test (x =7.230) i.e. 72.3% on the average. Hence the study shows that chronic renal failure patient have fatigue.

Hence hypothesis H1 -There will be significant difference between pretest and post test levels of fatigue among patients undergoing hemodialysis in experimental group were accepted.

The second objective to evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis on experimental group.

The mean fatigue score among patients before foot reflexology and mean fatigue score after intervention in both experimental and control group. The control groups pre test mean (25.7) and post test mean was (34.4) the standard deviation of pre test (6.9) and post test standard deviation was (5.6).the t-test value of control group pre test and post test t (2.3) ,the table value is (3.5) compared to table value calculated value is less than table value so no significant between pretest and post test of control group. Difference is small and it is not statistically significant difference.

The Experimental pre test mean (30.3) and post test mean was (14.5) ,the standard deviation of pre test (4.3) and post test standard deviation was (8.6) and the t-test value of experimental pretest and post test value of standard deviation was (12.1) compared to table value (3.5) the value of t-test Value (12.1) is significant between pre and post test in experimental group. . Difference is large and it is statistically significant difference

After the completion of foot reflexology some patient felt the sensation to urinate and they are allowed, which Indicates that the body wastes are eliminated through voiding and then the patient feels comfortable.

The present study is consistent with the study of **Kim JH (2002)** who had conducted an experimental study in a University Hospital in Seoul Korea on 40 patients Findings of the study showed that the severity of fatigue decreased significantly in the experimental group as compared to the control group following foot massage (t=-3.37, P=0.002). The PR (pulse rate) in the experimental group was lower than that in the control group following foot massage (F=7.73,P=0.008). The SBP (systolic blood pressure) in the experimental group was lower than that in control group following foot massage (F=25.75, P=0.000).

One more study is consistent with the present study, **Wyatt G**,**et al, (2007)** conducted a quasi-experimental study in The College of Nursing, Michigan State University, USA to know the feasibility of a reflexology and guided imagery during dialysis for achieving high level of patient satisfaction . The subjects (n = 50) were selected and intervention were given for 5 times/week. Findings showed the higher level of satisfaction with 100% of patients preferred to continue the reflexology. It is planned to develop the complementary therapies and expand the program in offering

services to dialysis patients as well as hospice care for End Stage Renal Disease patients. Hence hypothesis - H1 :The post test level of fatigue will be significantly reduced than the 87 pre-test level in experimental group among patients with chronic renal failure admitted in nephrology ward at Government Rajaji Hospital, Madurai,. Is proved.

In this study in Experiment group patients in posttest, 33.3 %(10) of the patients are having mild fatigue, 66.7 %(20) of them are having moderate fatigue and none of them are having severe fatigue. In control group patients in posttest, none of the patients are having poor fatigue, 40.0% (12) of them are having moderate fatigue and 60.0 %(18) of them are having severe fatigue,. Hence the study shows that the post test level of fatigue in experimental group is statistically high when compared to the level of fatigue in control group.

The present study is consistent with **Yang, JH.**(**2005**) conducted a quasi-experimental study using a non-equivalent pre-post design in Korea to know the effects of foot reflexology on nausea, vomiting and fatigue in kidney disease patients undergoing hemodialysis .The subjects consisted of 34 patients with 18 in the experimental group and 16 in control group. For the experimental group, foot reflexology was given for about 40 minutes. Findings shown that there is a statistically significant decrease in nausea, and vomiting in the experimental group when compared to the control group over two different times. In addition, there was a statistically significant decrease in fatigue in the experimental group when compared to the control group over two different times. Hence, it is concluded that the Foot reflexology was Effective on nausea, vomiting and fatigue in kidney disease patients undergoing hemodialysis.

Hence the hypothesis - H2: The post test level of fatigue will be significantly reduced in experimental group than the post test level of fatigue in control group is accepted. - There will be significant difference between post test level of fatigue on control group and experimental group is accepted.

The third objective is to find out the association between selected demographic Variables and fatigue.

In this study that there is association between pre test of experimental group of patient undergoing hemodialysis and their demographic variables in Iron intake ,Hours of hemodialysis, If they are following any exercises and other techniques ,Gender, age , qualification , religion , types of family , Marital status , occupation , number of hemodialysis , duration of hemodialysis , experiencing fatigue, during hemodialysis , fatigue restricts activities , duration of iron intake , blood transfusion during hemodialysis and duration of blood transfusion in demographic variables. There is association between pre test of experimental group of patients undergoing hemodialysis and there demographic variables. Compared to calculate value table values are high so highly significant so alternative hypothesis is present .it was conformed using chi square test. There is a association between the post test fatigue score perception of patients undergoing hemodialysis and their demographic variables like Gender (0), Previous using of other exercises/techniques (0), Iron supplementary intake (0.02, age (3.58) ,religion(5.6),qualification(0.47),religion (5.6),type of family (0.7),marital status(2.08), occupation(3.05),type of nutrition(0.78),Hb level before doing hemodialysis(1.07) , no of hemodialysis(8.49), duration of hemodialysis (0.63) ,hours of hemodialysis (2.03),sitting of hemodialysis (6.94),fatigue experience during hemodialysis (2.93),fatigue restricts activity (4.67),duration of iron supplementary intake(0.81),co-morbid illness(0.09) , blood transfusion during hemodialysis(0.57),duration time of blood transfusion during hemodialysis(3.66). Compared to calculate value table values are high so highly significant alternative hypothesis is present .it was confirmed by using chi square test.

The present study is consistent with the study of **Dr. Shweta Choudhary PhD.** (**2006**). conducted a true experimental study in All-India Institute of Medical Science, New Delhi, India on hemodialysis in reducing, pain fatigue and anxiety by selecting sixty patients of ESRD who were randomly assigned to a reflexology group and control group .Intervention involved the administration of standard drugs such as NSAID (Diclofenac and Opioids (Pethidine and Fentanyl) to both experimental and control groups. In addition, the experimental group received Fifteen to twenty minutes of foot reflexology. This study shows a decrease of the quantity of pain killers in Group I (foot reflexology) to less than 50% in comparison with Group II (control).

Another study is consistent with the present study, **Kevin Kunz. (2012)** conducted a non-equivalent control group quasi-experimental design to know the effect of foot reflexology on vital signs, general fatigue, foot fatigue, and mood and blood glucose levels in noninsulin dependent patients. 18 patients (40-70 years) were assigned to the experimental group and 24 patients to the control group. Experimental groups received foot reflex massage for 30minutes three times/week and Control groups did not received foot reflex massage. Findings shown that there is a significant difference in the pulse rate, general fatigue and foot reflexology can improve pulse rate, general and foot fatigue and mood status in diabetic patients, but extensive studies are needed to show the effects of decreasing the blood sugar levels.

Hence H3; There will be significant association between the level of fatigue among patients in any undergoing hemodialysis in selected demographic variables in both experimental and control group were accepted .

CHAPTER - VI

SUMMARY, CONCLUSION & RECOMMENDATION

CHAPTER – VI
SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter represents summary, findings, and conclusion. It also clarifies the Limitations of the study, the implications for different areas like nursing education, administration, nursing practice, nursing research and recommendations which create a base for evidence based practice.

Summary

The study was conducted in St.Mary's Hospital, Podanur. The populations of the study were selected from Hemodialysis unit. Convenient sampling technique was used to select the patient. There were 60 patients selected for the study with the predetermined criteria for inclusion. The present study was aimed at evaluating the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis.

Objectives of the study were

The aim of the study is to evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis.

- To assess the level of fatigue among patients undergoing hemodialysis in experimental and control group.
- To evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis on experimental group.
- To find out the association between selected demographic Variables and fatigue.

The following hypotheses were tested at 0.05% level

H_1 - There will be significant difference between pretest and post test level of fatigue among patients undergoing hemodialysis in experimental group..

H_2- There will be significant difference between post test level of fatigue on control group and experimental group.

H_3: There will be significant association between the level of fatigue among patients in any undergoing hemodialysis in selected demographic variables in both experimental and control group.

Assumptions:

- The fatigue level experienced by hemodialysis differs from patients to Patients.
- The non pharmacological intervention is one of the measures to reduce fatigue among hemodialysis patients.
- 3. Foot reflexology is a good technique in diverting fatigue perception.

The conceptual framework for the present study was adopted from Wiedenbach's Helping Art of Clinical Nursing Theory (1970). This theory directs action towards the explicit goal. The focus of the theory is evaluation of the individual to various stimuli both from the environment and from within the individual. A true experimental study was used in the study. The independent variable was foot reflexology and dependent variable was fatigue. This study was conducted at the St .Mary's Hospital, Podanur .The accessible chronic renal failure patients admitted in hemodialysis unit in St.Mary's Hospital Podanur.

The study subjects were selected using the convenient sampling technique and were assigned to experiment group and control group (30 in each group). The data collection tools used were

- Socio demographic variable,
- Clinical Variable
- FAS(fatigue assessment scale).

The content validity of the tool was established with the help of 5 experts. Pilot study was done among twelve patients undergoing hemodialysis in the month of July 2018 after obtaining permission from the concerned authority. The setting was dialysis unit in St.Mary's Hospital, Coimbatore. Data was obtained from all the samples and pre-test was conducted. Foot Reflexology was done for 10 minutes on both feet, once daily for 5 consecutive days for all the samples in the experimental group. Post test was conducted 30 min after pre-test in all the samples. Pilot study

confirmed the adequacy of the tool and technique. Hence there were no modifications required in the main study. The tool was found to be satisfactory in terms of simplicity and clarity based on the findings of the pilot study. It was calculated that it was feasible and practicable to conduct the main study and criterion measures were found to be effective.

The main study was conducted 4weeks. The data obtained were analyzed using both descriptive and inferential statistics. The findings of the study showed that there was a very high significant difference between the post test score of fatigue in foot reflexology treated group and non treated group. The significant difference of fatigue level between the experimental and control group. (t = 12.1 which is very high).

In experimental group, 5 (17%) samples belong to 20-30years,10(33%) samples belong to 31 to 40years and 12 (40%) samples belong to 41-50 years.13(10%)were in 31 to 40 years. 41-50 years percentage frequency is high in experimental group ,20-30 years percentage frequency is low in experimental group in control group, 2 (7%) samples belong to 20-30 years to is low frequency percentage on control group, 13(43%) samples belong to 41 to 50 years is high frequency percentage in control group.

In experimental group, 19(63%) samples belong to male having high frequency, 11(37%) samples belong to female having low frequency in experimental group. In control group, 15(50%) samples belong to both male and female frequency got equal percentage.

In experimental group, 21(70%) samples belongs to School level having high percentage in frequency, 2(7%) samples belong to Illiterate having low percentage in frequency in experimental group. In control group, 15(50%) samples belong to School level having high percentage in frequency, and 5(7%) belongs to Illiterate having low percentage in frequency.

In experimental group, 18(60%) samples belongs to Hindu having high percentage in frequency, 5(17%) samples belong to Muslim having low percentage in frequency in experimental group. In control group, 21(70%) samples belong to Hindu having high percentage in frequency, and 2(7%) belongs to Christian having low percentage in frequency .

In experimental group, 28(90%) samples belongs to Nuclear having high percentage in frequency, 2(7%) samples belong to joint having low percentage in frequency in experimental group. In control group, 20(67%) samples belong to Nuclear having high percentage in frequency, and 10(33%) belongs to having low percentage in frequency.

In experimental group, 24(80%) samples belongs to Married having high percentage in frequency, 0(0%) samples belong to widow having low percentage in frequency in experimental group. In control group, 21(70%) samples belong to Married having high percentage in frequency, and 2(7%) belongs to Divorced having low percentage in frequency.

In experimental group, 19(64%) samples belongs to moderate worker having high percentage in frequency, 4(13%) samples belong to sedentary worker having low percentage in frequency in experimental group. In control group, 18(60%) samples belong to moderate worker having high percentage in frequency, and 4(13%) belongs to sedentary worker having low percentage in frequency.

In experimental group, 24(80%) samples belongs to Non vegetarian worker having high percentage in frequency, 6(20%) samples belong to sedentary worker having low percentage in frequency in experimental group. In control group, 25(84%) samples belong to non vegetarian having high percentage in frequency, and 1(3%) belongs to having low percentage in frequency.

In experimental group, 21(70%) samples belongs to 6-10gm/dl having high percentage in frequency, 0(0%) samples belong to 16-20gm/dl having low percentage in frequency in experimental group. In control group, 21(70%) samples belong to 6-10gm/dl having high percentage in frequency, and 0(0%) belongs to 16-20gm/dl having low percentage in frequency.

In experimental group, 15(50%) samples belongs to >30 times having high percentage in frequency, 1(3%) samples belong to <10 times having low percentage in frequency in experimental group. In control group, 18(60%) samples belong to 21to30 times having high percentage in frequency, and 0(0%) times belongs to 16-20gm/dl having low percentage in frequency.

In experimental group, 20(67%) samples belongs to middle hours of hemodialysis having high percentage in frequency, 4(13%) samples belong to last hours of fatigue on hemodialysis having low percentage in frequency in experimental group. In control group, 16(53%) samples belong to middle hours having high percentage in frequency, and 2(7%) times belongs to first hours having low percentage in frequency.

In experimental group, and control group 23(77%) samples belongs yes (in taking of iron supplementary) high percentage in frequency, both experimental and control group are having 7(23%) lower percentage in frequency.

In experimental group 15(50%) are equal percentage in yes and no (blood transfusion), In control group, 19(63%) samples belong to yes and 11(37%) belongs to no (blood Transfusion) having percentage in frequency.

This was assessed by using the following tools, symptom of fatigue was assessed by modified FAS (fatigue assessment scale), and prepared demographic variables and clinical variables questionnaire. Patients reported there is a significant difference between experimental and there is no significant difference in control group.

In experimental group pre test 0 members having (0%) no fatigue in both group, 12 member having (40%) fatigue, 18 members having (60%) extreme fatigue .In experimental post test fatigue score and 22 members having (73%) No fatigue, 8 members having (27%) fatigue, 0 members having 0% extreme fatigue. compared to pre and post test in experimental group there are 40% fatigue that decreased into 13% fatigue level in fatigue group. In pre test 60% of extreme fatigue was decreased into 33% fatigue. so there is a significant difference between experimental pre test and post test.

In control group pre test that 0 members having (0%)No fatigue in both pretest and post test control group, in pretest4 members having (13%) Fatigue, 26 members having (87%) Extreme fatigue .In post test 2 members having (7%) fatigue, and 28 members having (93%) extreme fatigue. Compared to pre test and post test fatigue level was decreased 6% and extreme fatigue was increased 6% fatigue .so there is no significant difference between pre and post test of control group.

The mean fatigue score among patients before foot reflexology and mean fatigue score after intervention in both experimental and control group. The control groups pre test mean (25.7) and post test mean was (34.4) the standard deviation of pre test (6.9) and post test standard deviation was (5.6).the t-test value of control group pre test and post test t (2.3) ,the table value is (3.5) compared to table value calculated value is less than table value so no significant between pretest and post test of control group. Difference is small and it is not statistically significant difference.

The Experimental pre test mean (30.3) and post test mean was (14.5), the standard deviation of pre test (4.3) and post test standard deviation was (8.6) and the t-test value of experimental pretest and post test value of standard deviation was (12.1) compared to table value (3.5) the value of t-test Value (12.1) is significant between pre and post test in experimental group. . Difference is large and it is statistically significant difference.

In this study that there is association between pre test of experimental group of patient undergoing hemodialysis and their demographic variables in Iron intake ,Hours of hemodialysis, If they are following any exercises and other techniques ,Gender, age , qualification , religion , types of family , Marital status , occupation , number of hemodialysis , duration of hemodialysis , experiencing fatigue, during hemodialysis , fatigue restricts activities , duration of iron intake , blood transfusion during hemodialysis and duration of blood transfusion in demographic variables. There is association between pre test of experimental group of patients undergoing hemodialysis and there demographic variables. Compared to calculate value table values are high so highly significant so alternative hypothesis is present .it was conformed using chi square test. There is a association between the post test fatigue score perception of patients undergoing hemodialysis and their demographic variables like Gender (0), Previous using of other exercises/techniques (0), Iron supplementary intake (0.02, age (3.58) ,religion(5.6),qualification(0.47),religion (5.6),type of family (0.7),marital status(2.08), occupation(3.05),type of nutrition(0.78),Hb level before doing hemodialysis(1.07) , no of hemodialysis(8.49), duration of hemodialysis (0.63) ,hours of hemodialysis (2.03),sitting of hemodialysis (6.94),fatigue experience during hemodialysis (2.93),fatigue restricts activity (4.67),duration of iron supplementary

intake(0.81),co-morbid illness(0.09), blood transfusion during hemodialysis(0.57), duration time of blood transfusion during hemodialysis(3.66). Compared to calculate value table values are high so highly significant alternative hypothesis is present .it was confirmed by using chi square test.

Conclusion

The statistical evidence proved that the foot reflexology had reduced the level of fatigue among patients undergoing hemodialysis who were admitted in hemodialysis unit. when compared with the control group. Hence the researcher concluded that foot reflexology is effective intervention to reduce the level of fatigue among patients undergoing hemodialysis in other settings.

Implications

The findings of the study have implications in different aspects of nursing profession such as nursing practice, nursing education, nursing research and nursing administration.

Nursing Practice

- Nurses play a vital role in prevention of non-communicable diseases (NCD). The incidence and prevalence of fatigue and its complications are increasing every year. Thus, there is an urgent need to concentrate on the measures to reduce the disease burden.
- Foot Reflexology can be incorporated in the daily nursing routine as it is a proven technique to reduce the extreme fatigue.
- The nursing personnel should be responsible to create awareness in the general public through mass media campaign regarding the importance of foot reflexology as an adjuvant therapy for fatigue and prevent its complications.
- The findings of the study help to eliminate the unwanted use of costly medication and provision of care with the limited cost especially for fatigue.
- It encourages the nursing personal to learn reflexology or any alternative therapy, to be certified to practice the same in clinical settings.

- ❖ Foot reflexology can be taught to family care givers of chronic renal failure patients; this may provide them with the means of providing tangible evidence of care and support of the dependent renal failure patients.
- ❖ It takes only brief time, and it requires only minimal supplies.
- ❖ Moreover, it is inexpensive and cost effective intervention.

Nursing Education

- ❖ As Nurse Educators, we must strengthen the non-pharmacological methods of managing fatigue and should be incorporated in nursing subjects.
- ❖ Nursing education should emphasize on preparing nurses to various treatment modalities and update their knowledge in all fields including complementary and alternative medicine.
- ❖ This study will enhance the nursing students to acquire knowledge about foot reflexology and its importance in maintaining and reduce fatigue.
- ❖ Student nurses can be trained in practicing foot reflexology so that they can inculcate it in nursing care activities.
- ❖ There is an extensive and compelling body of research that proves the efficacy of therapeutic reflexology in promoting general physical well-being, and that it is of particular benefit in renal disorder patients as evidenced by this study finding. Hence, this has to be included in the nursing curriculum.
- ❖ The nursing students must be taught the simple techniques of reflexology to enhance their skill and practice and benefit the needy patients like chronic renal failure patients.
- ❖ Nursing students should be trained in practicing foot reflexology.
- ❖ The study alert the nurse educator to include the reflexology and alternative medicine in nursing education process and also it encourage the inclusion of
- ❖ Practical session of reflex therapy in the field of nursing.

Nursing Research

- ❖ This study can be a baseline for future studies to build upon and motivate the investigators to conduct further studies and provides scope for future research and utilization of findings.

- There is a need for extensive research in hypertension and its non pharmacological measures such as reiki, laughter therapy, yoga and other relaxation techniques.
- As nursing profession focuses on evidence based practice, the nursing personnel should involve in research activities to come out with successful remedies to reduce the burden of various diseases.
- Foot reflex therapy can be studied more scientifically and used for specific nursing intervention.
- Further studies can be encouraged to assess the extent to which foot reflexology can control fatigue when the intervention is given by family members of chronic renal failure patients.

Nursing Administration

- Nurse administrators should organize various staff development programs to educate the nurses on importance of foot reflexology as an adjunct to manage fatigue.
- Nurse administrators should motivate the nurses to gain knowledge regarding various alternative therapies for fatigue and implement them while caring the clients.
- In the recent years, there has been an increased acceptance of the complementary therapies in the health care system. Therapeutic reflexology is one among the complementary therapy which thrives as a therapy over the centuries.
- It facilitates the therapeutic relationships between nurse and patient through the development of trust and enhanced communication.
- Since this study supports the foot reflexology, the nursing administrator must enforce the nurses to practice foot reflexology for the renal failure patients in the clinical settings.
- It provided an indication for the administrator that they can arrange for many in-service program for their staff and they can also undergo the training program for foot reflexology

Recommendations

The study recommends the following for further research

- The study can be conducted with large samples to generalize the findings
- Comparative studies can be conducted between various alternative modalities like comparison of foot reflexology with reiki.
- The study can be conducted in different clinical settings.
- Comparative study can be undertaken between the genders.
- The same study can be conducted in community settings where the family members can be taught about foot reflexology.
- Similar study can be conducted with longer duration of intervention.
- The study can be replicated on larger sample.
- This study can be conducted on other areas of diseases like orthopedic problems, cardiac problems, and other medical area.
- This study can be conducted by using different research design like true experimental study.
- A comparative study can be conducted with different group of population and different mode of non pharmacological therapy.
- Similar study can be conducted with increasing the duration of intervention, and along with other complementary therapy

REFERENCES

REFERENCES

Books

1. Abdellah,F. (1989). Levine E. Better Patient Care- Through Nursing Research. New York: Macmillan Publishing Company.
2. Alan pearson, (2005). Nursing Models for practice. (3rded.) London: Elsevier publication.
3. Barbara, C. Long Phipps, (1993). Medical and Surgical nursing. (3rded). USA: Alison millers.
4. Basavanthappa,B.T. (2003). Medical Surgical Nursing. New Delhi: Jaypee Medical publication.
5. Bavanthappa,B.T. (2007). Nursing Research. (2nded.). New Delhi: Jaypee Medical publication.
6. Barbara,K.Timby, Nancy, E.Smith, (2006). Introductory Medical Surgical Nursing.(9th ed.). Philadelphia: Lippincott- Williams.
7. Bhashkara Rao, T. (2004). Methods of Biostatistics. Hyderabad: Paras Medical Publishers.
8. Black,J.M.Jacobs,E.M. Sorensen,L. (2003). Medical Surgical Nursing. A Psychologic Approach. (6thed.). Philadelphia: W. B. Saunders Company.
9. Brunner and Suddarths, (2009). Textbook of medical and surgical Nursing.(11thed.). New Delhi: Wolters Kluwer (India) Pvt, Ltd.
10. Chris Brooker, Massie Nicol. (2003). The practice of caring (1sted.) USA: Mosby Elsevier ltd.
11. Davidson, (2002). Principles and practice of Medicine. (20thed). Sydney: Elsevier(P) ltd.
12. Denise,F.Polit, Cheryl Fatano Beek, (2003). Nursing Research Principles andMethod. (7thed). Philadelphia: Lippincott William publication.
13. Donna, D. Ignatavicius, (2006).Medical Surgical Nursing. (5th ed.). Ohio: Elsevier Saunders ltd.
14. Dugas, (1983). Introduction to Patient care- A Comprehensive approach toNursing. (4thed). New Delhi: Saunders company.
15. Geri Lobiondo wood and Judith Haber, (2006). Nursing Research. (6thed.). New York: Mosby publication.
16. Harrison's (2005).Principles of Internal Medicine. (16th ed.). USA: McGraw Hill.Medical publishing Division.
17. Jay, H.Stein, (1998). Complementary Medicine. (5thed.). USA: Mosby.INC.

18. Joyce M.Black, Jane Hokanson Hawks, Annabelle M.Keene. (2001). Medical surgical Nursing and clinical management for positive outcomes. (6thed.). Philadelphia**:** W.B.Saunders company.

19. Judith, A. Schilling Mc cann, (2003). Critical Care Nursing. USA: Lippincott Williams Wilkins Wolters Company.

20. Kumar and Clark, (2002). Clinical Medicine.(5thed).W.B. U.K.Saunders Pvt Ltd.

21. Lois White, Gena Duncan, (2002). Medical and surgical Nursing- An integrated Approach. (2nded). USA: Delmar Corporation.

22. Mahajan, B.K. (1970). Methods in biostatistics. (6thed.). New Delhi: Kothari Book Depot.

23. Panda, U.N. (1995). Fatigue-Clinical aspects of management. (1sted.). New Delhi: Jaypee Brothers.

24. Sandra, M. Nittina, (2010). Manual of Nursing Practice. (9thed.). New Delhi: Wolters Kluwer (India) Pvt Ltd.

25. Susaa,C.dewit, (1998). Essentials of medical surgical nursing (4thed). Philadelphia: W.b.saunders Company.

Journals

1. Azadeh Kamali et.al, (2016). Effect of touch therapy in reducing pain among the elderly, Nightingale Nursing Times. (11).82-90.

2. Barbaa ,W., Laurine, G., Angela L. (2016). A nursing intervention to modify the distressing symptoms of pain, fatigue and nausea in patients hospitalised with cancer. Cancer Nursing . (3).45-49.

3. Barrie, R. (2015). Massage therapy for symptom control outcome study at a major kidney center. Journal of symptom management**,** (3).34-40.

4. Beverly Pierce, (2015). A non-pharmacologic adjunct for pain, fatigue and anxiety management. The nurse practitioner. (2).30-40.

5. Boone, T. et al., (2014). Effects of a 10 minute back rub on cardiovascular responses in health subjects. American journal of Chinese medicine. (3).45-54.

6. Caroline Stevenson, (2013). The psycho physiological effects of aromatherapy massage following cardiac surgery. Complementary Therapies in Medicine, (1).67-70.

7. Hugh D. (2012). Studies to determine the effect of ten minutes foot massage on two phases of postoperative coronary artery bypass graft patients of selected variables. Asian Journal of Cardiovascular Nursing, (2).34-45.

8. Cox,c (2012).Immediate effect of a five minutes foot massage on patients "clinical care**.** Journal of Intensive Critical Care Nursing, (2).

9. Edell Gustafsson UM. (2011). Fragmented sleep and tiredness in males and females one after percutaneous transluminal coronary angioplasty. (PTCA). Journal of Advance Nursing, (2).25-32.

10. Elsa Nasiri, (2011). the effect of Acupressure on Quality of sleep in Haemodialysis patients. Journal of medical sciences, (3).56-64.

11. Ferrel T, Glick OJ. (2011). the use of therapeutic massage as a nursing intervention to modify anxiety and the perception of cancer pain. Cancer nursing. (2). 78-83.

12. Grealish L. (2010). Foot massage a nursing intervention to modifying the distressing symptoms of pain and nausea in patients hospitalized with cancer. Cancer Nursing,(3).56-65. 95

13. Renal Transplantation Journal of Advance Nursing. (2) .46-54.

14. Hsiao-Lan. (2009) . Foot and hand massage as an intervention for postoperative pain . Pain Management Nursing, (2).67-75.

15. Jan Williamson. (2008). Randomized controlled trial of reflexology for menopausal symptoms. An International Journal of Obstetrics and Gynaecology,(9).24-35.

16. Janelle Yorke. (2007). patients' perceptions of fatigue after kidney transplantation surgery in an australian critical care unit . The Journal of Acute and Critical Care, (1).34-40.

17. Jirayingmongkol et al., (2007). The effect of foot massage with biofeedback; a pilot study to enhance health promotion. Journal of Nursing and Health sciences, (3).20-28.

18. Kim, JH., Park ,KS. (2007). The effect of foot massage on fatigue in patients with ESRD. Korean journal of Adult Nursing, (1).67-72.

19. Knox, H. (2006). Fatigue assessment instruments for use in the emergency department. Emergency Medicine Clinics of North America, (2).56-60. 96

20. Nahid Aghabati. Eesa MOhammadi. (2006). The effect of Therapeutic touch on pain and fatigue in Chronic Renal Failure patients undergoing dialysis. Journal of Alternative And Complementary Nursing, (8).33-36

Net references

1. http:// www.health.allrefer.com

2. http:// www.nursingtimesnet

3. http:// www.sciencedirect.com

4. http:// www.wikipedia.com/footreflexology

5. http:// www.pubmed/fatiguearticles

6. http:// www.clincaltrials.gov

7. http:// www.reflexology-research.com

8. http:// www.ncbi.nlm.nih.gov/pubmed/15778569.

9. http:// www.dk.com/reflexology

10. http:// www.currentnursing.com

11. http:// www.medscape.com

12. http:// www.ncbi.nlm.nih.gov

13. http:// www.ccn.aacnourals.org

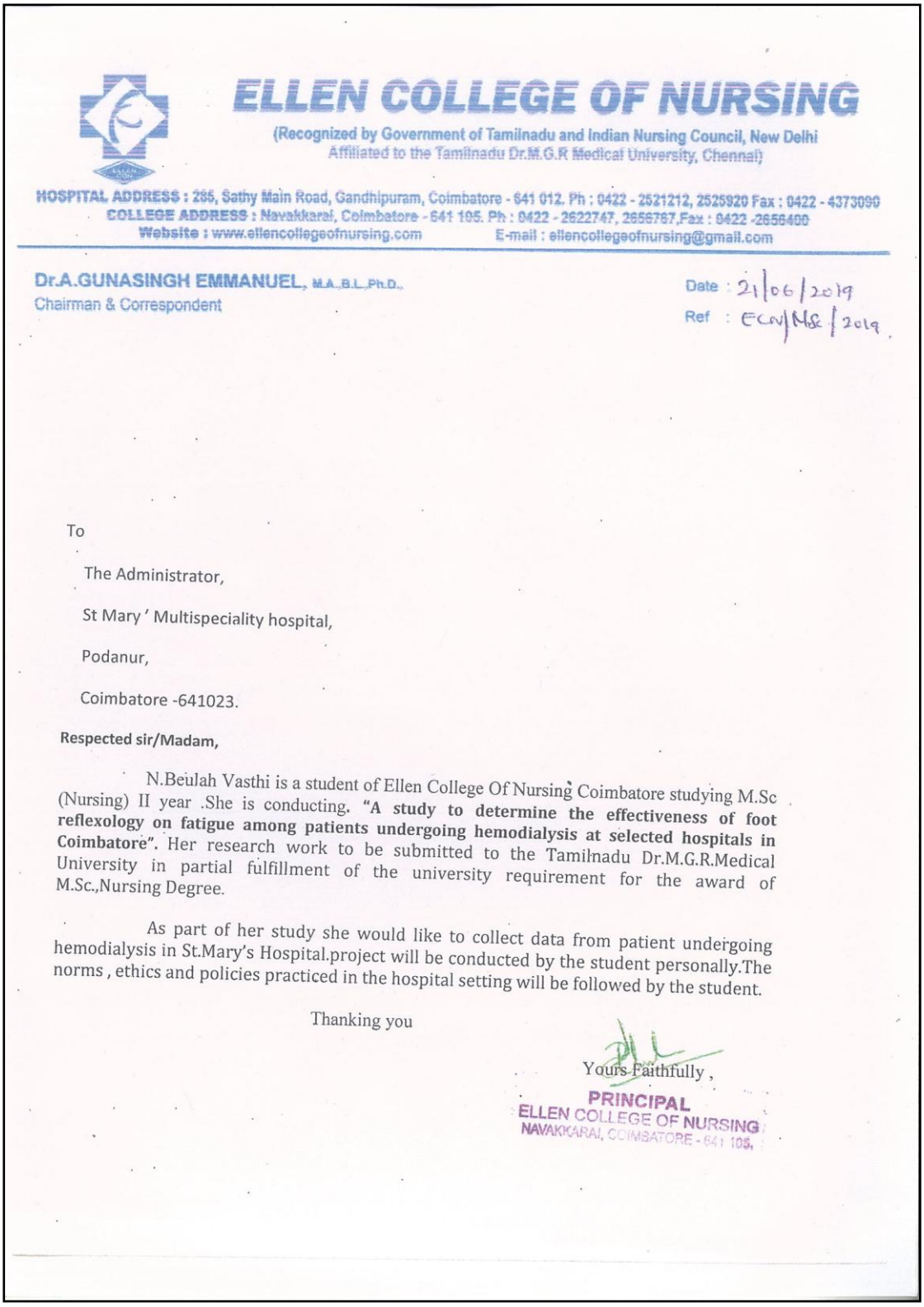
14. http:// www.thecochranelib+rary.com.

15. http:// www.therapytimes.com/content

APPENDICES

APPENDIX – A

LETTER SEEKING PERMISSION TO CONDUCTING THE STUDY



ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

HOSPITAL ADDRESS : 285, Sathy Main Road, Gandhipuram, Coimbatore - 641 012. Ph : 0422 - 2521212, 2525920 Fax : 0422 - 4373090
COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com E-mail : ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date : 21/06/2019
Ref : ECoN/M&/2019

To

The Administrator,

St Mary ' Multispeciality hospital,

Podanur,

Coimbatore -641023.

Respected sir/Madam,

N.Beulah Vasthi is a student of Ellen College Of Nursing Coimbatore studying M.Sc (Nursing) II year .She is conducting. **"A study to determine the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis at selected hospitals in Coimbatore".** Her research work to be submitted to the Tamilnadu Dr.M.G.R.Medical University in partial fulfillment of the university requirement for the award of M.Sc.,Nursing Degree.

As part of her study she would like to collect data from patient undergoing hemodialysis in St.Mary's Hospital.project will be conducted by the student personally.The norms , ethics and policies practiced in the hospital setting will be followed by the student.

Thanking you

Yours Faithfully ,

PRINCIPAL
ELLEN COLLEGE OF NURSING
NAVAKKARAI, COIMBATORE - 641 105.

APPENDIX – B

LETTER SEEKING AND GRANDING PERMISSION FOR CONDUCTING THE STUDY

ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

HOSPITAL ADDRESS : 285, Sathy Main Road, Gandhipuram, Coimbatore - 641 012. Ph : 0422 - 2521212, 2525920 Fax : 0422 - 4373090
COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com E-mail : ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date : 21/06/2019
Ref : ECON/MSc/2019.

To

The Administrator,

St Mary ' Multispeciality hospital,

Podanur,

Coimbatore -641023.

Respected sir/Madam,

N.Beulah Vasthi is a student of Ellen College Of Nursing Coimbatore studying M.Sc (Nursing) II year .She is conducting. **"A study to determine the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis at selected hospitals in Coimbatore".** Her research work to be submitted to the Tamilnadu Dr.M.G.R.Medical University in partial fulfillment of the university requirement for the award of M.Sc.,Nursing Degree.

As part of her study she would like to collect data from patient undergoing hemodialysis in St.Mary's Hospital.project will be conducted by the student personally.The norms , ethics and policies practiced in the hospital setting will be followed by the student.

Thanking you

29/6/19

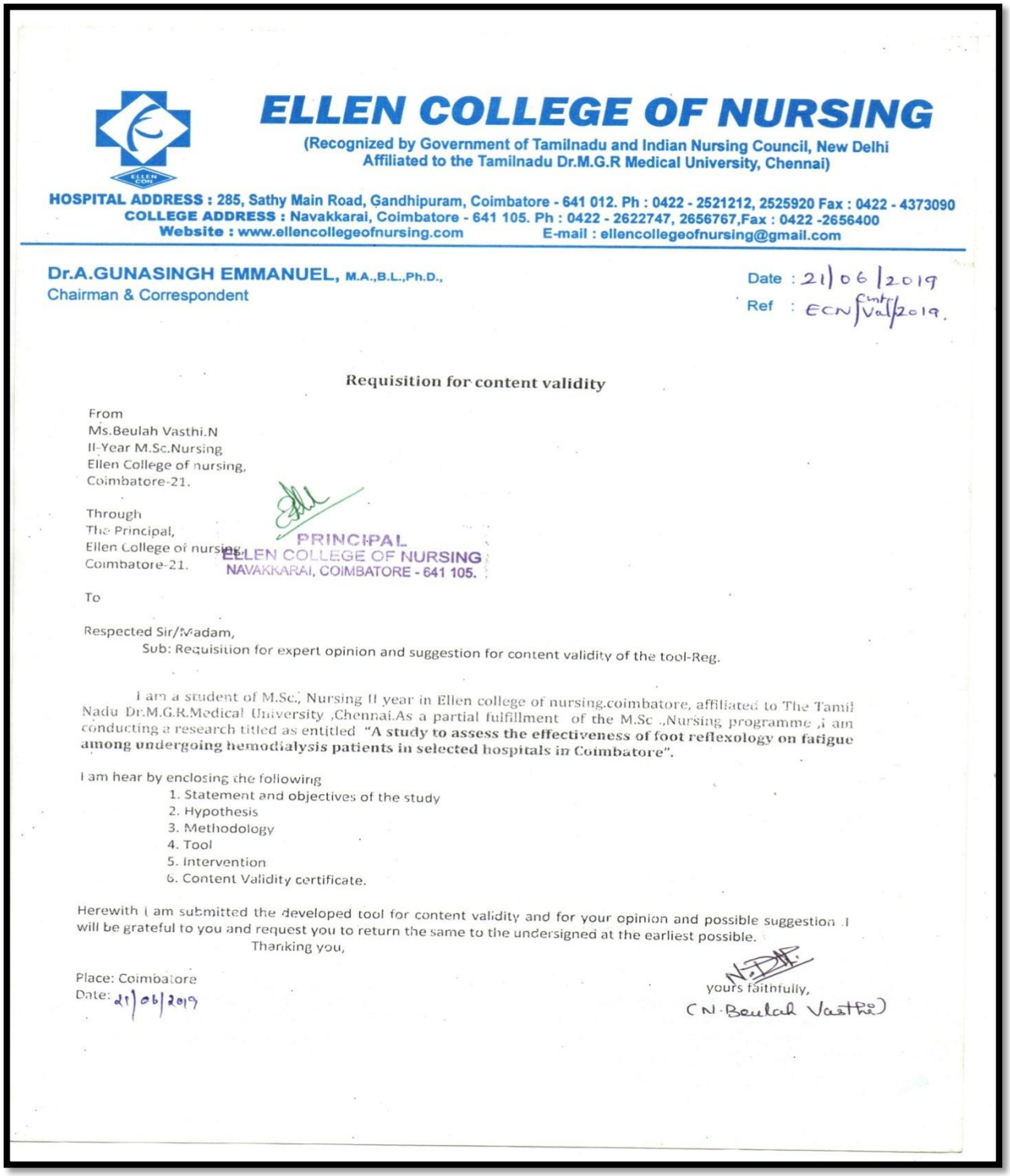
Dr. Sr. RANI AGNES, M.Sc.(N), Ph.D.(N)
Reg. No: 04652
MEDICAL SUPERINTENDENT
St. MARY'S HOSPITAL
PODANUR, COIMBATORE - 641 023.

Yours Faithfully ,

PRINCIPAL
ELLEN COLLEGE OF NURSING
NAVAKKARAI, COIMBATORE - 641 105.

APPENDIX-C

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY



ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

HOSPITAL ADDRESS : 285, Sathy Main Road, Gandhipuram, Coimbatore - 641 012. Ph : 0422 - 2521212, 2525920 Fax : 0422 - 4373090
COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com E-mail : ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date : 21/06/2019
Ref : ECN/Cont.Val/2019.

Requisition for content validity

From
Ms.Beulah Vasthi.N
II-Year M.Sc.Nursing
Ellen College of nursing,
Coimbatore-21.

Through
The Principal,
Ellen College of nursing,
Coimbatore-21.

PRINCIPAL
ELLEN COLLEGE OF NURSING
NAVAKKARAI, COIMBATORE - 641 105.

To

Respected Sir/Madam,

Sub: Requisition for expert opinion and suggestion for content validity of the tool-Reg.

I am a student of M.Sc., Nursing II year in Ellen college of nursing.coimbatore, affiliated to The Tamil Nadu Dr.M.G.R.Medical University ,Chennai.As a partial fulfillment of the M.Sc .,Nursing programme ,I am conducting a research titled as entitled **"A study to assess the effectiveness of foot reflexology on fatigue among undergoing hemodialysis patients in selected hospitals in Coimbatore".**

I am hear by enclosing the following

1. Statement and objectives of the study
2. Hypothesis
3. Methodology
4. Tool
5. Intervention
6. Content Validity certificate.

Herewith I am submitted the developed tool for content validity and for your opinion and possible suggestion .I will be grateful to you and request you to return the same to the undersigned at the earliest possible.

Thanking you,

Place: Coimbatore
Date: 21/06/2019

yours faithfully,
(N.Beulah Vasthi)

APPENDIX-D

CERTIFICATE OF CONTENT VALIDITY

ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

HOSPITAL ADDRESS : 285, Sathy Main Road, Gandhipuram, Coimbatore - 641 012. Ph : 0422 - 2521212, 2525920 Fax : 0422 - 4373090
COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com E-mail : ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date :
Ref :

CERTIFICATION OF VALIDATION

This is to certify that the tool submitted by N. Beulah Vasthi M.Sc Nursing II-year student .Ellen College of Nursing, Coimbatore, Tamilnadu (affiliated to the Tamil Nadu Dr.M.G.R.Medical University, Chennai) is validated by undersigned and can proceed with this tool and conduct the dissertation entitled **A study to assess the effectiveness of foot reflexology on fatigue among undergoing hemodialysis patients at selected hospitals, in Coimbatore.**

Place: signature

Date; Name and Designation

APPENDIX-D1

CERTIFICATE OF CONTENT VALIDATION

ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

HOSPITAL ADDRESS : 285, Sathy Main Road, Gandhipuram, Coimbatore - 641 012. Ph : 0422 - 2521212, 2525920 Fax : 0422 - 4373090
COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com **E-mail :** ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date : 28/6/19
Ref : Nightingale College.

CERTIFICATION OF VALIDATION

This is to certify that the tool submitted by N. Beulah Vasthi M.Sc Nursing II-year student .Ellen College of Nursing, Coimbatore, Tamilnadu (affiliated to the Tamil Nadu Dr.M.G.R.Medical University, Chennai) is validated by undersigned and can proceed with this tool and conduct the dissertation entitled **A study to assess the effectiveness of foot reflexology on fatigue among undergoing hemodialysis patients at selected hospitals, in Coimbatore.**

Place: COIMBATORE

Date; 28/6/19

NIGHTINGALE INSTITUTE OF NURSING EDUCATION, CBE

Signature

Name and Designation

PRINCIPAL
NIGHTINGALE INSTITUTE OF NURSING EDUCATION
COIMBATORE.

APPENDIX-D2

CERTIFICATE OF CONTENT VALIDATION

ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

HOSPITAL ADDRESS : 285, Sathy Main Road, Gandhipuram, Coimbatore - 641 012. Ph : 0422 - 2521212, 2525920 Fax : 0422 - 4373090
COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com E-mail : ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date : 28/6/19
Ref : NGT College of Nsg.

CERTIFICATION OF VALIDATION

This is to certify that the tool submitted by N. Beulah Vasthi M.Sc Nursing II-year student Ellen College of Nursing, Coimbatore, Tamilnadu (affiliated to the Tamil Nadu Dr.M.G.R.Medical University, Chennai)is validated by undersigned and can proceed with this tool and conduct the dissertation entitled **A study to assess the effectiveness of foot reflexology on fatigue among undergoing hemodialysis patients at selected hospitals, in Coimbatore.**

Place: Coimbatore

Date; 28.06.'19

signature

Asso. Professor.
Name and Designation

NIGHTINGALE INSTITUTE OF NURSING EDUCATION, CBE

APPENDIX-D3

CERTIFICATE OF CONTENT VALIDATION

ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

HOSPITAL ADDRESS : 285, Sathy Main Road, Gandhipuram, Coimbatore - 641 012. Ph : 0422 - 2521212, 2525920 Fax : 0422 - 4373090
COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com E-mail : ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date :

Ref :

CERTIFICATION OF VALIDATION

This is to certify that the tool submitted by N. Beulah Vasthi M.Sc Nursing II-year student .Ellen College of Nursing, Coimbatore, Tamilnadu (affiliated to the Tamil Nadu Dr.M.G.R.Medical University, Chennai) is validated by undersigned and can proceed with this tool and conduct the dissertation entitled **A study to assess the effectiveness of foot reflexology on fatigue among undergoing hemodialysis patients at selected hospitals, in Coimbatore.**

Place:

Date;

Signature

Name and Designation

ONE CARE MEDICAL CENTER,
No. 61, N.S.R. Road,
Saibaba Colony,
Coimbatore - 641 011.
Ph. No. 0422-2431010
Mob. No. 96 982 55 990

APPENDIX-D4

CERTIFICATE OF CONTENT VALIDITY

ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com E-mail : ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date :
Ref :

CERTIFICATION OF VALIDATION

This is to certify that the tool submitted by **Ms.BEULAH VASTHI. N. M.Sc. (Nursing)** II-year student Ellen College of Nursing, Coimbatore, Tamilnadu (affiliated to the Tamilnadu Dr.M.G.R.University, Chennai) is validated by understanding and can proceed with this tool and conduct the dissertation entitled "**A study to evaluate the effectiveness of foot reflexology on reduction of fatigue among patients undergoing hemodialysis at selected hospital in Coimbatore".**

Place:
Date :

Signature
Name and Designation

APPENDIX-D5

CERTIFICATE OF CONTENT VALIDITY

ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

HOSPITAL ADDRESS : 285, Sathy Main Road, Gandhipuram, Coimbatore - 641 012. Ph : 0422 - 2521212, 2525920 Fax : 0422 - 4373090
COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com E-mail : ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date : 27/06/19.

Ref : Royal college of nursing.

CERTIFICATION OF VALIDATION

This is to certify that the tool submitted by N. Beulah Vasthi M.Sc Nursing II-year student .Ellen College of Nursing, Coimbatore, Tamilnadu (affiliated to the Tamil Nadu Dr.M.G.R.Medical University, Chennai) is validated by undersigned and can proceed with this tool and conduct the dissertation entitled **A study to assess the effectiveness of foot reflexology on fatigue among undergoing hemodialysis patients at selected hospitals, in Coimbatore.**

Place: Coimbatore.

Date; 27/06/19.

signature

Name and Designation : Asst. Professor.

APPENDIX-E

LETTER GRANTING PERMISSION TO CONDUCT THE STUDY

St. MARY'S HOSPITAL

CHURCH ROAD, PODANUR,
COIMBATORE - 641 023
✆ 0422-2410832, 0422-2411995

29.06.2019

LETTER GRANTING PERMISSION TO CONDUCT THE STUDY

From
The Managing Director,
St. Mary'Hospital,
Coimbatore.

To
Ms.Beulah Vasthi. N
Final Year M.Sc. (N),
Ellen College Of Nursing,
Coimbatore.

This is to certify that Ms. Beulah Vasthi.N, final year M.Sc (Nursing) Student of Ellen College of Nursing is conducting a research project in partial fulfillment of the Tamil Nadu Dr. M.G.R. Medical University, Chennai, as a part of the requirement for the award of M.Sc (Nursing) Degree.

TOPIC: "A Study to Evaluate the Effectiveness of Foot Reflexology on fatigue among Patients undergoing Hemodialysis at a Selected Hospital, Coimbatore."

I grant permission for her to conduct the study in Hospital.

Place: Coimbatore

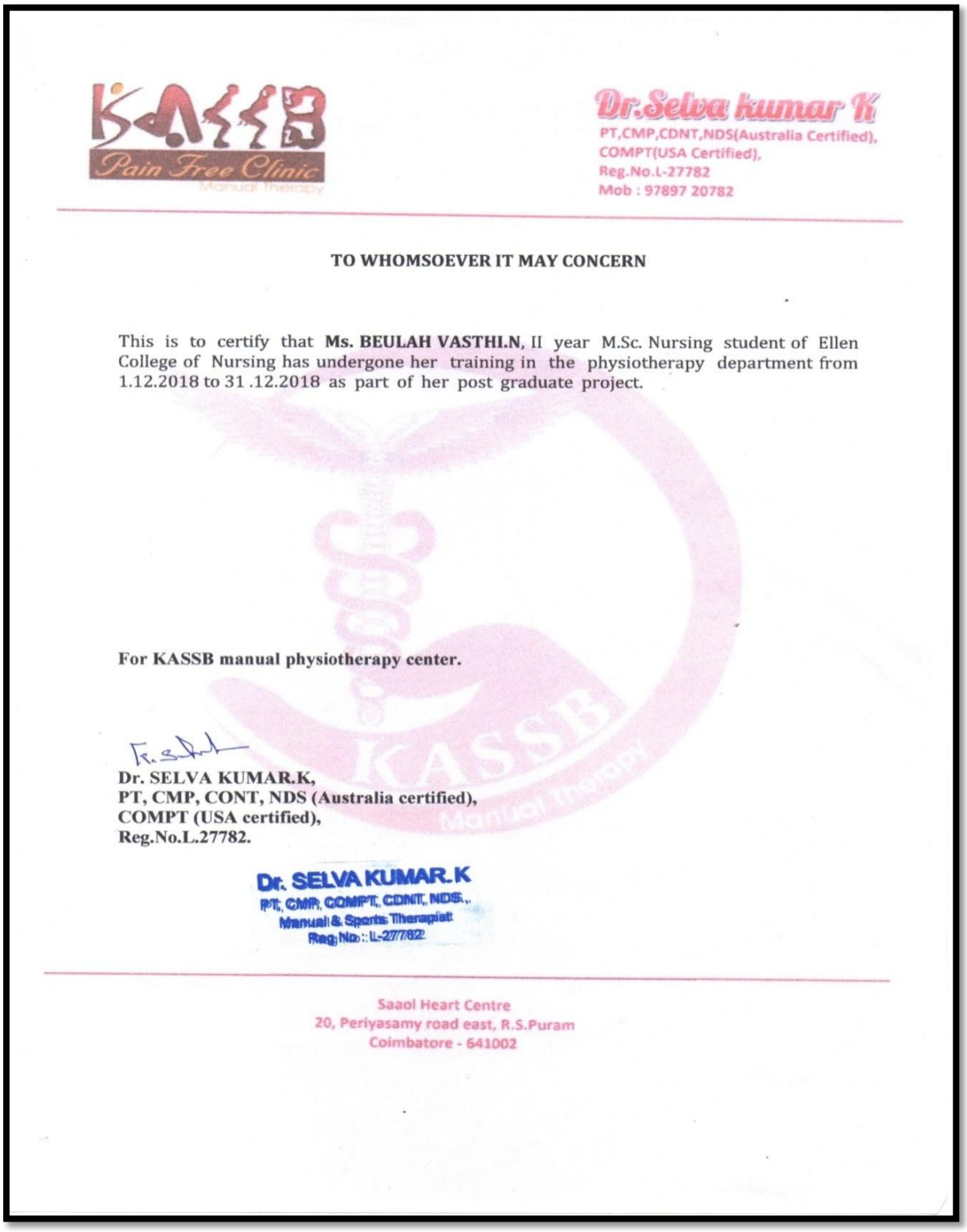
Date : 29.06.2019

Dr. Sr. RANI AGNES, M.D.(Hom.), DNB, PGDGM,
Reg. No. 64652
MEDICAL SUPERINTENDENT
St. MARY'S HOSPITAL
PODANUR, COIMBATORE - 641 023.

1/7/19

APPENDIX-F

TRAINING CERTIFICATE FOR FOOT REFLEXOLOGY



KASSB Pain Free Clinic
Manual Therapy

Dr.Selva kumar K
PT,CMP,CDNT,NDS(Australia Certified),
COMPT(USA Certified),
Reg.No.L-27782
Mob : 97897 20782

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. BEULAH VASTHI.N**, II year M.Sc. Nursing student of Ellen College of Nursing has undergone her training in the physiotherapy department from 1.12.2018 to 31 .12.2018 as part of her post graduate project.

For KASSB manual physiotherapy center.

Dr. SELVA KUMAR.K,
PT, CMP, CONT, NDS (Australia certified),
COMPT (USA certified),
Reg.No.L.27782.

Dr. SELVA KUMAR.K
PT, CMP, COMPT, CDNT, NDS.,
Manual & Sports Therapist
Reg No :: L-27782

Saaol Heart Centre
20, Periyasamy road east, R.S.Puram
Coimbatore - 641002

APPENDIX-G

LIST OF EXPERRTS FOR CONTENT VALIDITY

MEDICAL EXPERTS

1. Dr.Sr.RANI AGNES., MD (tally)., DNB.,PGDGM,
   ST.MARY'S HOSPITAL,
   PODANUR,
   COIMBATORE.

2. Dr.MAGESH., MD.,(Nephrologists),
   ONE CARE MEDICAL CENTER,
   COIMBATORE.

NURSING EXPERTS

1. PROF.MRS.RAMA LAKSHMI., M.SC (Nursing), (PH.D),
   PRINCIPAL,
   NIGHTINGALE COLLEGE OF NURSING,
   COIMBATORE.

2. PROF.MRS.UMA., M.SC (Nursing),
   ASSISSTANT PROFESOR,
   NIGHTINGALE COLLEGE OF NURSING,
   COIMBATORE.

. 3 PROF.Ms.MINIMOL, M.Sc,(Nursing),
   ASSISSTANT PROFESSOR,
   ELLEN COLLEGE OF NURSING,
   COIMBATORE.

.

APPENDIX-H

CERTIFICATE OF STATISTICIAN

ELLEN COLLEGE OF NURSING

(Recognized by Government of Tamilnadu and Indian Nursing Council, New Delhi
Affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai)

COLLEGE ADDRESS : Navakkarai, Coimbatore - 641 105. Ph : 0422 - 2622747, 2656767,Fax : 0422 -2656400
Website : www.ellencollegeofnursing.com **E-mail :** ellencollegeofnursing@gmail.com

Dr.A.GUNASINGH EMMANUEL, M.A.,B.L.,Ph.D.,
Chairman & Correspondent

Date :

Ref :

CERTIFICATION OF VALIDATION

This is to certify that the tool submitted by **Ms.BEULAH VASTHI. N. M.Sc. (Nursing)** II-year student Ellen College of Nursing, Coimbatore, Tamilnadu (affiliated to the Tamilnadu Dr.M.G.R.University, Chennai) is validated by understanding and can proceed with this tool and conduct the dissertation entitled "**A study to evaluate the effectiveness of foot reflexology on reduction of fatigue among patients undergoing hemodialysis at selected hospital in Coimbatore".**

Place:

Date :

Signature

Name and Designation

APPENDIX-I

CERTIFICATE OF ENGLISH EDITING

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

Certify that the dissertation paper titled **"A study to evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis in selected hospital, Coimbatore** . by **Miss. BEULAH VASTHI.N**. It has been checked for accuracy and correctness of English language used in presenting the paper is lucid, unambiguous, free of grammatical or spelling errors and apt for the purpose.

SIGNATURE : 7/8/2019

NAME : S. THIVYAN RAVI KUMAR.

DESIGNATION : M.E. B.ed. [Asst. Professor]

INSTITUTION : G.S.R Matric Hr. Sec. School
Periyanaickenpalayam
Coimbatore. 641020

APPENDIX-J

CERTIFICATE OF TAMIL EDITING

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

Certify that the dissertation paper titled **"A study to evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis in selected hospital, Coimbatore"** by **Miss. BEULAH VASTHI.N**. It has been checked for accuracy and correctness of Tamil language used in presenting the paper is lucid, unambiguous, free of grammatical or spelling errors and apt for the purpose.

SIGNATURE : 7/8/2019

NAME : D. JOY NANCY

DESIGNATION : M.,Sc.,M.,Ed [ASST. PROF]

INSTITUTION : ST. JOHN BOSCO MA.HR.SEC.SCHOOL
G.N. MILLS
COIMBATORE - 29

APPENDIX-K

PLAGIARISM REPORT

Plagiarism Checker X Originality Report

Similarity Found: 12%

Date: Monday, August 12, 2019

Statistics: 2560 words Plagiarized / 21705 Total words

Remarks: Low Plagiarism Detected - Your Document needs Optional Improvement.

CHAPTER I INTRODUCTION "Your body is a temple, but only if you treat it as one." - Astrid Alauda Chronic kidney diseases have become a major cause of global Morbidity and mortality even in developing countries. The burden of chronic kidney disease (CKD) in India cannot be assessed accurately the approximate of CKD is 800per million population (pmp), and the incidence of end-stage renal disease (ESRD) is 150–200 pmp.

The most common cause of CKD in population- based studies is diabetic nephropathy chronic diseases have become a major cause of global morbidity and mortality. Earlier considered to be a health problem only in developed countries, 4 out of 5 chronic

APPENDIX-L

STRUCTURED QUESTIONNAIRE

SECTION-A
DEMOGRAPHIC VARIABLES

INSTRUDUCTION; Read carefully and put a tick mark (✓) for the appropriate option. Please answer all items.

1) Age

- **a. 20-30years**
- **b . 31-40years**
- **c. 41-50years**
- **d. 51- 60years**

2) Gender

- **a. Male**
- **b. Female**

3) Qualification

- **a. Illiterate**
- **b. School level**
- **c. College level**
- **d. graduate**

4) Religion

- **a. Christian**
- **b. Hindu**
- **c. Muslim**
- **d. Others mention----------**

5) Types of family

- **a. Nuclear family**
- **b. Joint family**

6) Marital status

- **a. Married**
- **b. Unmarried**
- **c. Divorced**
- **d. Window/widower**

7) Occupation

- **a. Sedentary worker**
- **b. Moderate worker**
- **c. Heavy worker**

8) Type of Nutrition

- **a. Vegetarian**
- **b. Non – Vegetarian**
- **c. Semi-vegetarian**
- **d. Egg-vegetarian**

9) Patients pre hemodialysis Hb level .

- **a. 0 to 5 g/dl**
- **b. 6 to 10g/dl**
- **c. 11 to 15g/dl**
- **d. 16 to 20g/dl**

10) Do you practice regular exercise or other relaxation technique?

- **a. Yes**
- **b. No**

If yes, mention ----------

SECTION-B

CLINICAL VARIABLES

1) Number of hemodialysis done.

a. < 10

b. 11 to 20

c. 21 to 30

2) What is the duration period of hemodialysis treatment?

a. Days

b. Months

c. Years

3) In a days, How many hours you are been through hemodialysis?

a. 2 hours

b. 3 hours

c. 4 hours

4) How many sittings of hemodialysis you have in a week?

a. Once

b. Twice

c. Thrice

5. Do the fatigue restrict your activities and movements during hemodialysis?

a. Yes

b. no

6. If yes, When do you experience the fatigue during hemodialysis?

a. First hours

b. Middle hours

c. Last hours

7. Do you taking any iron supplementary drugs?

a. Yes

b. No

8. How many years you are taking iron supplementary drugs?

a. 1to 3 years

b. 4to 6 years

9. Do you have co-morbid Illness?

a. Yes

b. No

If yes mention----------

10. Do you exposed to blood transfusion on hemodialysis before?

a. Yes

b. No

11. If yes, how many times do you exposed to blood transfusion on undergoing Hemodialysis?

a. <5 times
b. >5 times

APPENDIX- M

சுயவிவரத்தகவல்

நேர்காணல் காண்பவர் கீழே கொடுக்கப்பட்டுள்ள விபரங்களை பங்கேற்பவர்களிடம் கேட்க வேண்டும். அந்த அந்த கேள்விகளுக்கு கீழே கொடுக்கப்பட்டுள்ள பதில்களை பார்க்க வேண்டும். சரியான இடத்தில் (✓) குறியை இட வேண்டும்.

பகுதி-அ

1. வயது

அ) 20 முதல் 30 வரை ☐

ஆ) 31 முதல் 40 வரை ☐

இ) 40 முதல் 41 வரை ☐

ஈ) 51 முதல் 60 வரை ☐

2. இனம்

அ) ஆண் ☐

ஆ) பெண் ☐

3. கல்வி தகுதி

அ) படிப்பறிவின்மை ☐

ஆ) பள்ளி படிப்பு முடித்தவர் ☐

இ) கல்லூரி படிப்பு முடித்தவர் ☐

4. மதம்

அ) கிறிஸ்துவம் ☐

ஆ) இந்து ☐

இ) முஸ்லீம் ☐

5. குடும்ப நிலை

அ) தனிக் குடும்பம்' ☐

ஆ) கூட்டுக்குடும்பம் ☐

6. திருமண நிலை

அ) திருமணமானவர் ☐

ஆ) திருமணம் ஆகாதாவர் ☐

இ) விவாகரத்து ஆனவர் ☐

ஈ) விதவை / மனைவியை இழந்தவர் ☐

7. தொழில் நிலை உடல் உழைப்பு

அ) குறைந்தளவு வேலை செய்பவர் ☐

ஆ) மிதமான அளவு வேலை செய்பவர் ☐

இ) அதியமான அளவு வேலை செய்பவர் ☐

8. உணவு முறை

அ) சைவம் ☐

ஆ) அசைவம் ☐

இ) பாதி சைவம்/அசைவம் ☐

ஈ) முட்டை மட்டும் உண்ணும் சைவம் ☐

9. இரத்த அணுக்களின் அளவு இரத்தப் பிரித்தெடுத்தலுக்கு முன்பு

அ) 0 முதல் 5 கிராம் ☐

ஆ) 6 முதல் 10 கிராம் ☐

இ) 11 முதல் 15 கிராம் ☐

ஈ) 16 முதல் 20 கிராம் ☐

10. வேறு உடற்பயிற்சிகள் மற்றும் வேறு ஓய்வு முறையை பின்பற்றுபவரா?

அ) ஆம் ☐

ஆ) இல்லை ☐

ஆம் எனில் குறிப்பிடவும்----------

பகுதி-ஆ

11. எத்தனை முறை இரத்தப்பிரிப்பெடுத்தல் முடிந்தது?

அ) < 10 ☐

ஆ) 11 முதல் 20 வரை ☐

இ) 21 முதல் 30 வரை ☐

ஈ) >30 ☐

12. எத்தனை காலங்களாக இரத்த பிரித்தெடுத்தல் சிகிச்சை மேற்கொள்கிறீர்கள்?

அ) நாட்கள் ☐

ஆ) மாதங்கள் ☐

இ) வருடங்கள் ☐

13.ஒரு வாரத்திற்கு எத்தனை மணி நேரம் இரத்தப்பிரித்தெடுத்தல் சிகிச்சை மேற்கொள்கிறீர்கள்?

அ) 2 மணி நேரம் ☐

ஆ) 3 மணி நேரம் ☐

இ) 4 மணி நேரம் ☐

14. ஒரு வாரத்தில் எத்தனை முறை இரத்தப்பிரித்தெடுத்தல் சிகிச்சை மேற்கொள்கிறீர்கள்?

அ) ஒருமுறை ☐

ஆ) இரண்டு முறை ☐

இ) மூன்று முறை ☐

15. இரத்த பிரித்தெடுத்தலின் போது சோர்வு உங்களின் உடற்செயல்பாடுகளை பாதிக்கின்றதா?

அ) ஆம் ☐

ஆ) இல்லை ☐

16. இரத்த பிரித்தெடுத்தலின் போது எப்பொழுது சோர்வை உணர்கிறீர்கள்?

அ) முதல் நிலையில் ☐

ஆ) இரண்டாம் நிலையில் ☐

இ) மூன்றாம் நிலையில் ☐

17.ஏதேனும் இரும்புச் சத்து மாத்திரைகளை உட்கொள்கிறீர்களா?

அ) ஆம் ☐

ஆ) இல்லை ☐

18. எத்தனை வடங்களாக இரும்புச்சத்து மாத்திரைகளை உட்கொட்கிறீர்கள்.

அ) 1 முதல் 3 வருடம் ☐

ஆ) 4 முதல் 6 வருடம் ☐

19. நோயுற்ற நோய் ஏதும் உள்ளதா?

அ) ஆம் ☐

ஆ) இல்லை ☐

20.இரத்தப்பிரித்தெடுத்தலின்போது இரத்த மாற்றம் செய்துள்ளீர்களா?

அ) ஆம் ☐

ஆ) இல்லை ☐

21. எத்தனை முறை இரத்த மாற்றம் செய்துள்ளீர்கள்?

அ)<5 ☐

ஆ) >5 ☐

APPENDIX-N

FATIGUE ASSESSMENT SCALE (FAS)

Below are a number of questions about possible complaints. Please circle the answer to each question that is applicable to you. Please give an answer to each question, even if you do not have any complaints at the moment. The aim of this questionnaire is to find out how you experience your complaints. There are no correct or incorrect answers. It is important that you are honest.

Fatigue Assessment Scale (FAS)

The following ten statements refer to how you usually feel. Per statement you can choose one out of five answer categories, varying from Never to Always.
Please circle the answer to each question that is applicable to you. Please give an answer to each question, even if you do not have any complaints at the moment.
1 = Never, 2 = Sometimes (about monthly or less); 3 = Regularly (about a few times a month); 4 = Often (about weekly) and 5 = Always (about every day).

	Never	Sometimes	Regularly	Often	Always
1. I am bothered by fatigue	1	2	3	4	5
2. I get tired very quickly	1	2	3	4	5
3. I don't do much during the day	1	2	3	4	5
4. I have enough energy for everyday life	1	2	3	4	5
5. Physically, I feel exhausted	1	2	3	4	5
6. I have problems to start things	1	2	3	4	5
7. I have problems to think clearly	1	2	3	4	5
8. I feel no desire to do anything	1	2	3	4	5
9. Mentally, I feel exhausted	1	2	3	4	5
10. When I am doing something, I can concentrate quite well	1	2	3	4	5

APPENDIX-O

FOOT REFLEXOLOGY PROCEDURE

INTRODUCTION

"Disease is not an entity, but a fluctuating condition of the patient's body a battle between the substance of the disease and the natural self-healing tendency of the body.

-Hippocrates.

Reflexology was introduced to the United States in 1913 by William H. Fitzgerald,M.D. (1872□1942), an ear, nose, and throat specialist. Fitzgerald claimed that applying pressure had an anaesthetic effect on other areas of the body. Reflexology is a healing art of ancient origin. Although its origins are not well documented, there are reliefs on the walls of a Sixth Dynasty Egyptian tomb (c. 2450 B.C.) that depicts two seated men receiving massage on their hands and feet. Also it is documented in the book De Medicina (On medicine) by A.Cornilious celsus and it was written as "one will read much more often, however, some other part is to be rubbed than that which is the seat of the pain; and especially when we want to withdraw material from the head or trunk, and therefore rub the arms and legs.". Reflexology was modified in the 1930s and 1940s by Eunice D. Ingham (1889□1974), a nurse and physiotherapist. Ingham claimed that the feet and hands were especially sensitive, and mapped the entire body into "reflexes" on the feet renaming "zone therapy" to reflexology.

DEFINITION

Reflexology is performed by physically applying pressure to the feet, hands and ears (reflex areas), which is designed to increase the flow of vital energy to various parts of the body. It does not include the use of oils or lotion but it induces a positive outcome and physical change to the body

POPULAR TYPES OF MASSAGE

Chinese

The goal of Chinese massage is to balance one's qi (energy), allowing the organs and immune system to function properly. Blocked energy pathways cause pain

and disease. Practiced for centuries, traditional Chinese foot massages start off with a footbath and proceed to an intense massage of the feet, ankles, and legs.

The two main types of Chinese massage are both related to acupressure. Tuina is a technique that stretches, kneads, and pushes the muscles, while ZhiYa focuses on acupressure points, pressing and pinching them to relieve stress and pain. Using sensitive fingertips, a Chinese masseuse identifies blocked pathways and applies pressure in just the right place in to restore proper energy flow and increase the patient's general health

Shiatsu (Japanese)

During a Shiatsu ("finger pressure" in Japanese) massage, the masseuse applies pressure to areas in accordance with the Meridian system to release blocked energy and restore proper energy flow. An imbalanced body causes sickness, disease, and energy loss. A successful massage will restore energy flow and boost your immune system. Therapists use their hands to rub, tap, and squeeze. This form of massage is particularly helpful for those suffering aches due to repetitive movements such as typing. A Shiatsu massage promotes flexibility, circulation, muscle relaxation, and the release of toxins. It can also prevent disease, reduce blood pressure, and reduce stress.

Swedish

Swedish physiologist Per Henrik Ling (1776-1839) was a pioneer in the field of physical therapy and massage. From his heritage, we get the term "Swedish massage," which is by far the most popular form of massage today. Based on the Western concepts of anatomy, this type of massage is tailored to the patient. The most popular types of Swedish massage are:

Deep tissue massage: slow movements and deep pressure are used to realign muscles and tissues, release toxins, and improve circulation. Although painful at times, you will feel rejuvenated afterwards. This type of massage is recommended for extremely tense muscles.

Hot stone therapy: in addition to Swedish techniques, smooth, heated stones are placed on the patient's body in order to sooth muscles, improve circulation,

release toxins, and calm the nervous system.

FOOT REFLEXOLOGY BENEFITS

Think about how much stress your feet go through each day. No body part is more abused than your feet. Standing, running, jumping – our feet do it all! Reflexologists believe that overall health begins in your feet and travels up. The benefits of foot massage are endless – not to mention it feels downright great! Although there are no "hard facts" to prove what a foot massage can really do, practitioners and patients alike claim that reflexology can:

- Cure colds/minor ailments
- Prevent/cure diseases
- Increase energy
- Relieve stress, pain, and anxiety
- Improve blood and lymph circulation
- Prevent injury
- Relieve pain from MS and chemotherapy
- Stimulate activity of internal organs
- Successfully treat liver dysfunction, constipation, IBS, chronic headaches, and skin allergies
- Relieve pressure on legs and feet in pregnant women

The benefits aren't purely physical. A good foot massage can also improve your mental and emotional state. Most of those who seek out a reflexologist are looking for relaxation and stress relief. With less stress in your life, your chance of heart disease drops considerably.

DIFFERENCE BETWEEN FOOT REFLEXOLOGY AND MASSAGE

Reflexology + foot massage = well being **Reflexology** is an ancient therapy known to promote the body's own healing powers. It is suitable for any age groups, from babies to seniors. Reflexology is not did the same as a foot massage; it's a natural healing therapy which is highly effective in dealing with many health complaints. A foot massage can promote relaxation but does not have long term effects; however foot reflexology promotes equilibrium and well being with long

lasting impact.

FOOT REFLEXOLOGY PROCEDURE:

PREPARATION OF THE PATIENT:

1. Explained the procedure and got the consent form from the patients.
2. Informed the patient about the duration of the procedure which was 20 minutes.
3. Instructed the patient to wash the feet and clean with the dry towel.
4. Provided privacy to the patient and positioned the patient in a supine position.
5. Advice the patient to drink the water (500ml) unless contraindicated

DURATION OF THE PROCEDURE:

The procedure is done on both feet for a period of ten minutes on each foot, once daily in the morning for 5 consecutive days.

NEEDED THINGS

- Pillow or cushion
- A towel
- Alcoholic hand rubs
- Cotton
- Massage oil

Procedure

- Explain the procedure to the patient to patient know the procedure
- Allow the patient to wash and dry feet before going to dialysis to keep clean
- Set mood for relaxation communicate with the patient and relax the patient
- Allow the patient to lie down comfortably
- Feet extend over edge to east application of foot massage
- Place the pillow under knees to comfort the patient
- Use a towel under the feet to prevent soil
- Position yourself with the toes at chest level
- Then start to do the procedure
- Check for cuts, bandages , wounds, swelling, or any other skin disease
- Apply alcoholic rub to cotton to wipe the foot thoroughly to prevent cross infection and contaminations
- Place oil in cupped hand

- Warm oil between hands
- Spread oil over foot with light strokes
- Then warm up the foot
- Take foot in both hands

REFLEXOLOGY TECHNIQUES

Reflexology is a complementary therapy that can be used in conjunction with Medical treatment to provide relief from certain ailments. It is based on the belief that certain zones on your feet, hands, lower legs, face and ears correspond to different areas and organs throughout your body. According to the Association of reflexologist, pressing on these reflexology points can stimulate the organs and help ease certain conditions by promoting circulation and muscle relaxation. Reflexology is no substitute for medical advice or treatment, but a trained reflexologist manipulates the correct reflex points in order to help alleviate symptoms and assist with pain management. Most reflexology techniques are based on the idea of applying pressure to each reflexology point and you could feel pressure and possibly a tingling sensation, but if you are feel pain you are pressing too hard and a qualified reflexologist considered being the best person to administer this therapy, you can also perform therapeutic techniques on yourself at home.

EFFLEURAGE

Effleurage involves gently stroking the target body part usually the feet or hands with fluttering movements. The practitioner may use oils to further aid relaxation, although they are not standard to reflexology. They may also revert back to this technique throughout the session to relieve tension in the targeted reflexology zone and corresponding body part.

CREEPING

Creeping is also known as thumb walking press down with the fat pad of your thumb and slowly move forward across your hand or foot. It is suggested to use the creeping technique to move up and down each toe on both feet to help relieve sinus-related congestion.

ROTATION

This technique is often used when manipulating the web between your thumb and first finger, which corresponds to your kidneys and adrenals glands. Use the technique halfway up your first and middle fingers to access your eye and ear reflexes, respectively. Press on the reflex point with the fleshy part of your thumb and firmly rotate the finger in towards your body. Apply pressure for a few seconds while in the rotated position then relax. Practitioners claim that reflexology can relieve tension, improve blood and lymph circulation, promote healing by activating the body's immune response, soothe inflammation, reduce stress and improve existing chronic ailments.

FINGER WALKING TECHNIQUE

Use the finger walking reflexology technique by locating the point on the foot which corresponds to the organ which has to be to treated. Then apply pressure with your finger to that point while you bend and straighten your finger. Move your finger slightly with each movement so you gradually cover the designated point. Make very tiny movements so the entire point has pressure applied to it.

THUMB WALKING TECHNIQUE

The most common technique in foot reflexology is thumbed walking. This is also known as caterpillar walking because the movement of your thumb resembles the movement of a caterpillar. First, locate the point on the foot to be treated. Place your thumb upon it and apply pressure. Move your thumb like a caterpillar as you straighten and bend your thumb applying pressure the whole time. Move your thumb over the entire point area while making very tiny movements.

TOE ROTATION

Work all of the points on the toes by using the toe rotation technique. Use your fingers and thumb to grasp each individual toe on the foot one by one. While holding onto a toe gently and slowly rotate it in full circles three times in each direction.

SLIDE AND PRESS

Place both of your hands on the heel of the foot. Slide your thumbs along the bottom of the foot from the center to the outside, working up from the bottom of the foot to the toes. This technique works a large area of the bottom of the foot and helps to release tension.

HOOKING

Work on a small reflex point by using the hook technique. To do this, hold onto the foot with one hand. If you are right handed, use your left hand to hold the foot and your right hand to perform the hook. Place your thumb on the reflex point, press in sharply and quickly withdraw using a hooking motion. This is useful for applying pressure to tiny points and for working through thick skin.

REFLEXOLOGY TECHNIQUES

EFFLEURAG

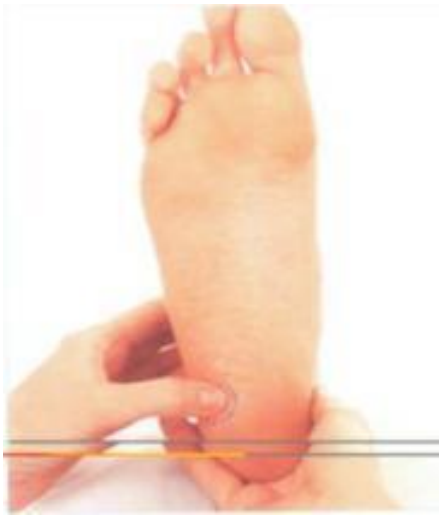
CREEPING OR THUMB WALKING

TOA ROTATION

ANKLE ROTATION

FINGER WALKING

HOOKING



REFLEXOLOGY TECHNIQUES

ANKLE FREEZING

STRETCHING

WRINKLING

KNEDING

POINT PRESSURE

REMINDERS BEFORE USING REFLEXOLOGY

1. Avoid reflexology for one hour after meals.
2. Within 30 minutes after massage, you should drink 500 ml of warm water.
3. In case of kidney or heart disease, you should drink not more than 150 ml of water.
4. Do not apply pressure to bones.
5. Do not feel alarmed if an ailment seems to worsen or the mouth feels dry, after a session of reflexology .This is normal, especially in the case of inflammation or rheumatism and will pass shortly.

STEPS OF FOOT REFLEXOLOGY

Start the exercise with the left foot and then repeat on the right foot.

Step 1: Rest in a comfortable chair or in a comfortable position on the floor or exercise mat. Bring your foot up and rest it over the opposite knee. Lace your fingers with your toes and rotate your foot at the ankle in a clockwise motion for a ten second count. Rotate at the ankle in a counter-clockwise motion for the same count.

Step 2: Gently stretch your Achilles tendon by pulling your foot upwards and backwards. Keep your fingers interlaced with your toes as you do this. Move slowly and stop pulling if you feel pain. Hold for a count of five, and slowly release your foot.

Step 3: Place the ball of your foot, or your heel, between both your hands, grasping it from both sides. Move your foot backwards and forwards.

Step 4: Beginning at your toes, place one hand on top of your foot and the other beneath. Then, use your thumb on the underside of your foot to slowly caress and apply steady pressure to each of your toes, the line of your foot beneath your toes and the inner edge of your heel.

Step 5: Keeping your hands on top and bottom, knead your foot between your hands.

Step 6: Make a fist with the hand beneath your foot. Press the fist against your foot lining your knuckles up with the base of your toes. Push your hands together, sandwiching your foot between them. Hold for a count of ten. Rotate your fist so that it rests on the inner curve, or arch, of your foot. Press, and hold for a count of ten. Repeat on the outer edge of your foot and then again on your heel, holding the back of your ankle from the top for pressure.

Step 7: Finish your session by massaging lotion onto your feet. The action will cause heat to warm and release any stress in your feet, and the massage will help you pinpoint areas that may have been missed. Try experimenting with this exercise by using a golf ball instead of your hands. Even when you're at work, you can slip your shoes off and treat stress by performing the exercise with one of these tools.

EFFECTS OF FOOT REFLEXOLOGY IN PATIENTS

1. Tiredness, Nauseous, Cold like symptoms,
2. A need to urinate more than usual,
3. More emotional than usual,
4. More lethargic than usual
5. Most people experience a sense of well being and relaxation, others find it uplifting and energizing. For some, symptoms may worsen before they improve. This is called the" healing crises ".It indicates that the body is beginning to eliminate toxins and starting to heal itself.

6. Massage relaxes the mind and nervous system and stimulates the circulatory and lymphatic systems, improving the supply of nutrients to the body tissues and aiding in the removal of the toxins and waste products from them.

AFTER CARE ADVICE

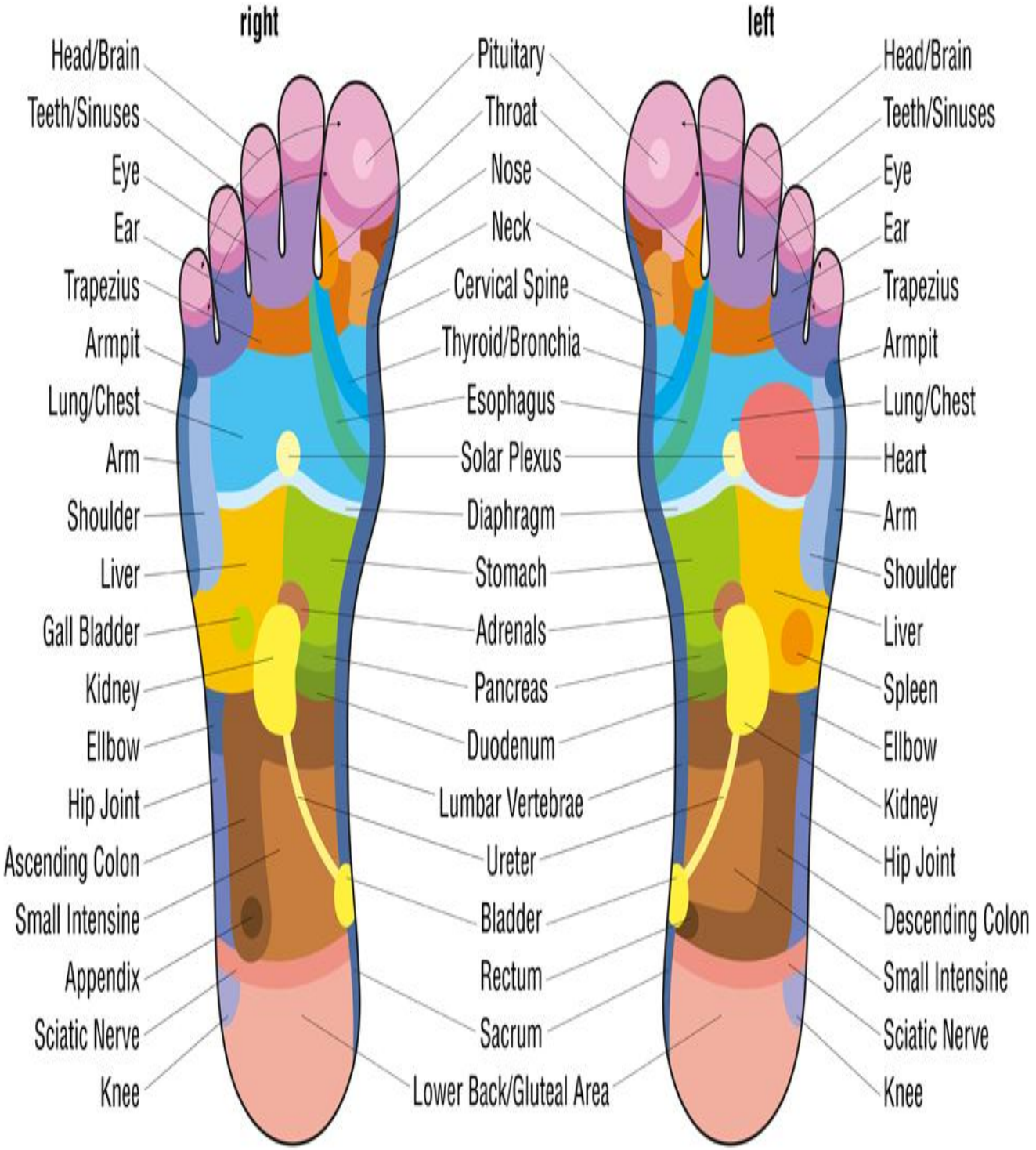
In order to ensure the full benefits of a treatment clients are usually asked to carry out the following advice for 24 hours following treatment:

1. Drink lots of water as this will help hydrate the body, flush out toxins and improve energy levels.

2. Try to rest for the rest of the day as this will help the treatment work to it's full potential and will allow your body to focus on healing and avoid tea, coffee and alcohol as these are stimulants and will reduce the effectiveness of the treatment.

3. Eat a light and healthy diet to allow your body to put its energy into healing. Reposition the patient and provide the psychological support

Foot Reflexology Chart



APPENDIX - P

INFORMED CONSENT FORM
ஒப்புதல் அறிக்கை

பெயர்: **நாள்:**

எனக்கு இந்த செவிலிய ஆய்வினைப் பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் பங்குக் கொள்வதில் உள்ள நன்மைகள் மற்றும் தீமைகள் பற்றி முழுமையாக புரிந்துக் கொண்டேன். இந்தஆய்வில் தானாக முன் வந்து பங்குப் பெறுகிறேன். மேலும் எனக்கு இந்த ஆய்விலிருந்து எந்தச் சமயத்திலும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என்னுடைய பெயர் மற்றும் அடையாளங்கள் இரகசியமாக வைத்துக் கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

கையொப்பம்

APPENDIX - Q

PHOTOGRAPHS

RESEARCHER IS PERFORMING EFFLURAGE

.

RESEARCHER IS PERFORMING KNEEDING

RESEARCHER IS PERFORMING THUMB WAKING

RESEARCHER IS PERFORMING MASSAGE

DIALYSIS UNIT