

DISSERTATION ON

**“A STUDY TO ASSESS THE EFFECTIVENESS OF
PAPAYA DRESSING ON DIABETIC FOOT ULCER
AMONG CLIENTS ADMITTED IN DIABETOLOGY
WARD AT RAJIV GANDHI GOVERNMENT GENERAL
HOSPITAL, CHENNAI.”**

**M. Sc (NURSING) DEGREE EXAMINATION
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CHENNAI – 600 032.**

In partial fulfillment of requirements for the degree of

MASTER OF SCIENCE IN NURSING

APRIL 2016

CERTIFICATE

This is to certify that this dissertation titled “**A study to assess the effectiveness of papaya dressing on diabetic foot ulcer among clients admitted in diabetology ward at Rajiv Gandhi Government General Hospital, Chennai.**” is a bonafide work done by **Mrs. S.Geethalakshmi**, II Year M.sc Nursing Student, College Of Nursing, Madras Medical College, Chennai – 600003 Submitted to the **Tamilnadu DR.M.G.R. Medical University, Chennai** in partial fulfillment of the requirements for the award of degree of master of science in nursing, branch-I Medical Surgical Nursing, under our guidance and supervision during the academic period from 2014 – 2016.

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"O Lord, who lends me life, lends me a heart replete with thankfulness."

-Shakespeare

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ABSTRACT

***Title:* A study to assess the effectiveness of papaya dressing on diabetic foot ulcer among clients admitted in diabetology ward at Rajiv Gandhi Government General hospital, Chennai**

Diabetic foot ulcers is the one of the most common and devastating complication of diabetes mellitus, which contribute to changes in to the lower extremity called the diabetic foot. *Carica papaya* have great role in enzymatic debridement in Ulcer/Wound healing.

Need for the study: Over 13 million have been diagnosed with diabetes and 15% have the diabetic foot ulcer in their life time, 30-50% will undergo a further amputation of the other foot within 5 years., so many literature have shown the effectiveness of papaya dressing among diabetic foot ulcer patient.

OBJECTIVES

- 1) To assess the demographic and clinical variables among experimental and control group.
- 2) To assess the pre test and post test level of diabetic foot ulcer among the experimental and control group.
- 3) To compare the pre test and post test level of diabetic foot ulcer score among the experimental and control group.
- 4) To assess the Effectiveness of papaya dressing on Diabetic foot ulcer among Experimental group.
- 5) To find the association between the selected demographic variables and the effectiveness of Papaya Dressing in both experimental and control group.

Key words-Assess,Effectiveness,Papaya dressing, Diabetic foot ulcer,clients.

Methodology:-

Research approach -Quantitative research approach .

Study Setting- Diabetology ward in Rajiv Gandhi Government General hospital, Madras Medical College, Chennai.

Study design- Experimental study design.

Study population- diabetic foot ulcer (Grade1) clients admitted in Diabetology ward at Rajiv Gandhi Government General hospital.

Sample size –60 samples (30 experimental/30 control)

Sampling technique- systemic Random sampling technique.

Data collection procedure-Study sample were collected by systemic random sampling method.selected samples were divided as two groups by selecting odd numbers and even numbers.odd numbers were allotted for experimental group.Even numbers were allotted for control group.Pre intervention assessment was done for both group. Papaya dressing applied for experimental group once a day for two weeks. Hospital Routine treatment and care given for control group.Wound assessment done with the help of Wagner wound assessment scale. Post intervention study done for both the Groups on 14 th day.

Data Analysis- Data analysis were analysed by descriptive statistics using mean ,standard deviation and wagner would assessment scale using inferential statistics such as chi square test and student paired t test.

Study result-Results revealed effectiveness of papaya dressing compared with experimental and control group it shows 40% difference with 95 % of CI among diabetic foot ulcer clients.

Discussion- After my experimental study, effectiveness of papaya dressing in posttest for experimental group 83.3% had intact skin and 16.7% had Superficial ulcer of skin. There is statistically significant difference in level of diabetic foot ulcer score.The association of post test level of Diabeticfoot ulcer score with selected demographic variable Shows Younger around 40to 49 years and male clients are benefitted more than others.

Conclusion: The Result Revealed that Effect of papaya dressing had significant effect on the healing of diabetic foot ulcer for experimental group.This study can be recommended for large scale and used for various setting .

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7.	Coding sheet
8.	English editing Certificate.
9.	Photos.

LIST OF ABBREVIATIONS

ABBREVIATIONS	EXPANSION
WHO	World Health Organization
DM	Diabetic Mellitus
X ²	Chi-Square
P	Probability Level
T	Assessment Of Significance
SD	Standard Deviation
DFU	Diabetic Foot Ulcer
CPF	Carica Papaya Fruit

CHAPTER –I

INTRODUCTION

CHAPTER-I

INTRODUCTION

“Every 30 seconds a lower limb is lost some where In the world as a consequence of diabetes”.

- International diabetes Federation

Diabetes is previously known as the disease of the rich people. But now there is no partiality between the rich and poor and it has become the third leading cause of Death.

Diabetes mellitus is a metabolic disorder caused by absolute or relative deficiency of insulin. Diabetic foot is the most common complication of diabetes mellitus. The number of people with diabetes in the world is expected to double between 2000 and 2030 i.e., it currently affects more than 194 million people worldwide and is expected to reach 333 million by 2025, with the maximum burdens falling upon developing countries .

Diabetes is common in Asian Indians. India has the greatest number of people with diabetes. Top 10 countries in number of diabetes are India, China, America, Indonesia, Japan, Pakistan, Russia, Brazil, Italy and Bangladesh. India is considered as the Diabetic capital of the world. It alone currently counts over 35 million people harboring diabetes. It increases the morbidity and mortality of the diabetic clients and is the major cause of non-traumatic lower limb amputations. This is a great concern for the society and the government. The management of diabetic foot ulceration is based on the control of blood sugar, wound debridement, identification and management of infection, proper dressing and definitive wound closure. Enzymatic wound debridement is an emerging concept in accelerating the wound healing process.

Its prevalence in adults is around fourth world wide that is over 150 million persons are affected. Diabetic foot ulcers is the one of the most common and devastating complication of diabetes mellitus, the macro vascular and micro vascular changes and the neuropathy all contribute to changes in to the lower extremity called the diabetic foot. Diabetic foot ulcer comprises the typical sequence of events with a soft tissue injury of the foot, formation of a fissure between the toes or in an area of dry skin, or formation of a callus. A detailed literature search, some review articles and a few planned studies show the effectiveness of raw papaya on wound debridement.

Chemical properties of carica papaya

Several chemical materials are reported in different parts of *Carica papaya*. Copious amounts of Latex are found in the leaves, stems and fruits.. The latex was chemically investigated and found that it was rich in chymopapain and papain and the later is also known as vegetable pepsin . Other constituents which include omega end peptidase and a mixture of cysteine endopeptidases such as papaya end peptidase II and papaya end peptidase IV were also reported . The leaves of *Carica papaya* contain glycoside carposide and the seeds contain myrosinase, caricin and sinigringlycosides . It was reported that when myrosin is combined with caricin, a mustard-like odor is produced. The seeds and the pulp of *Carica papaya* contain benzyl glucosinolate which can be hydrolyzed by myrosinase to produce benzyl isothiocyanate. A preliminary phytochemical analysis of *Carica papaya* leaves revealed the presence of tannins, flavonoids, saponins, alkaloids, anthraquinones, cardiac glycosides, steroids, reducing sugars, cardenolides and phenolics compounds.

On the basis of traditional use and literature search, *Carica papaya* was selected to see the wound healing potential. *Carica papaya* have antibacterial activity against various micro-organisms including

Staphylococcus aureus, Bacillus cereus, Bacillus subtilis, E coli, Enterobacter cloacae, Proteus vulgaris, Klebsiella pneumonia, Salmonella typhi, Pseudomonas aeruginosa and Shigella flexner. Raw papaya contain plenty of latex which is a rich source of four cysteine endopeptidases namely papain, chymopapain, glycyendopeptidase and caricain. Papita (*Carica papaya* Linn) is mentioned Mohallil (resolvent) in Unani medicine. Reported activity of its latex (enzyme papain&pseudocarpaine) shows proteolytic action, prevents ulcers (gastro duodenal).

Proteolytic enzymes have great role in enzymatic debridement in Ulcer/Wound healing. They are from family of proteins that serve to degrade necrotic debris derived from cell breakdown. Many such enzymes are currently available commercially and being promoted as alternatives to surgical wound debridement. Papain, a proteolytic enzyme derived from the fruit of *Carica papaya*, is a potent digestant of nonviable protein matter. At the same time it is harmless to viable tissue. It is effective in removing dead cells, preventing burn wound infection, defibrinating wounds. It is active over a wide pH range from 3 to 12.

Carica papaya as an important and promising natural medicinal plant which could be utilized in several pharmaceutical and medical applications because of its cost effectiveness, availability and safety.

1.1. Need for the study

Chronic complication of diabetes mellitus can have an important implication for planning nursing care irrespective of the patient is at home or hospital. The nurse should carefully assess his nursing needs giving special consideration to risk associated with impaired circulation and sensation increased risk of infection and delayed healing. Recognition of these risk factors will enable care to accommodate the patient's particular vulnerabilities and will help to ensure that suitable support is provided to prevent

complication. Diabetes mellitus is serious health problem throughout the world.

In 2003, there were 189 million diabetes in the world; the projected figure for 2025 is 333 million. Independent WHO observes put the total no of diabetes at 177 million India tops the best of 10 countries followed by China. In south India professor Lefebvre said, the incidence of diabetes and impaired glucose increasing since 1984, about 3.2 million people die of diabetes across the world every years. It is also estimated that there are 30-33 million diabetes in India now and every 4th diabetics in the world today is an India.

India is the country with the most of the people with diabetes, with a current figure of 50.8 million followed by china with 43.2 million the Russian (9.6 million), Brazil (7.6 million), Germany (7.5 million) Pakistan (7.1 million), Japan (7.1 million), Indonesia (7 million) and Mexico (6.8 million). A Staggering 285 million people worldwide have diabetes. Diabetic foot ulcer are common established to affect 15% of all diabetic individual during their life time the prevalence of diabetic foot ulcer in clinical population is 3.6%. Diabetic foot ulcer precedes almost 85% of amputation.

There are over 1 million amputations worldwide each year. Over 13 million have been diagnosed with diabetes and it is estimated that at least 15% of those individual will have foot ulcer in their life time, the risk of amputation is a lifelong threat to diabetic patient following on amputation 30-50% will undergo a further amputation of the other foot within 5 years. Approximately 56% of diabetic foot ulcerations become infected (Block 1981; Gibbons and Eliopoulos 1984; Smith et al. 1987) and 20% of these clients with infected foot wounds end up with some type of lower extremity amputation. Therefore the timely prevention and healing of diabetic ulcerations are fundamental for amputation prevention.

1.1..2 Institutional statistics

In Rajiv Gandhi Government General hospital 19,000 to 20,000/month Diabetic clients are treated in Diabetology outpatient department and attend the foot clinic. Annually 750 to 800 diabetic client are treated as Inpatient. Per month 300 to 350 diabetic clients attend the diabetology department for Diabetic foot ulcer.

So the need of diabetic foot ulcer care is very important to prevent the further complications.

An article in the journal “Jamaica gleaner” says that even though unsterile (clean) non standardized procedure was used there is no report of infection from using papaya, due to bactericidal and antifungal properties. Analysis of dehydrated papaya has been reported to have certain antibacterial properties that can inactivate many types of bacteria and parasites.

Compared to the sterile dressing for diabetic foot ulcer, so many research studies have shown the effectiveness of papaya dressing among diabetic foot ulcer patient. Therefore this motivated the researcher to select this statement.

1.2 Statement of the problem

“A study to assess the effectiveness of papaya dressing on diabetic foot ulcer among clients admitted in diabetology ward at Rajiv Gandhi Government General Hospital, Chennai.”

1.3 Objectives

- 1) To assess the demographic and clinical variables among experimental and control group.

- 2) To assess the pre test and post test level of diabetic foot ulcer among the experimental and control group.
- 3) To compare the pre test and post test level of diabetic foot ulcer score among the experimental and control group.
- 4) To assess the Effectiveness of papaya dressing on Diabetic foot ulcer among Experimental group.
- 5) To find the association between the selected demographic variables and the effectiveness of Papaya Dressing in both experimental and control group.

1.4 Operational definition

Assess

It refers to find out the effectiveness of papaya dressing on diabetic foot ulcer.

Effectiveness

It refers to the change in level of diabetic foot ulcer brought about by papaya dressing and also measured in terms of time taken for healing and cost confinement.

Papaya Dressing

It refers to Sliced papaya applied on the diabetic foot ulcer once daily for 14 days.

Diabetic Foot Ulcer

Soft tissue injury of the foot, formation of fissure between the toes or in an area of dry skin or formation of callus in diabetes. In this study, the

clients who are certified by Diabetologist as diabetes mellitus with foot ulcer were selected.

Clients

It refers to the diabetic clients with foot ulcer who are admitted Diabetology ward in Rajiv Gandhi government general hospital Chennai.

1.5 Assumptions

- ❖ Papaya contains an Antiglycemic property which is able to control the glucose concentration in the exposed and damaged tissue.
- ❖ Papaya is an anti infectious agent which is able to control wound infection and protect wound from further infections.
- ❖ Papaya contains unique enzyme that are structurally similar to the human enzyme that are involved in wound healing.
- ❖ Papaya is cheap and locally available fruit which can be important nutrients for wound healing. Papaya fruit causes no adverse reaction thus it can be used safely.

1.6 Hypotheses

H1 There is a significant Difference in the level of diabetic foot ulcer among clients in control and experimental group in pretest and posttest.

H2 There is a significant difference in effectiveness of papaya dressing on diabetic foot ulcer among clients in experimental group.

1.7 Delimitations

- ❖ The clients who are with diabetic foot ulcer Grade1.
- ❖ The diabetic foot ulcer clients admitted in Rajiv Gandhi Government General Hospital.
- ❖ The clients who are willing for dressing with papaya.
- ❖ The clients who are on regular treatment from hospital.
- ❖ The dressing period was limited to two weeks.
- ❖ The clients who can read and understand Tamil and English.

CHAPTER –II

REVIEW OF LITERATURE

CHAPTER-II

REVIEW OF LITERATURE

The major function of research literature review is to ascertain what is already known in relation to a problem. Literature review is important for developing a broad conceptual content in to which a research will fit.

. The collected literatures have been divided in to three sections.

- I. Literature related to effect of diabetic mellitus
- II. Literature related to diabetic foot ulcer.
- III. Literature related to wound healing property of papaya fruit.

2.1 literature related to diabetes melliteus

Abirami, P; Raj, Jayamohan et al (2013) Prospective interventional study and it was conducted at Government Hospital, Tambar am Chennai related to Impact of yoga on blood glucose level among mother with gestational diabetes mellitus .. This was a . 212 Antenatal mothers with Gestational Diabetes Mellitus were randomized into yoga and control groups. Sample size was detected based on Power analysis and selection of the samples based on Non-probability purposive sampling technique. Quasi Experimental -Time Series Design was adopted.The results was shown there is a significant reduction in the Fasting and Postprandial blood glucose level in Yoga Group than control group at $p < 0.001$ level of significance. This study critically analyzed and it is proven that yoga reduces blood glucose level which prevents adverse outcomes of estational Diabetes Mellitus.

De Galan (2011) et al conducted Experimental Study at emergency Department of American Hospital, the study about number of clients with diabetes receiving insulin therapy is increasing ,and as a consequence the

burden of insulin related hypoglycemia is increasing proportionately, from 100,000 patient visit the emergency department of American hospital each year for insulin related hypoglycemia patient aged < 80 years were twice as likely to visit sEmergency Department as younger clients ,There are number of possible reasons for this high risk including greater risk of direct or indirect injury arising from hypoglycemia higher prevalence of cognitive dysfunction and age induced loss of appetite, also referred to as anorexia of ageing, finally treatment strategy away from basal bolus insulin .

Ebrahim, Shah, Kinra, Sanjay; Bowen, Liza; Andersen, Elizabeth, Ben-Shlomo, Yoav, et al. (2010) conducted a Cross-sectional study related to the Effect of Rural-to-Urban Migration on Obesity and Diabetes in India. A total of 6,510 participants (42% women) were recruited. Among urban, migrant, and rural men the age- and factory-adjusted percentages classified as obese.The final result shows the Migrants have adopted modes of life that put them at similar risk to the urban population. Gender differences in some risk factors by place of origin are unexpected and require further exploration.

Patel, Kantibhai Motiram et al (2009) done a True experimental study was conducted at University of Texas, USA.related to the association of human leukocyte antigen alleles and type 2 diabetes mellitus among Mexican Americans .

The epidemic of type 2 diabetes mellitus (T2DM) is ranked as a major public health priority across the United States and especially in the El Paso, Texas region.. The incidence of diabetes may also be influenced by genetic factors that are unique to this group.. Methodology of this case-controlled study was divided into two parts: Part I of the study consisted of 110 cases (with T2DM), 196 controls #1 (without T2DM and without family history of T2DM), and 24 controls #2 (with family history and without T2DM). The

results shows that genetic testing proposed for this study has the potential to significantly advance our understanding of the genetic basis of T2DM.

Cervency JD et al (2006) says that prospective evidence surrounding the issue tight glycemic control in people with type II diabetes and resultant complications, the therapy that improves glucose control in combination with aggressive risk factors management should be initiated and enforced in clients with type II diabetes in an effort to reduce long term complications.

2.2 Studies related to diabetic foot ulcer .

Pemayun, Tjokorda Gde Dalem; Naibaho, Ridho M; Novitasari, Diana; Amin, Nurmilawati; Minuljo, et al (2015) conducted hospital based case-control study at Dr. Kariadi General Hospital Semarang Related to Risk factors for lower extremity amputation in clients with diabetic foot ulcers:

We performed a hospital-based, case-control study of 47 DFU clients with LEA and 47 control DFU clients without LEA. The control subjects were matched to cases in respect to age (± 5 years), sex, and nutritional status, with ratio of 1:1. The results shows significant in the risk factors for lower extremity amputation.

Lindale, Magnus, MD; Katzman, Per, MD, et al (2014) conducted True Experimental Studies Related to Hyperbaric Oxygen therapy Facilitates Healing of Chronic Foot Ulcers in Clients with Diabetes. complete healing of the index ulcer was achieved in 37 clients at 1-year of follow-up: 25/48 (52%) in the HBOT group and 12/42 (29%) in the placebo group ($P = 0.03$). In a sub-analysis of those clients completing >35 HBOT sessions, healing of the index ulcer occurred in 23/38 (61 %) in the HBOT group and 10/37 (27%) in the placebo group ($P = 0.009$). The frequency of adverse events was low. The HODFU study showed that adjunctive treatment with HBOT facilitates healing of chronic foot ulcers in selected clients with diabetes

Edwards, Helen,; Finlayson, Kathleen,; Courtney, Mary; Graves, Nick,; Gibb, Michelle; et al (2013) conducted observational study and survey. at wound clinics in Queensland, Australia related to Health service pathways for clients with chronic leg ulcers.. A sample of 70 clients presenting with a lower limb leg or foot ulcer at specialist wound clinics in Queensland, Australia were recruited for an observational study and survey.. This study highlights the complexities involved in accessing expertise and evidence based wound care for adults with chronic leg or foot ulcers. Results demonstrate that access to wound management expertise can promote streamlined health services and evidence based wound care, leading to efficient use of health resources and improved health.

Caroline A. Abbott (2013) conducted a descriptive study to determine foot ulcer rate and the contribution of neuropathy. In this study was screened 15,692 type 1 and type 2 diabetic clients in the community health care setting for foot ulcers, foot deformities, neuropathy.. In total, 13,409 were European (85.5%), 1,866 were South Asian (11.9%), and 371 were African Caribbean (2.4%). age-adjusted prevalence of diabetic foot ulcers (past or present) for Europeans, South Asians, and African Caribbeans was 5.5, 1.8, and 2.7%, respectively (P < 0.0001).. They concluded that South Asians with diabetes in the U.K. have about one-third the risk in usage, and foot deformities of the Asians account for approximately half of this reduced foot ulcer risk .

East, Jeffrey M, Yeates, Curtis B; Robinson, Hector P. (2011) et all conducted cross sectional survey at resident in the parish of St. James, Jamaica. related to the natural history of pedal puncture wounds in diabetics.

77 reported episodes of closed pedal puncture wound among 51 participants, 45.4% healed without medical intervention, 27.3% healed after non-surgical treatment by a doctor and 27.3% required surgical intervention ranging from debridement to below-knee amputation. Anesthetic foot (failure

to feel the puncture) and sole of the forefoot as site of puncture were the variables significantly associated with risk of requiring surgical intervention.

That 72.7% of wounds healed either spontaneously or after non-surgical treatment means that routine, non-selective surgical intervention for pre-infected closed pedal puncture wounds in diabetics is not justifiable.

Bergen, et al (2011) conducted a survey to determine the proportion of people with diabetic mellitus reporting all inhabitants aged 20 years and older residing in a large geographic region were invited to participate in the Nord-Trøndelag Health Study, 71% (n=65,604) attended. Those reporting diabetes (n=1,972) were invited to take part in an ancillary study on diabetes. Based on 1,494 responses to the question: "Have you had a foot ulcer that required more than three weeks to heal", the proportion with a history of foot ulcer was estimated. proportion of people reporting a history of foot ulcer in this population-based study exceeded the proportion of foot ulcer history reported previously. Height as a correlate has been occasionally reported in previous studies and needs further attention. Associated factors for a foot ulcer history help identify individuals who may be at particular risk of this adverse outcome.

Marjolein, et. al., (2009), studied the association between the history of diabetic foot ulcer, perceived health and psychological distress. This study included diabetic persons with diabetic foot ulcer and without diabetic foot ulcer. It was found that perceived health and psychological well-being were significantly poorer among participants with diabetes and a history of foot ulcer compared to those without diabetes. Among people with diabetes, a history of foot ulcer had a significant negative impact on perceived health but did not independently contribute to psychological distress.

Keh, et al., (2003), conducted studies on diabetic foot ulcer in clients at JOS University teaching hospital, Nigeria. These epidemiological and microbiological Studies of diabetic foot ulcer were carried with a view to reduce amputation and Mortality rate associated with the disease. Results showed a very high rate of amputation and mortality. A multi-disciplinary approach to the management of diabetic foot ulcer was advocated. Efforts were made to carry out cultures of clients from refractory ulcers to rule out yeast colonization which if not treated will delay wound healing.

2.3 Studies related to papaya dressing

Ismail, Zakiah; Halim, Siti Zaleha; Noor Rain Abdullah; et al(2014) conducted a experimental study in. Evidence - based complementary and alternative medicine related to safety evaluation of oral toxicity of carica papaya linn. Leaves: a subchronic toxicity study in sprague dawley rats. The freeze dried extract of the leaves in distilled water and was administered orally to sd rats (Consisted Of 10 Rats/Sex/Group) At 0 (Control), and 2 G/Kg Body Weight for 13 Weeks. The results suggested that daily oral administration of rats with c. papaya leaf extract for 13 weeks at a dose up to fourteen times the levels employed in traditional medicine practice did not cause any significant toxic effect.

Ihtasham Muhammad Ch, Shaukat Ali Shaikh et al (2014)* Conducted experimental study to assess the role of papaya dressings in the management of diabetic foot in terms of healing of ulcers.

In this experimental study clients with diabetic foot (n=43) were included. The mean healing duration was 19.23 days with standard deviation (sd) of ± 3.624 . Topical papaya dressing provides cost effective and favorable outcome in clients with diabetic foot ulcer by decreasing the healing duration, reducing surgical interventions.

Gurung S, Et al.(2013) conducted a group study to investigate the healing efficiency of papaya latex formulated as 1.0 and 2.5% hydrogels. Burns were induced in swiss albino mice divided into five groups. It study concluded that papaya latex formulated in the carbopol gel is effective in the treatment of burns and thus supports its traditional use.

European journal of biomedical and pharmaceutical sciences related to importance of raw papaya dressing in diabetic foot ulcer –a report (2013) Diabetes Mellitus Is a Metabolic Disorder Caused by Absolute or Relative Deficiency of insulin. Diabetic foot is the most common complication of diabetic mellitus. it increases the morbidity and mortality of the diabetic clients and is the major cause of non-traumatic lower limp amputation. This is a great concern for the society and the government. a detailed literature search, some review articles and a few planned studied shows the effectiveness of raw papaya fruit on wound debridement. the present article reports wound healing potential of raw papaya in case of diabetic foot ulcer.

Eulalie Thompson et al (2012) conducted study related to medicinal effect of papaya, in the folk culture the papaya (also pawpaw) tree is considered a negative plant. However, the same piece of papaya served up at the breakfast table is proving to be an effective and inexpensive "medicine" for the treatment of chronic skin ulcers. These are skin ulcers which diabetic and sickle cell clients might develop or bedsores which elderly and disabled people might develop from being bed bound.

The folk culture might have had the edge on this bit of news, but a recent study by some local nurses indicates that this "medicine" - green papaya - is widely used by registered nurses at three major hospitals in Jamaica - the Kingston public hospital , the university hospital of the west indies and the Spanish town hospital. the nurses even say that the papaya exhibits greater effectiveness than the other types of available dressings.

Mohamed abd elgadir1, Mohamed salaman, Aisha Adam et all
2 oct 2012 conducted study related to carica papaya as potential natural medicinal source. Extracts also showed positive effects when used as antiparasitic, antiseptic, antiparasitic, antimicrobial, anti-inflammatory, antihyperlipidemic, antihypertensive and antidiabetic. for instance, treating rats with extract prepared from carica papaya leaves resulted in significant effects on wound healing. However, when rats supplemented with diet mixed with extract from the leaves of the plant it protected them against gastric damage. Moreover, extracts of both ripe and unripe fruit have proven antiulcer when examined in laboratory animals. However, studies on the effects of the types of the extracts on treatments of laboratory animals in selected pharmaceutical applications were also summarized. as a conclusion, carica papaya is one of the most effective sources of natural medicine and widely used in pharmacological applications. it is used to treat several diseases such as tumors, nervous pain, asthma and wounds.

Murthy, Man gala; Murthy, Bhasker; Bhave, Sanjay et all
(2012) et all done a interventional study related to comparison of safety and efficacy of papaya dressing with hydrogen peroxide solution on wound bed preparation in clients with wound gape, the abstract was published a Indian journal of pharmacology. Indian papaya or carica papaya is known to have de-sloughing and wound-healing properties due to the presence of protease enzymes. the present study was done to compare the efficacy and safety of papaya dressing with hydrogen peroxide solution for preparation of wound bed in clients of postoperative wound gape.. A total of 64 clients were enrolled, of which 32 clients received hydrogen peroxide dressing and 31 clients received papaya dressing (one patient withdrew after randomization). The results shows papaya dressing is more efficacious and equally safe as compared to hydrogen peroxide dressing when used for wound bed preparation in clients with postoperative wound gape.

Sadek, Kadry Mohamed. et al (2012) done a experimental study related to antioxidant and immunostimulant effect of carica papaya linn. Aqueous extract in acryl amide intoxicated rats. sixty male wistar albino rats (195-230g) were assigned to four groups, (fifteen/group). the first group used as control group and received normal physiological saline orally daily. the second group was supplemented with acryl amide 0.05% in drinking water. the third group was gastro-gavaged with 250 mg/kg of papaya fruit extract orally on daily basis. the fourth group was supplemented with acryl amide 0.05% in drinking water on daily basis. Meanwhile, Cpf (carica papaya fruit aqueous extract significantly increased immune functions (Igg and Igm) while acryl amide significantly decrease it specially igg. Thus, this study suggests that acryl amide-induced oxidative stress in rats can be ameliorated by administration of cpf aqueous extract.

Jeffcott, William J; Chip chase, Susan Y;; Ince, Paul,; Game, Fran L et al (2006) conducted. consecutive cohort study multidisciplinary foot care clinic university of Texas ,USA related to assessing the outcome of the management of diabetic foot ulcers using ulcer-related and person-related measures. The purpose of this study was to compare different outcome measures in the audit of management of diabetic foot ulcers data collected prospectively in a consecutive cohort of clients referred to a specialist multidisciplinary foot care clinic between 1 January 2000 and 31 December 2003 were analyzed. In 449 clients (63.7% male, mean age 66.7 ± 13.2 years), 352 (78.%) ulcers were superficial [s(ad)sad/at grade 1] and 134 of these (38.1% of 352) were neither ischemic nor infected. These data illustrate the extent to which ulcer-related outcomes may underestimate the true morbidity and mortality associated with diabetic foot disease.

Karakurt, Yasar Et All (2003) done a true experimental. study at university of Florida, related to expression and characterization of wound and ethylene-induced genes, and changes in enzyme activities and cell wall

polyuronides in response to wounding and ethylene in papaya and watermelon fruits studies were performed to determine changes in firmness, cell-wall polyuronides, gene expression; and the activities of cell-wall and membrane hydrolyses, and ethylene biosynthetic enzymes in intact and fresh-cut papaya fruit during storage at 5°C. Watermelon fruit harvested at the immature and full-ripe stages were exposed to 50 µl l ethylene for 6 days at 20°C. placental tissue firmness from ethylene-treated ripe and immature fruit decreased nearly 80% during 6 days of ethylene exposure with extensive polyuronide solubility and depolymerization. the levels of mrna and activities of polygalacturonase, lipoxygenase, phospholipases c and d, syntheses and oxidize elevated on ethylene exposure, suggest that cell-wall and membrane catabolism contribute to the development of water-soaking.

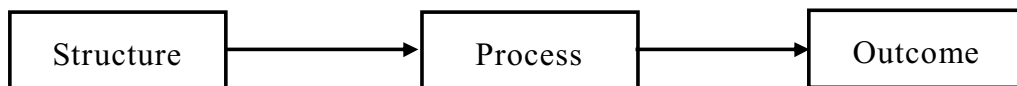
Ergun, Muharrem. et al (2003) done true experimental study at university of Florida related to 1-methylcyclopropene treatment efficacy in preventing ethylene perception and ripening in intact and fresh-cut 'Gallia' melon and 'sunrise solo' Papaya fruits. It was Generally, either intact fruit or fresh-cut fruit pre-treated with 1-mcp exhibited little or no significant changes compared with fruit not treated with 1-mcp. the studies presented herein have shown that 1-mcp has potential for extending the useful storage life of intact and fresh-cut melon and papaya fruits by delaying ethylene inducible ripening process.

2.4 Conceptual frame work

Conceptual frameworks are abstract representation, connected to the research project's goals that direct the collection and analysis of data.

The conceptual framework for this study is developed by the investigator based on **modified Donabedian's model**. The focus of this theory is the adaptation of the individual to stimuli, from the environment from within. Each component has a direct influence on the next, as represented by the arrows in the following schematic (Donabedian,1980):

Structure



Structure refers to the attributes of the setting in which providers deliver health care, including material resource, human resources and organizational structure.

Process

Process of care denotes what is actually done to the patient in the and receiving of care. Building on the example above, the provider could review whether an eligible patient has been placed on an Angiotension-Converting enzyme inhibitor to help prevent future heart attacks.

Out come

Health outcomes are the direct result of a patient's health status as a consequence of Contact with the health care system. In the above example, the patient receiving the preventive medication mentioned above could decrease the chance of dying from a heart attack.

In this study, the structure includes the human resource demographic variable and clinical variable.

Process includes Pre-intervention assessment done on diabetic foot ulcer, application of papaya dressing for experimental group, whereas control group getting Routine care.

The output Refers effectiveness of wound healing while application of Papaya Dressing in experimental group, and there is no significant change in effectiveness of wound healing among control group without Papaya dressing.

Summary

This chapter dealt with introduction, need for the study, and statement of the problem, objectives, operational definitions, assumptions, hypotheses, delimitations, projected outcome and conceptual framework.

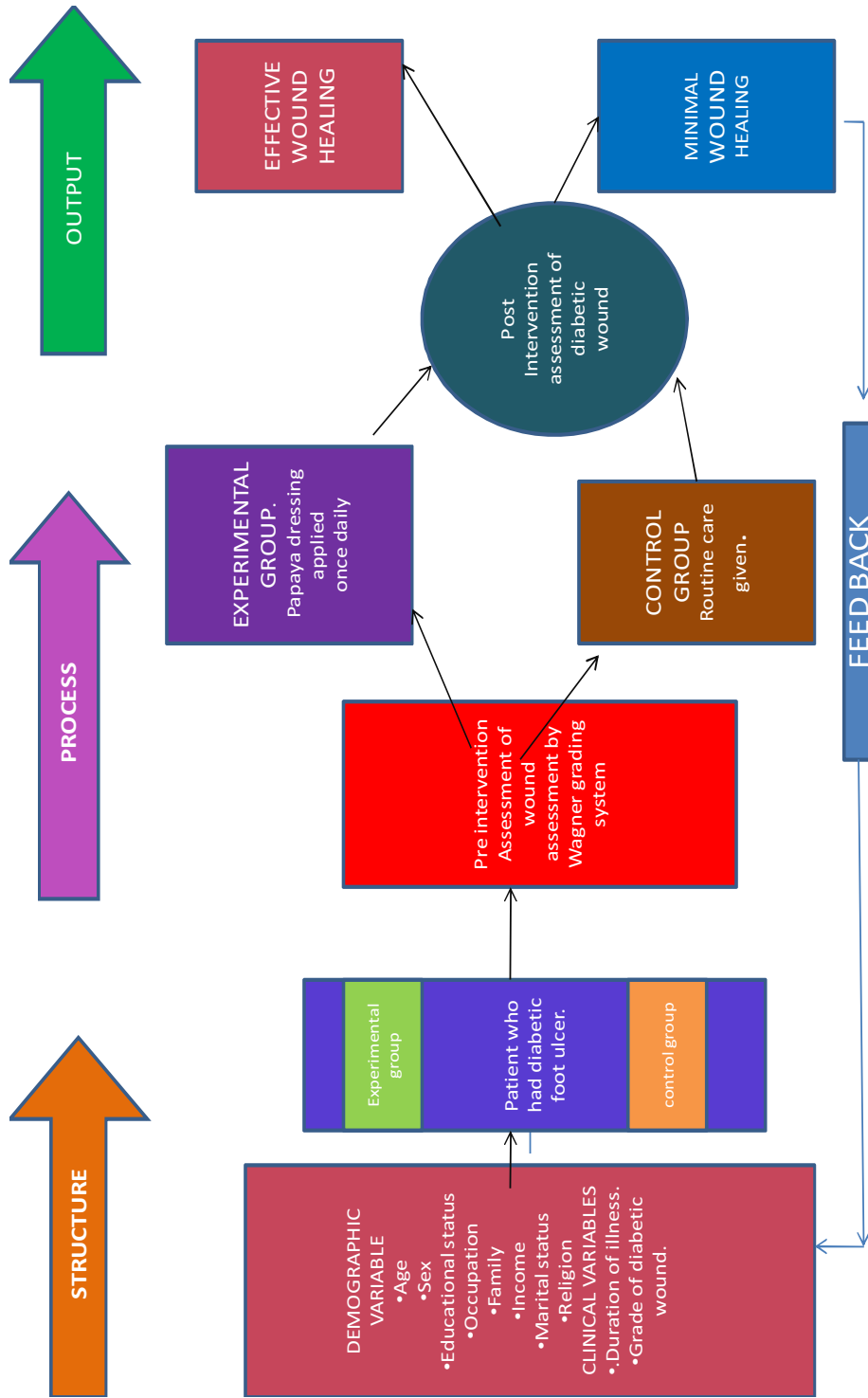


FIGURE 1 : CONCEPTUAL FRAMEWORK BASED ON MODIFIED DONABEDIAN'S MODEL (1980)

CHAPTER –III

RESEARCH METHODOLOGY

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem. This chapter includes research approach, research design, and variables, setting of the study, population, and sample size, sampling technique, development and description of tool, content validity of tool, pilot study, and procedure of data collection and for data analysis. This problem stated in this study is on effectiveness of papaya dressing on diabetic foot ulcer clients in Rajiv Gandhi Government General Hospital, Chennai.

3.1. Research approach

Quantitative research approach was considered as an appropriate approach was adopted for the study.

3.2. Data collection period.

The study was conducted for the period of four Weeks (16.7.15 to 16.8.15)

3.3. Study Setting

The study conducted in Diabetology ward in Rajiv Gandhi Government General hospital, Madras Medical College, Chennai..It is one biggest hospital in south East Asia with 3000 beds and has all specialties and super specialties and super specialties. In Rajiv Gandhi Government General Hospital have exclusive Diabetology department.

The current bed strength is 400 in the Department of General Surgery, Male and Female Diabetology ward, Special Wards includes Septic wards, Foot clinic. .This is one of the largest Departments in a Government Hospital among India. There are 7 units in the Department and admissions were done

throughout the week. Clients affected with diabetic foot ulcers are treated in the Diabetology ward, surgical wards and special & selected wards of Rajiv Gandhi Government General Hospital, Chennai.

In Rajiv Gandhi Government General hospital 19,000 to 20,000/month Diabetic clients are treated in Diabetology outpatient department and attend the foot clinic. annually 750 to 800 diabetic clients are treated as inpatient. Per month 300 to 350 diabetic client attend the diabetology department for the complains of Diabetic foot ulcer.

3.4. Study design

Experimental study design is chosen as appropriate for the study this design is the most suitable design for the present study because it helps the researcher to experiment the use of papaya dressing on diabetic foot ulcer.

Experimental group	O1	X	O3
Control group	O2	---	O4

Keys

- O₁ Observation on experimental group before intervention
- O₂ Observation on control group before intervention
- X Intervention
- O₃ Observation on the experimental group after intervention
- O₄ Observation on the control group intervention
- Routine management

3.5 Study population

The study population consists adult between the age group of 40-70 years clients with diabetic foot ulcer admitted in Diabetology ward in Rajiv Gandhi Government General hospital.Chennai.

3.6 *Sample size*

The sample comprises of 60 adult clients who have met the inclusion criteria and have diabetic foot ulcer Grade1.(30 clients in control and 30 in experimental group)

3.7 *Criteria for Sample Selection*

The sample was selected based on the following inclusion and exclusion criteria.

3.7.1 *Inclusion criteria:*

- 1) The diabetic clients those who are in the age group of 40 to70 years.
- 2) The patient with have diabetic foot ulcer exposed up to subcutaneous tissue(Grade1)
- 3) The diabetic foot ulcer clients who are willing to participate in the study.
- 4) The diabetic foot ulcer client in both gender.
- 5) The diabetic foot ulcer clients those who are type I or type II diabetics.

3.7.2 *Exclusion criteria*

- 1) Diabetic clients who are allergic to papaya.
- 2) The clients those who are having foot ulcer exposed up to muscle and bone.
- 3) The clients those who are received other type of dressing.

3.8 *Sampling technique*

Data sampling method was done by systemic random sampling technique. Selected samples were divided as two groups by selecting odd

numbers and even numbers. odd numbers were allotted for control group and even numbers are allotted as experimental group. Those who are selected in this method, who fulfilled the inclusion criteria, were included in this study. The clients of diabetic foot ulcer and their relatives were approached and explained regarding the study and its purpose. Those consented to participate in the study were chosen.

3.9. *Research variables*

Independent variable : Papaya dressing applied for once a day for 14 days.

Dependent variable : Foot ulcer of Diabetic clients.

3.10 *Development and Description of the tool*

After an extensive review of literature and discussion with the experts the following tools are prepared to collect data.

3.10.1 *Development of tool*

Consists of two parts

Section-A: Demographic and clinical variable (Age, Sex, Occupation, Income, Type of family, Grade of ulcer, etc.)

Section-B: Wagner wound assessment Scale.

3.10.2 *Description of the Wagner wound assessment scale.*

- 0 - Intact Skin
- 1 - Superficial ulcer of skin or subcutaneous tissue
- 2 - Ulcers extend into tendon, bone, or capsule
- 3 - Deep ulcer with osteomyelitis, or abscess
- 4 - Gangrene of toes or forefoot
- 5 - Midfoot or hind foot gangrene

3.10.3 Intervention protocol

	<i>Expeimental group</i>	<i>Control group</i>
<i>Place</i>	Diabetology ward,Rajiv Gandhi government General hospital.	Diabetology ward.Rajiv Gandhi Government General Hospital
<i>Application</i>	Unripe papaya.	Routine hospital care.
<i>Method of application</i>	Sliced papaya dressing	-----
<i>Frequency</i>	Once a day	Once a day
<i>Time</i>	8a.m to 4p.m	8 a.m to 4 p.m
<i>Administered by</i>	Investigator.	Docters and staff nurses

3.10.3 Content validity

The instrument was development based on the review of literature. Validity of the tool was assessed using content validity. Content validity was determined by Medical , Nursing,and statistical experts. They suggested certain modification in the tool. After the modification they agreed this tool for assessing effectiveness of papaya dressing on diabetic foot ulcer in Diabetology ward.

3.11 Ethical considerations

The study was conducted after getting approval and Ethical clearance of the Institutional Ethics committee and Head of the department, Institute of

Internal medicine, permission was obtained from Director Institute of Diabetology, Madras Medical college and Rajiv Gandhi Government General hospital, Chennai .. All subjects were carefully informed about the purpose of study; ensured Confidentiality of the study result. The freedom was given to the patient to leave the study at his/ her will without any reason, no routine care was altered or withheld. The investigator followed the Ethical guidelines which were issued by the Ethics committee. Informed written consent was obtained. Obtained from each study participant after giving full information about the study. Anonymity was assured to each participant and maintained by the researcher.

3.12 Pilot study

The pilot study was conducted in the Diabetology ward in Rajiv Gandhi Government General hospital. Chennai. The study was conducted for duration of 5 days. The important reason for conducting the pilot study was to test the scale for the reliability and validity. A total patient of 10 clients (5 experimental and 5 controls) that fulfilled the inclusion criteria was included in the study. The study was found to be feasible with regard to time and the availability of sample and cooperation of sample. It also provided information regarding reliability, feasibility of the designed methodology. Few changes were made in the tool after the pilot study. sample taken from clients those who are having diabetic foot ulcer (Grade1) .3 batch (10patient in one batch) selected and study done for 2 weeks for each clients.

3.13 Reliability of the tool

After pilot study reliability of the tool was assessed by using interreter method and its correlation coefficient r-value was 0.81. This correlation coefficient is very high and it is good tool for evaluate the effectiveness of papaya dressing on diabetic foot ulcer clients .

3.14. Data collection procedure

Study samples were collected by method of systemic random sampling method. Selected samples were divided as two groups by selecting odd numbers and even numbers. Odd numbers were allotted Experimental group and even numbers were allotted as control group.

Pre intervention assessment was done for 60 diabetic foot ulcer clients for both groups. Papaya dressing applied for experimental group once a day for two weeks. Wound cleaned with normal saline. Then unripe papaya Epicarb (Inner portion) thin slice applied. Sterile dressing applied over the papaya. Post intervention assessment was done 7th day and 14th day.

For the control group pre intervention assessment done. 30 sample taken, Routine care was given for this group. Post assessment was done 14th day. Post intervention assessment was done for both experimental and control group. Wound healing assessment observation was recorded using the Wagner wound assessment scale.

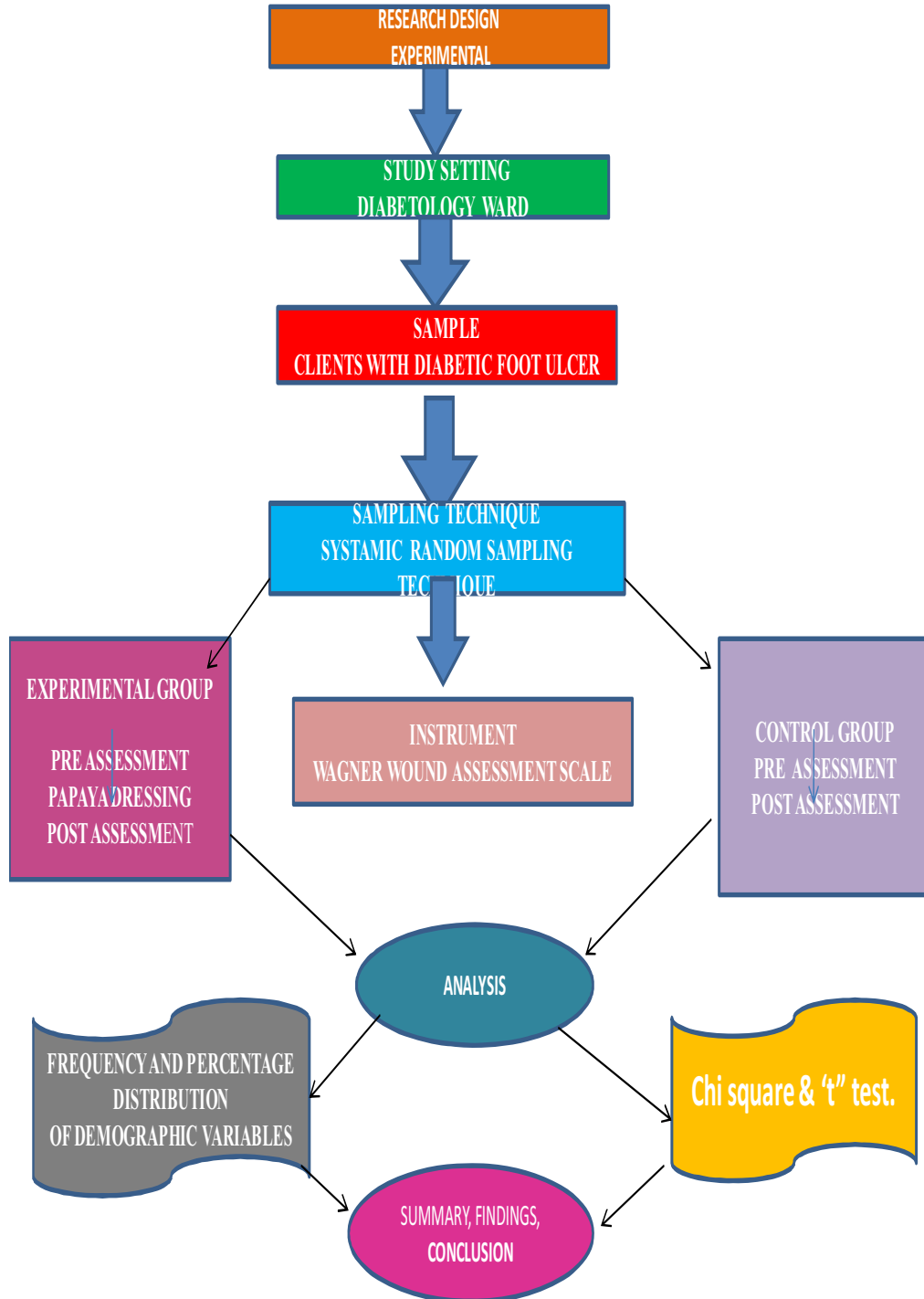
3.15 Data entry and data analysis

Data were collected and analyzed by using descriptive and inferential statistics.

Descriptive statistics included mean, standard deviation, frequency and percentage to describe the demographic variables of diabetic foot ulcer clients.

Inferential statistics included paired t test, unpaired t test and chi square test. Bar diagram, multiple bar diagram, subdivided bar diagram were used to represent the data.

3.16 FIGURE 2: SCHEMATIC REPRESENTATION OF RESEARCH STUDY



CHAPTER –IV

**DATA ANALYSIS AND
INTERPRETATION**

CHAPTER-IV

ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data which was collected from 60 clients (30 experimental and 30 control groups) who had diabetic foot ulcer. This study determines the effectiveness of papaya dressing on diabetic foot ulcer among patient admitted in Diabetology ward Rajiv Gandhi Government general hospital, Chennai-03.”

The purpose of analysis is to reduce the data to an interpretable form so that the relation of research can be studied. This data collected from diabetic foot ulcer patient with structured interview schedule was organized, analyzed and interpreted by using descriptive and inferential statistics.

The data has been organized and presented in five section

The data collected was edited, tabulated, interpreted and findings obtained were presented in the of form of tables and diagrams represent the following heading.

- Section-A** distribution of demographic & clinical profile of the client with diabetic foot ulcer.
- Section-B** Assessment of the pre test level of diabetic foot ulcer among Experimental and Control group.
- Section-C** Assessment of the post level of diabetic foot ulcer among Experimental and control group.
- Section-D** Assessment of the effectiveness of papaya dressing among Experimental group.
- Section-E** Associate the effectiveness of papaya dressing with selected Demographic and clinical variable

Table-4.1.1: Distribution Of Demographic Data and clinical Data.

Demographic variables		Experiment(n=30)				Control(n=30)		Chi square test
		frequency	In%	frequency	%			
Age	40-49 years	8	26.6	5	16.6	$\chi=1.05$ P=0.59		
	50-59 years	11	36.7	14	46.7			
	60-70 years	11	36.7	11	36.7			
Gender	Male	12	40.0	15	50.0	$\chi=0.60$ P=0.43		
	Female	18	60.0	15	50.0			
Educational Status	Uneducated	7	23.3	6	20.0	$\chi=3.59$ P=0.30		
	Primary Education	8	26.7	11	36.7			
	Secondary Education	12	40.0	13	43.3			
	Graduate	3	10.0	0	0.0			
Occupation	Sedentary Work	5	16.7	4	13.3	$\chi=0.22$ P=0.89		
	Moderate Work	21	70.0	21	70.0			
	Heavy Work	4	13.3	5	16.7			
Dietary Habits	Vegetarian	7	23.3	6	20.0	$\chi=0.10$ P=0.75		
	Mixed Diet	23	76.7	24	80.0			
Exercise	Regular	6	20.0	4	13.3	$\chi=0.73$ P=0.69		
	Irregular	15	50.0	18	60.0			
	Occasional	9	30.0	8	26.			
Religion	Hindu	22	73.3	21	70.0	$\chi=0.64$ P=0.72		
	Christian	6	20.0	8	26.7			
	Muslim	2	6.7	1	3.3			
Income	< Rs.3000	6	20.0	4	13.3	$\chi=0.49$ P=0.78		
	Rs.3000 - .5000	21	70.0	23	76.7			
	> Rs.5000	3	10.0	3	10.0			
Residential Status	Slum	2	6.7	1	3.3	$\chi=1.22$ P=0.54		
	Rural	11	36.6	8	26.7			
	Urban	17	56.7	21	70.0			
Type of Family	Nuclear family	15	50.0%	12	40.0%	$\chi=0.60$ P=0.43		
	Joint family	15	50.0%	18	60.0%			
Duration of Ulcer	1 - 6 Months	15	50.0%	13	43.3%	$\chi=0.26$ P=0.60		
	6 - 12 moths	15	50.0%	17	56.7%			
Grade of Ulcer	Grade-1	30	100.0%	30	100.0%	$\chi=0.00$ P=1.00		
	Grade-2	0	0.0%	0	0.0%			

Table 4.1.1 shows the demographic information of clients those who are participated for the following study on to assess the effectiveness of papaya dressing on diabetic foot ulcer among clients admitted in diabetology ward at Rajiv Gandhi government general hospital, Chennai.

With regard to **age** it was seen that 8(26.6 %) the age group between 40-49 years, 11(26.6 %) the age group of 50-59 years, 11(36.7%) the age group of 60-70 years in the experimental group.

In the control group 5(16.6 %) in the age group between 40-49 years, 14 (46.7 %) in the age group of 50-59 years, 11(36.7 %) between the age group of 60-70 years .

In view of **gender** 12(40.0 %) are male and 18 (60.0 %) are female in the experimental group. While taking the control group 15(50.0 %) are male and 15(50.0%) are female.

In light of the **Educational status** in the experimental group 7(23.3%) in the uneducated group, there were 8(26.7%) primary education, 12(40.0%) have done their in the secondary education, 3 (10.0%) were graduates. On the comparably in the control group

6(20.0 %) were uneducated, 11(36.7 %) done there primary education, 13 (43.3%) were finished their secondary education , 0(0.0%) were done there graduates in the control group.

On Examine the **occupation** in the experimental group 5(16.7%) were sedentary work, 21((70.0%) were doing Moderate Work, 2 (6.7%) were Heavy Work in the experimental group. On the contrary of control group 4(13.3%) were in the sedentary work, 21(70.0%) in the Moderate work, 5(16.7%) were doing Heavy Work.

Considering the **dietary Habit** of the patient in experimental 7(23.3%) are vegetarian, 23(76.7%) are taking mixed type of diet, Comparably in the

control group 6(20.0%) were vegetarian ,24(80.0) were taking mixed type of diet.

In the view of **Exercise** in experimental group 6(20.0%) were doing Regular exercise, 15(50.0%) were doing Irregular exercise ,9(30.0%) were doing occasional exercise on comparing to control group 4 (13.3%) were doing Regular exercise,18(60.0%) were doing Irregular Exercise , and 8 (26.7%) were doing the occasional exercise.

In the view of **Religion** in experimental group 22 (73.3%) were belongs to Hindu,6 (22.0%) were belongs to christen,2(6.7%) were Muslim. Comparing to control group 21 (70.0%) were belongs to Hindu, 8(26.7%) were christen, and(3.3%) were Muslims.

Bearing in the mind the family **Income** among the clients in the experimental group 6(20.0%) in <Rs 3000 earning per month, 21(70.0%) were earning per month and 3 (10.0%) were earning >Rs 5000 per month. While compare with control group 4 (13.3%) were earning <Rs 3000 per month, 23(76.7%) were earning in between the Rs 3000-5000 per month and 3(10.0%) were earning >Rs 5000 per month.

Taking the account the **place of residence** of clients in the experimental group 2(6.7%) were Residing in slum, 11(36.6%) were residing in Rural area, While 17 (56.7%) were living in the urban. In the same way 1(3.3%) were living in the slum, 8(26.7%) were living in the rural area, and 21(70.7%) were living in the urban area.

In relation to the **Type of family** 15 (50.0%) were coming from the Nuclear family, 15(50.0%) from Joint family in experimental group, Like wise 12(40.0%) were from the Nuclear family and 18(60.0%) from Joint family in control Group.

On examining the **Duration of ulcer** 15(50.0%) were duration was 1-6 month, 15(50.0%) were having duration of ulcer 6-12 months in experimental group, on other hand compare with control group 13 (43.3%) were having ulcer duration was 1-6 months, and 17(56.7%) were having ulcer from 6-121 months.

Regarding the **Grade of ulcer** 30(100.0%) were have Grade1 ulcers, and 0(0.0%) having grade 2 ulcers in experimental group, While compare with control group 30(100.0) were have Grade1 ulcers and 0(0.0%) were have the Grade2 ulcers.

Considering the demographic information of data shows that there is no statistically significant difference in the experimental group and control group.

Table-4. 2: Pretest level of diabetic foot ulcer

Wagner Grading system	Test				Chi square test
	Experiment		Control		
	frequency	In%	frequency	In%	
Intact skin	0	0.0	0	0.0	$\chi^2=0.00$ $p=1.00$
Superficial ulcer of skin	30	100.0	30	100.0	
Ulcers extend into tendon, bone of capsule	0	0.0	0	0.0	
Deep ulcer with osteomyelitis of abscess	0	0.0	0	0.0	
Gangrene of toes or forefoot	0	0.0	0	0.0	
Midfoot or hind foot gangrene	0	0.0	0	0.0	
Total	30	100.0	30	100.0	

In pretest Among experiment group, none of them are had intact skin and 100% of them are had Superficial ulcer of skin .similarly among control group none of them are had intact skin and 100% of them are had Superficial ulcer of skin .Statistically there is no significant difference in the pre test level of diabetic foot ulcer between control and experimental group.

Table 4. 3: Posttest Level of Diabetic Foot Ulcer

Wagner Grading system	Test				Chi square test
	Experiment		Control		
	frequency	In%	frequency	In%	
Intact skin	25	83.3	13	43.3	$\chi^2=10.33$ $p=0.001^{***}$
Superficial ulcer of skin	5	16.7	17	56.7	
Ulcers extend into tendon, bone or capsule	0	0.0	0	0.0	
Deep ulcer with osteomyelitis of abscess	0	0.0	0	0.0	
Gangrene of toes or forefoot	0	0.0	0	0.0	
Midfoot or hind foot gangrene	0	0.0	0	0.0	
Total	30	100.0	30	100.0	

* significant at $P \leq 0.05$

** highly significant at $P \leq 0.01$

*** very high significant at $P \leq 0.001$

In posttest among experiment group, 83.3% of them had intact skin and 16.7% of them had Superficial ulcer of skin .similarly among control group 43.3% of the had intact skin and 56.7% of them had Superficial ulcer of skin . There is a Statistically significant difference between control and experimental group in post level of diabetic foot ulcer. ($p=0.001^{***}$).

Table4.4: Comparison of pretest and posttest level of diabetic foot ulcer (experiment)

Wagner Grading system	Group				Chi square test
	Experiment		Control		
	Frequency	In%	frequency	In%	
Intact skin	0	0.0	25	83.3	$\chi^2=55.35$ $p=0.001^{***}$
Superficial ulcer of skin	30	100.0	5	16.7	
Ulcers extend into tendon, bone or capsule	0	0.0	0	0.0	
Deep ulcer with osteomyelitis of abscess	0	0.0	0	0.0	
Gangrene of toes or forefoot	0	0.0	0	0.0	
Midfoot or hind foot gangrene	0	0.0	0	0.0	
Total	30	100.0	30	100.0	

* significant at $P \leq 0.05$

** highly significant at $P \leq 0.01$

*** very high significant at $P \leq 0.001$

Among experiment group, in pretest 100% of them are had Superficial ulcer of skin , after papaya dressing , in posttest, 83.3% of them are had intact skin and 16.7% of them are had Superficial ulcer of skin. .Statistically there is a significant difference in comparison of pretest and post test level of diabetic foot ulcer in experimental group.($p=0.001^{***}$)

**Table 4. 5 Comparison of pretest and posttest level of diabetic foot ulcer
(control)**

Wagner Grading system	Group				Chi square test
	Experiment		Control		
	frequency	In%	Frequency	In%	
Intact skin	0	0.0	13	43.3	$\chi^2=10.73$ $p=0.03^*$
Superficial ulcer of skin	30	100.0	17	56.7	
Ulcers extend into tendon, bone or capsule	0	0.0	0	0.0	
Deep ulcer with osteomyelitis of abscess	0	0.0	0	0.0	
Gangrene of toes or forefoot	0	0.0	0	0.0	
Midfoot or hind foot gangrene	0	0.0	0	0.0	
Total	30	100.0	30	100.0	

* significant at $P \leq 0.05$

** highly significant at $P \leq 0.01$

*** very high significant at $P \leq 0.001$

Among control group, in pretest 100% of them are having Superficial ulcer of skin , after routine dressing , in posttest , 83.3% of them are having intact skin and 16.7% of them are having Superficial ulcer of skin. .Statistically there is a significant difference in comparison of pretest and post test level of diabetic ulcer score in control group.($p=0.03^*$)

Table 4. 6 comparisons experiment and control group diabetic foot ulcer score.

	No. of clients	Group				Mean Difference	Student independent t-test
		Experiment		Control			
		Mean	SD	Mean	SD		
Pre-test	30	1.00	0.00	1.00	0.00	0.00	t=0.00 p=0.00
Post-test	30	0.17	0.38	0.57	0.50	0.40	t=3.47 p=0.001***

* significant at $P \leq 0.05$

** highly significant at $P \leq 0.01$

*** very high significant at $P \leq 0.001$

Table no.6 shows the papaya dressing on diabetic ulcer by comparing with control group and experimental group.

Considering pretest in experiment, clients are having 1.00 dressing score, and in control they are had 1.00 dressing score. Difference is 0.00 score. The difference between pretest and posttest score is nil and it is not statistically significant in diabetic foot ulcer.

Considering posttest in experiment, clients are having 0.17 dressing score, and in control they are had 0.57 dressing score. Difference is 0.40 score. The difference between pretest and posttest score is large and it is statistically significant in diabetic foot ulcer. ($p=0.001$ ***).

Table 4. 7 Comparison of pretest and posttest ulcer score

	No. of clients	Group				Mean Difference	Student paired t-test
		Pre-test		Post-test			
		Mean	SD	Mean	SD		
Experiment	30	1.00	0.00	0.17	0.38	0.83	t=12.04 p=0.001***
Control	30	1.00	0.00	0.57	0.50	0.43	t=2.36 p=0.05*

* Significant at $P \leq 0.05$

** highly significant at $P \leq 0.01$

*** very high significant at $P \leq 0.001$

Table no.7 shows the comparison of overall pretest and posttest score.

Considering experiment group in experiment, in pretest, clients are having 1.00 dressing score and in posttest, they are had 0.17 score. Difference is 0.83 score. The difference between pretest and posttest score is large and it is statistically significant in diabetic foot ulcer.. ($p=0.001$ ***)

Considering control group in pretest clients are had 1.00 dressing score and in posttest they are had 0.57 score. Difference is 0.43 score. The difference between pretest and posttest score is large and it is statistically significant in diabetic foot ulcer score($p=0.05$ *)

Table 4.8: Effectiveness of papaya dressing on diabetic foot ulcer

		Mean dressing score	Mean Difference in ulcer score from baseline data with 95% Confidence interval	Percentage of ulcer score with 95% Confidence interval
Experiment	Pretest	1.00	0.83(0.69-0.97)	83.0 (69.0-97.0)
	Posttest	0.17		
Control	Pretest	1.00	0.43(0.25-0.62)	43.0 (25.0 -62.0)
	Posttest	0.57		

Table 8 shows assess the effectiveness of papaya dressing on diabetic ulcer by comparing with control group and experimental group as post test.. Experiment group clients are reduced 83% of ulcer score from baseline after papaya dressing whereas control group clients are reduced 43% after routine treatment. This 40% difference shows the effectiveness of papaya dressing. Differences between pretest and posttest score was analyzed using percentage with 95% CI .

Table 4.9: Association between the level of papaya dressing and clients demographical variables (experimental group)

Demographic variables		Level of post-test ulcer score				Total	Chi square test
		Intact skin		Superficial ulcer of skin			
		frequency	%	frequency	%		
Age	40 -49 years	8	100.0	0	0.0	8	$\chi^2=10.36$ P=0.01**
	50 -59 years	11	100.0	0	0.0	11	
	60 -70 years	6	54.5	5	45.5	11	
Gender	Male	10	83.3	2	16.7	12	$\chi^2=0.13$ P=0.71
	Female	15	83.3	3	16.7	18	
Educational Status	Uneducated	6	85.7	1	14.3	7	$\chi^2=0.72$ P=0.86
	Primary Education	7	87.5	1	12.5	8	
	Secondary Education	10	83.3	2	16.7	12	
	Graduate	2	66.7	1	33.3	3	
Occupation	Sedentary Work	5	100.0			5	$\chi^2=2.57$ P=0.27
	Moderate Work	16	76.2	5	23.8	21	
	Heavy Work	4	100.0			4	
Dietary Habits	Vegetarian	5	71.4	2	28.6	7	$\chi^2=0.93$ P=0.33
	Mixed Diet	20	87.0	3	13.0	23	
Exercise	Regular	6	100.0	0	0.0	6	$\chi^2=7.28$ P=0.05*
	Irregular	14	93.3	1	6.7	15	
	Occasional	5	55.5	4	44.4	9	
Religion	Hindu	19	86.4%	3	13.6%	22	$\chi^2=1.74$ P=0.42
	Christian	5	83.3%	1	16.7%	6	
	Muslim	1	50.0%	1	50.0%	2	
Income	< Rs.3000	5	83.3%	1	16.7%	6	$\chi^2=0.68$ P=0.71
	Rs.3000 - ,5000	17	81.0%	4	19.0%	21	
	> Rs.5000	3	100.0%			3	
Residential Status	Slum	2	100.0%			2	$\chi^2=0.43$ P=0.80
	Rural	9	81.8%	2	18.2%	11	
	Urban	14	82.4%	3	17.6%	17	
Type of Family	Nuclear family	13	86.7%	2	13.3%	15	$\chi^2=0.24$ P=0.62
	Joint family	12	80.0%	3	20.0%	15	
Duration of Ulcer	1 - 6 Months	15	100.0%	0	0.0%	15	$\chi^2=8.50$ P=0.01**
	6 - 12 months	10	66.7%	5	33.3%	15	

Table 9 shows the association of posttest level of ulcer reduction scores with selected demographic variable. Younger, regular exercise and less duration of clients are benefitted more than others.

There is statistically significant change in age and duration of diabetic foot ulcer clients in post test($P=0.01^{**}$)

There is statistically significant change in doing regular exercise for doing diabetic foot ulcer post test in Experimental group. ($P=0.05^{*}$)

Table 4. 10: Association between the level of ulcer score and clients demographical variables (control group)

Demographic variables		Level of post-test ulcer score				Total	Chi square test
		Intact skin		Superficial ulcer of skin			
		f	%	f	%		
Age	40 -49 years	2	40.0	3	60.0	5	$\chi=0.49$ P=0.78
	50 -59 years	7	50.0	7	50.0	14	
	60 -70 years	4	36.4	7	63.6	11	
Gender	Male	7	46.7	8	53.3	15	$\chi=0.13$ P=0.71
	Female	6	40.0	9	60.0	15	
Educational Status	Uneducated	1	16.7	5	83.3	6	$\chi=2.34$ P=0.31
	Primary Education	6	54.5	5	45.5	11	
	Secondary Education	6	46.2	7	53.8	13	
Occupation	Sedentary Work	1	25.0	3	75.0	4	$\chi=1.11$ P=0.57
	Moderate Work	9	42.9	12	57.1	21	
	Heavy Work	3	60.0	2	40.0	5	
Dietary Habits	Vegetarian	4	66.7	2	33.3	6	$\chi=1.66$ P=0.19
	Mixed Diet	9	37.5	15	62.5	24	
Exercise	Regular	1	25.0	3	75.0	4	$\chi=4.54$ P=0.10
	Irregular	6	33.3	12	66.7	18	
	Occasional	6	75.0	2	25.0	8	
Religion	Hindu	10	47.6	11	52.4	21	$\chi=1.03$ P=0.59
	Christian	3	37.5	5	62.5	8	
	Muslim			1	100.0	1	
Income	< Rs.3000	3	75.0	1	25.0	4	$\chi=2.98$ P=0.22
	Rs.3000 -.5000	8	34.8	15	65.2	23	
	> Rs.5000	2	66.7	1	33.3	3	
Residential Status	Slum	0	0.0	1	100.0	1	$\chi=0.91$ P=0.63
	Rural	4	50.0	4	50.0	8	
	Urban	9	42.8	12	57.2	21	

Table-10 shows the association of posttest level of ulcer score with selected demographic variable.

Younger and male clients are benefited more then others.

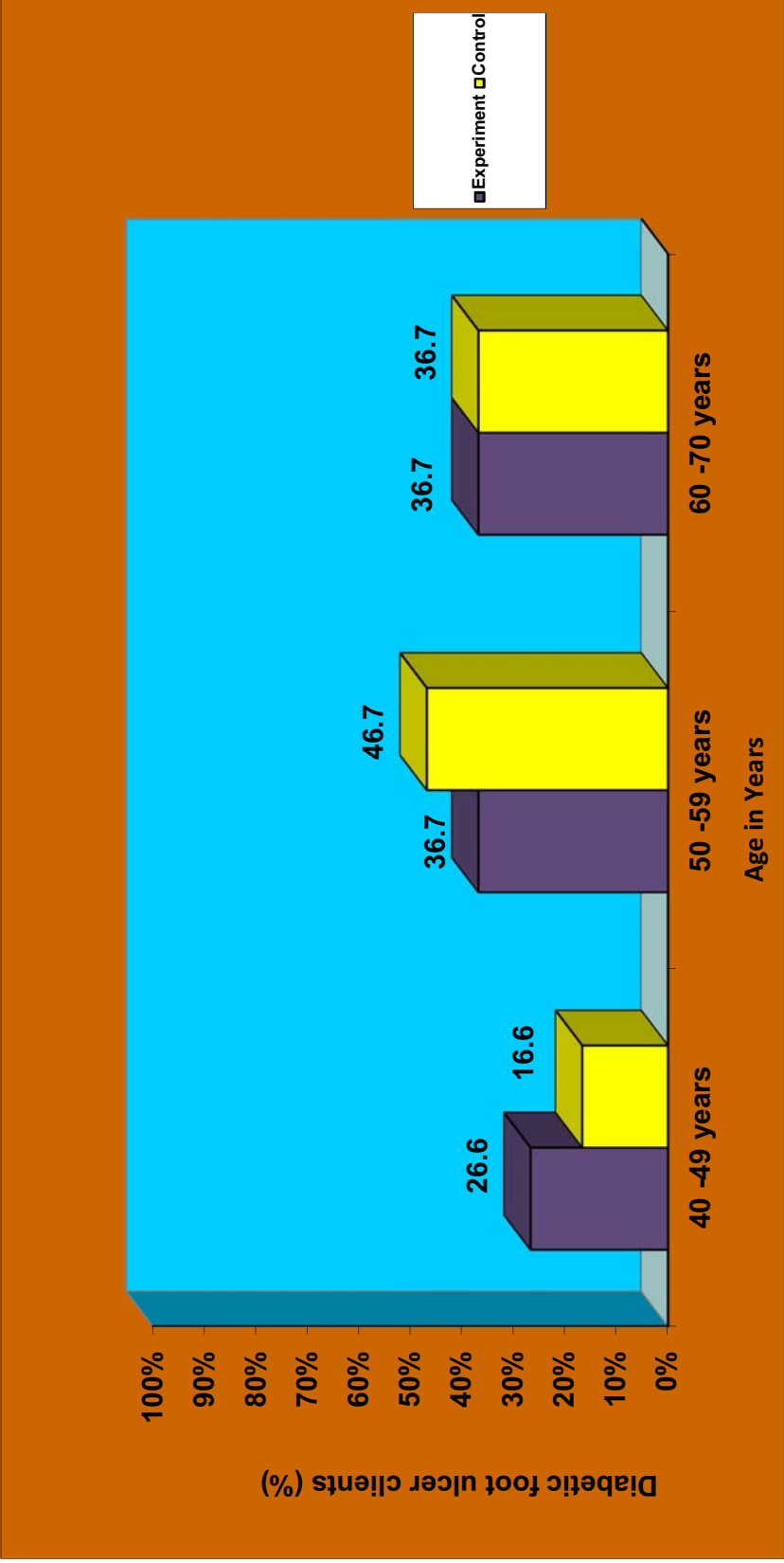


Fig 4.1 Age wise distribution of patients with diabetic foot ulcer.

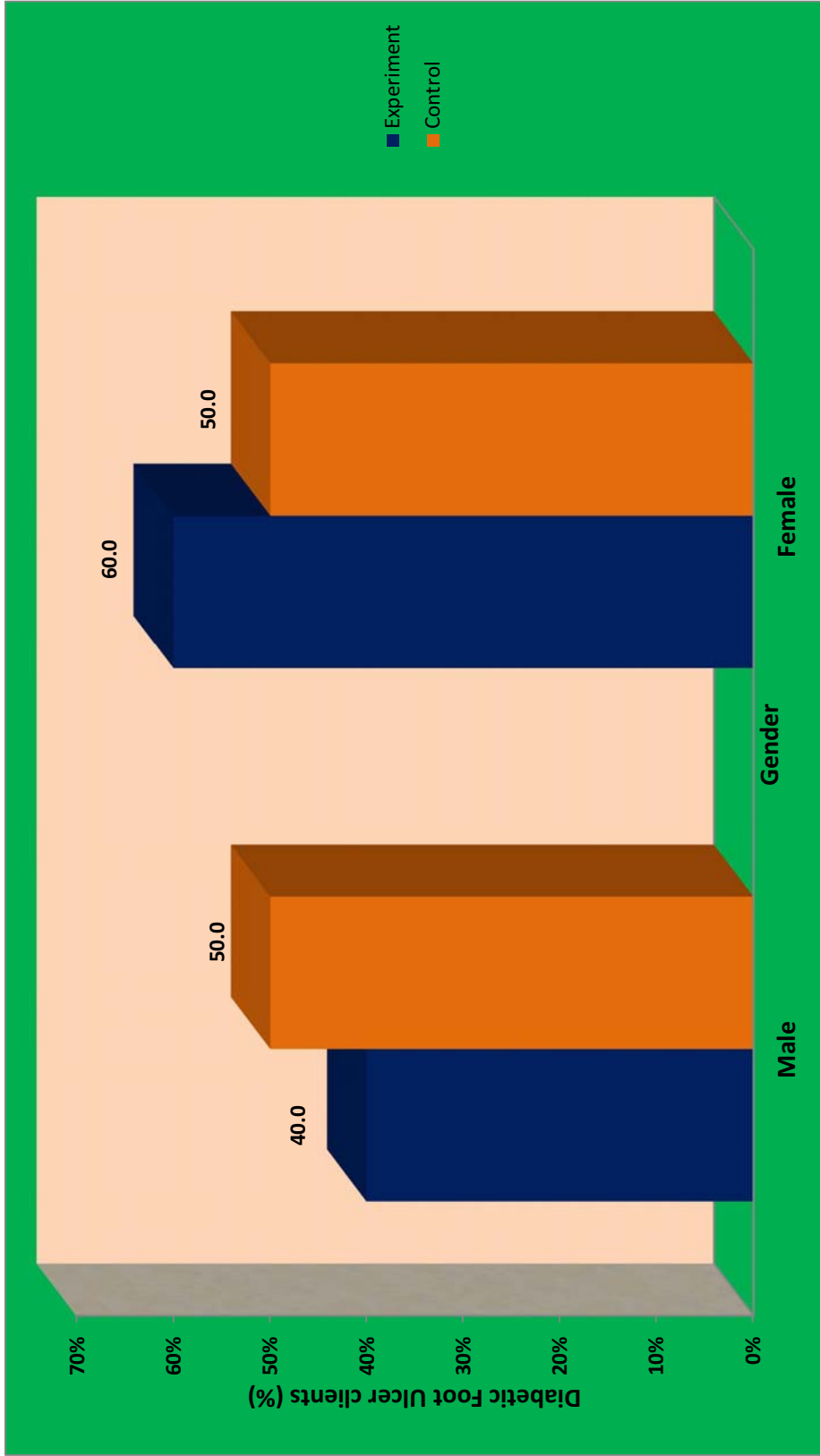


Fig 4.2 Gender wise distribution of patient with diabetic foot ulcer

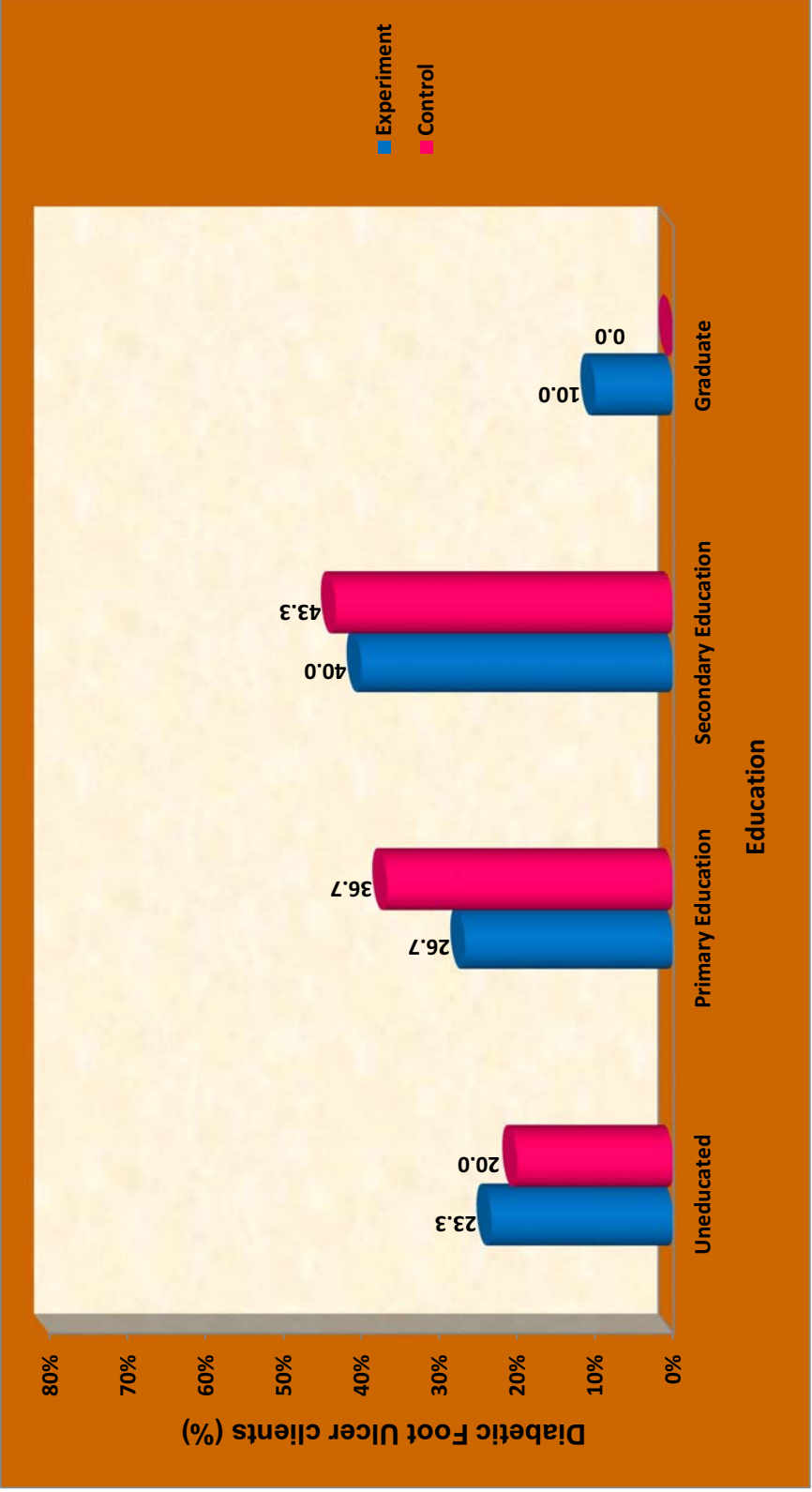


Fig 4.3 Education wise distribution of patient with diabetic foot ulcer

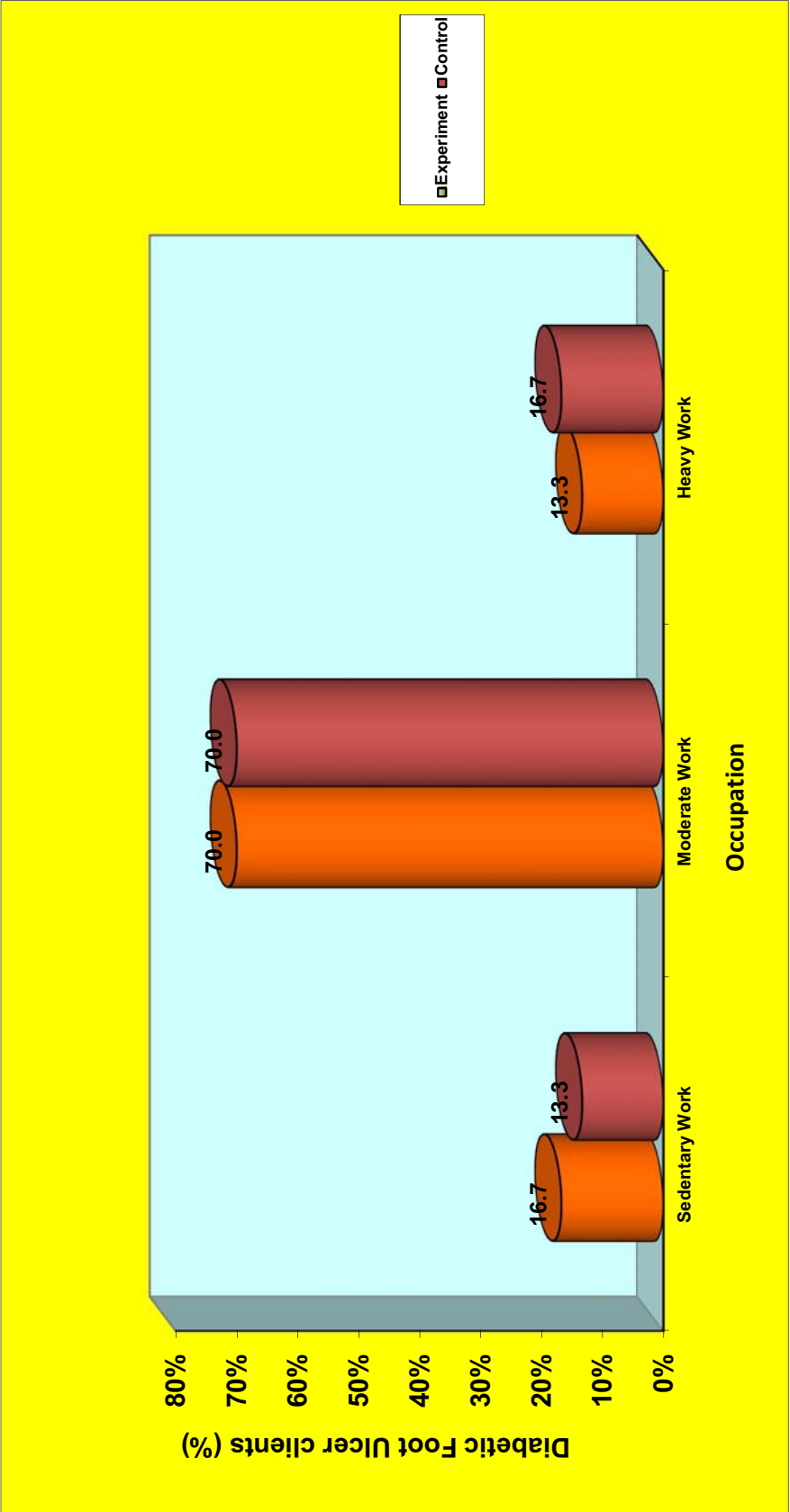


Fig 4.4 Occupation wise distribution of patients with diabetic foot ulcer.

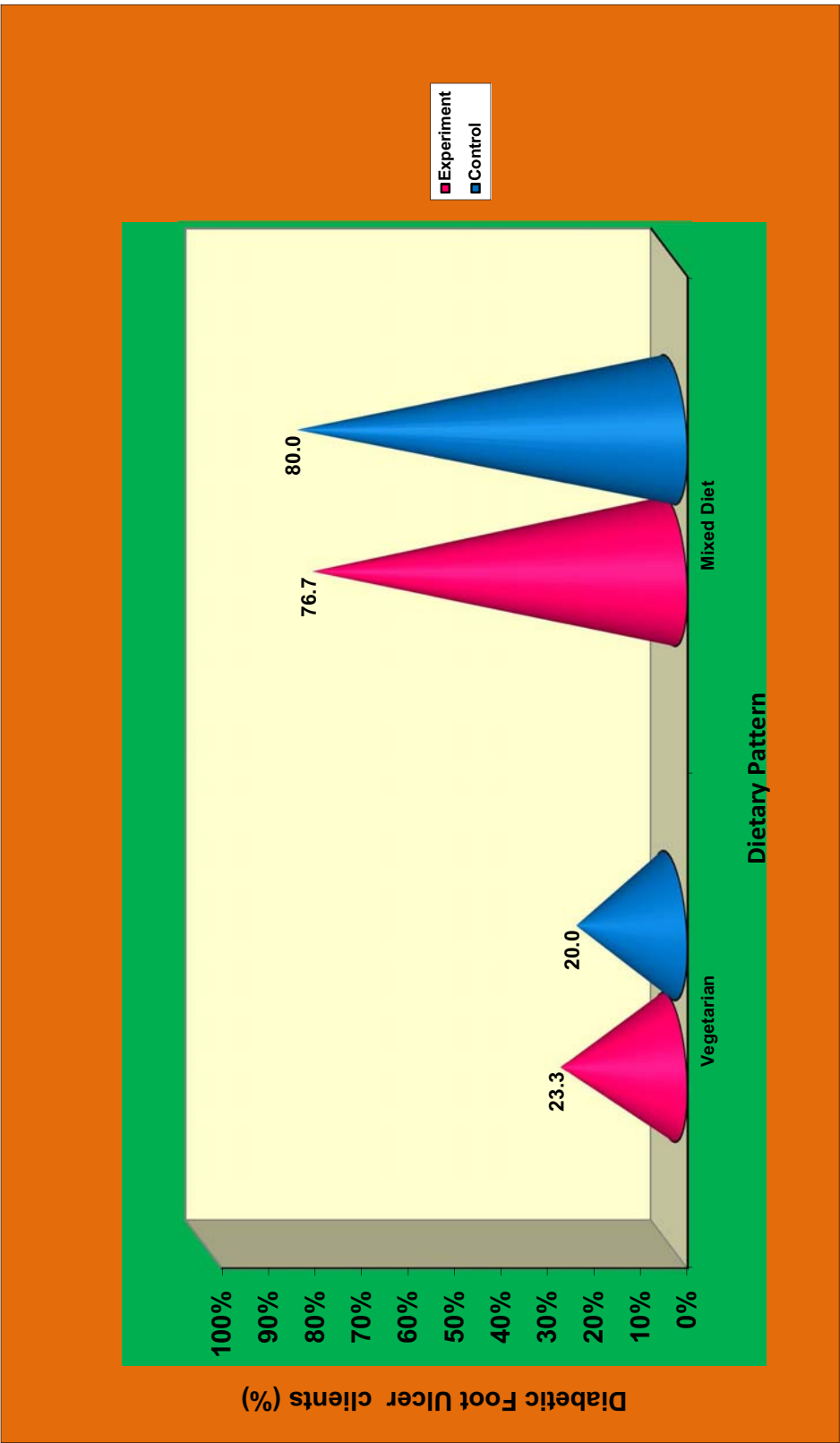


Fig 4.5 Dietary pattern wise distribution of Patients with diabetic foot ulcer.

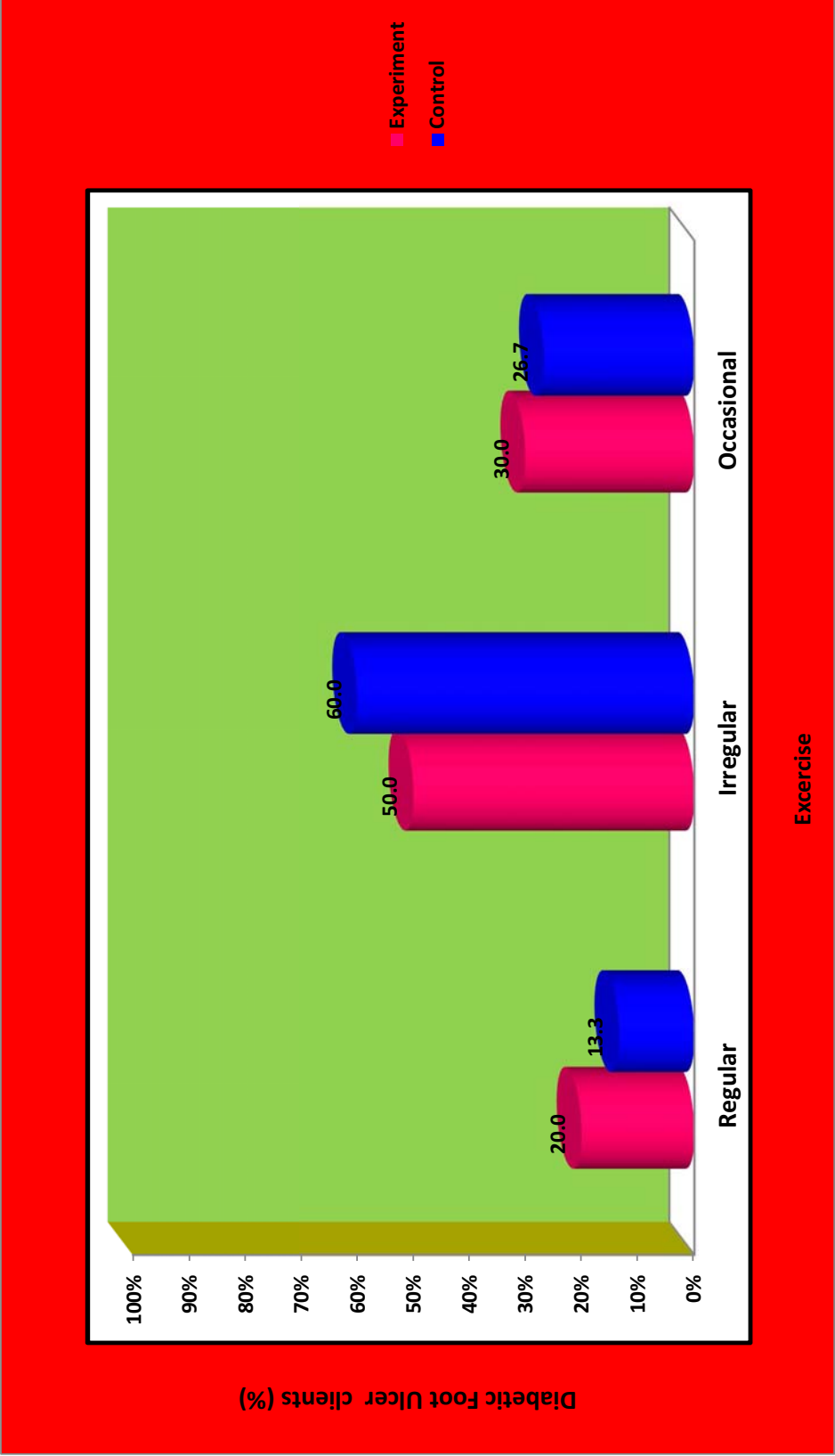


Fig 4.6 Exercise wise distribution of patients with diabetic foot ulcer.

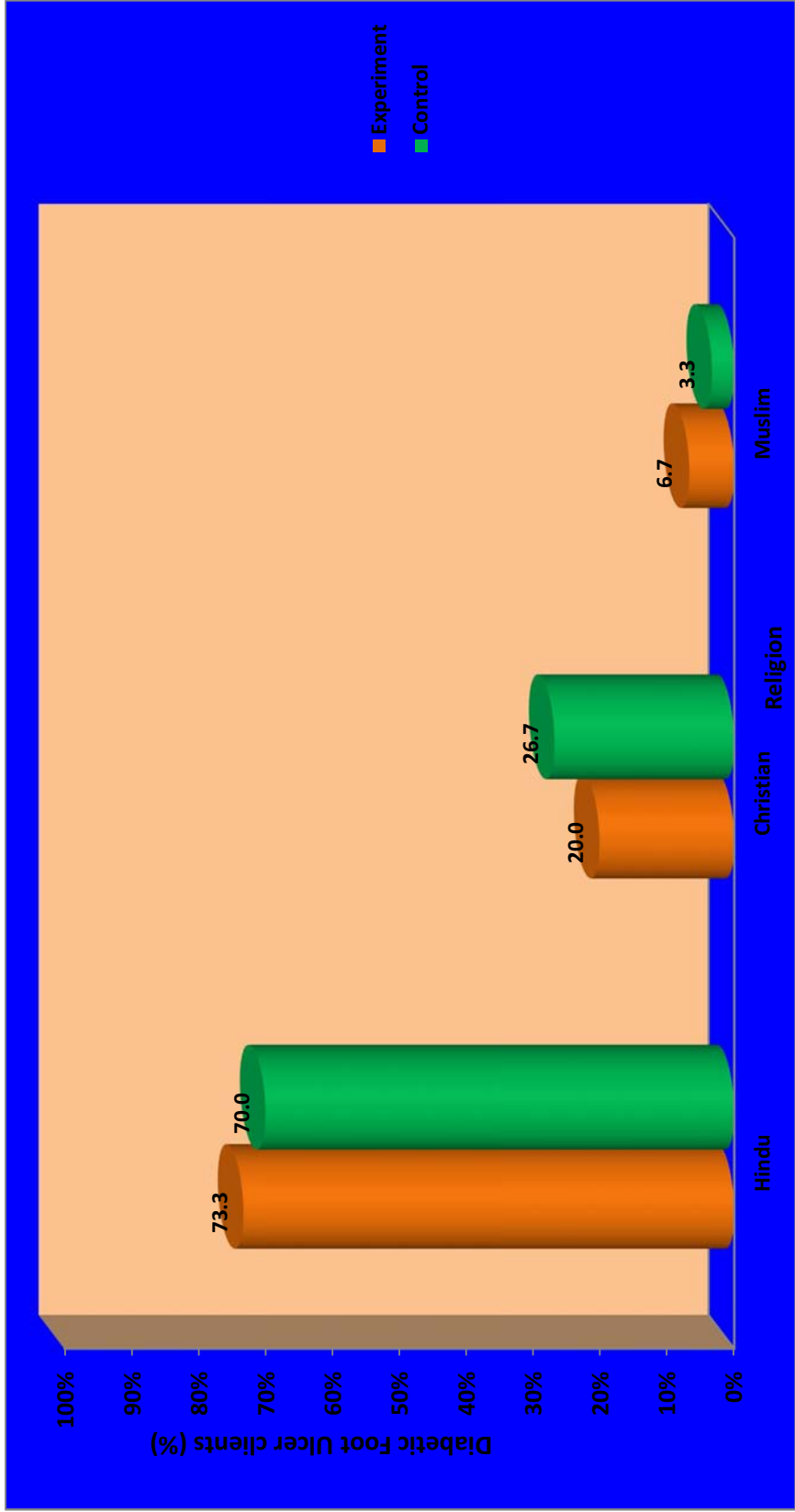


FIG 4.7 Religion wise distributions of patients with diabetic foot ulcer.

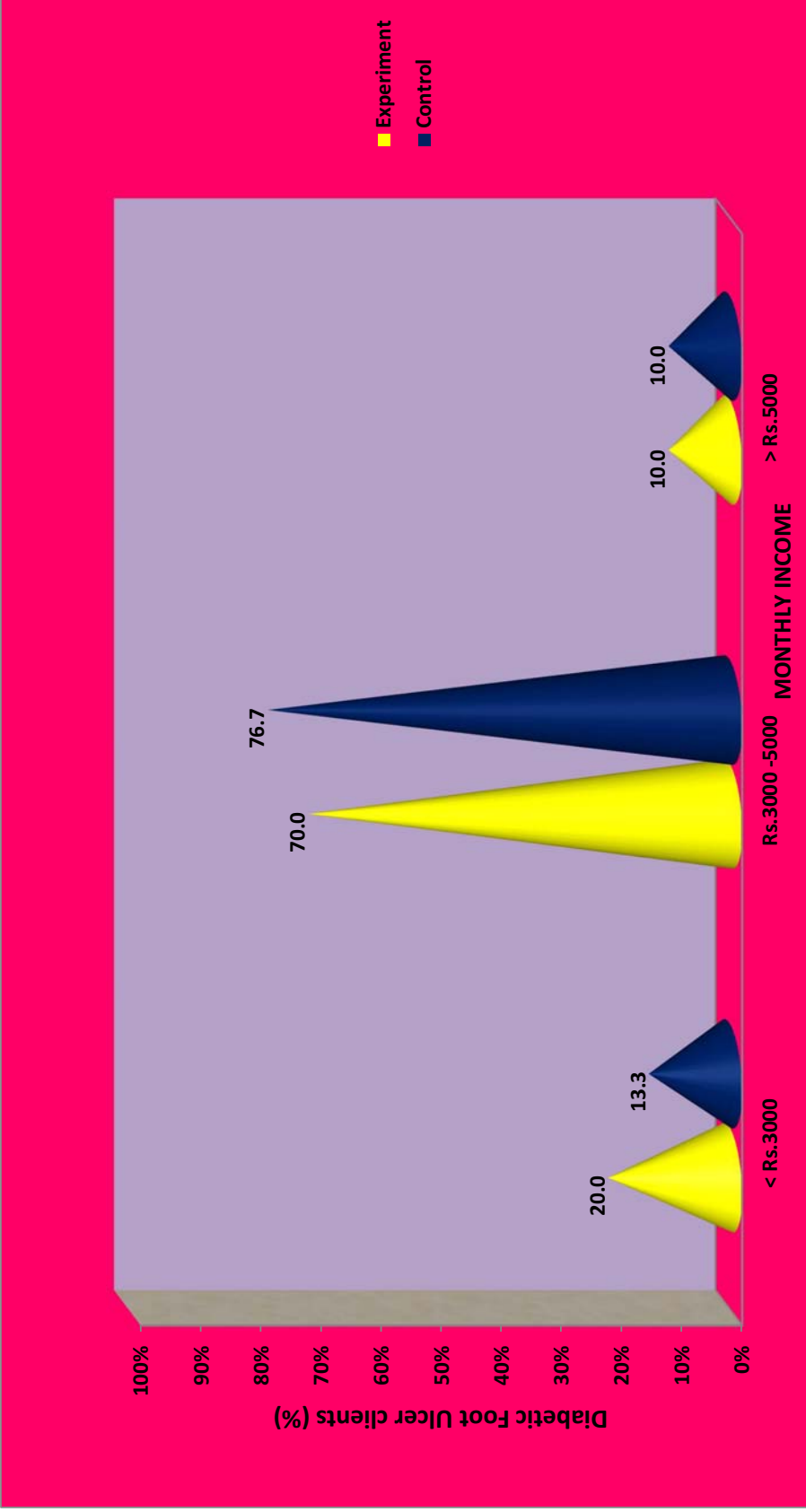


Fig 4.8 Family Monthly Income wise distribution of patient with diabetic foot ulcer

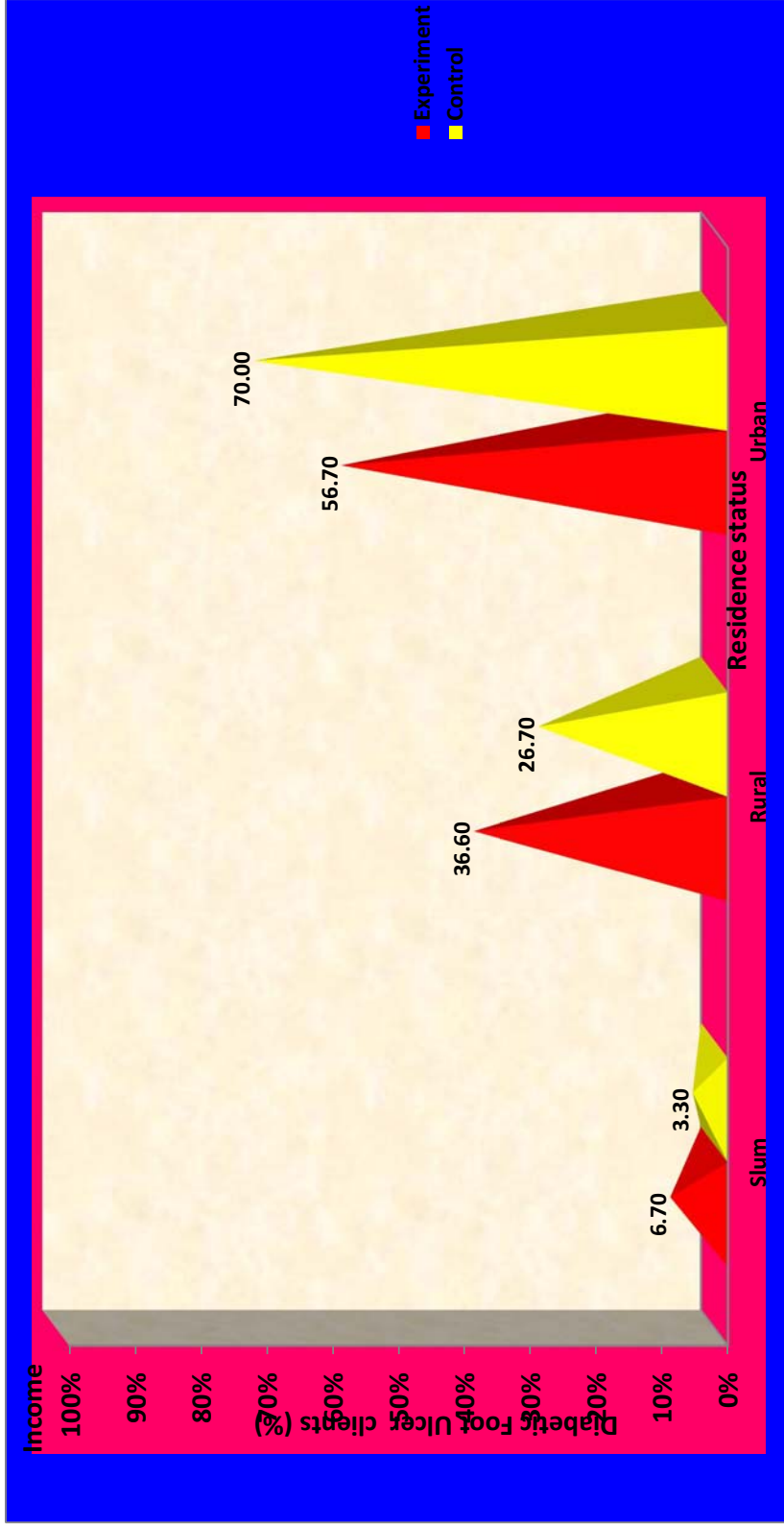


Fig 4.9 Residence status wise distribution of Clients with diabetic foot ulcer

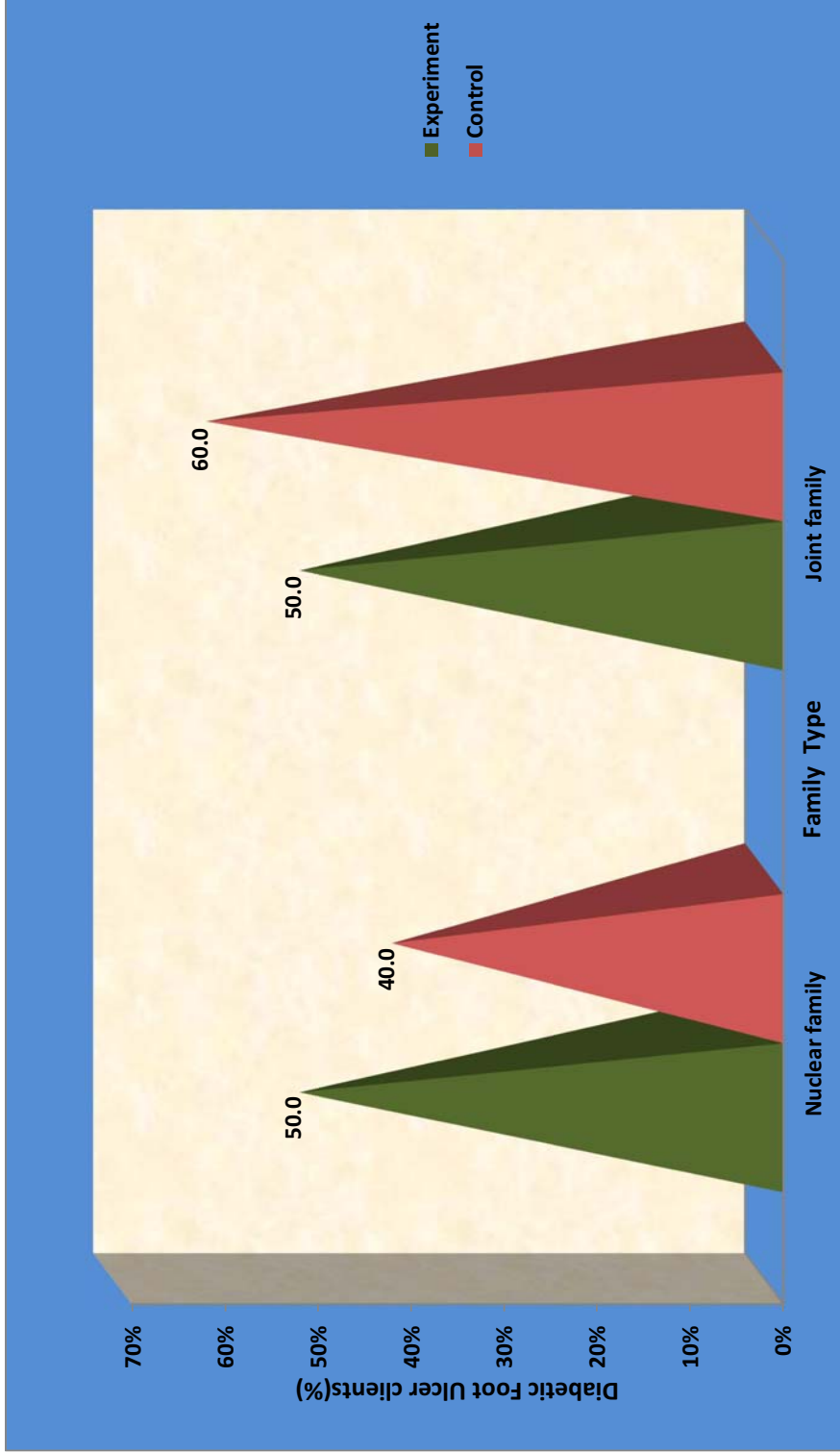


Fig 4.10 Family type wise distribution of Clients with diabetic foot ulcer.

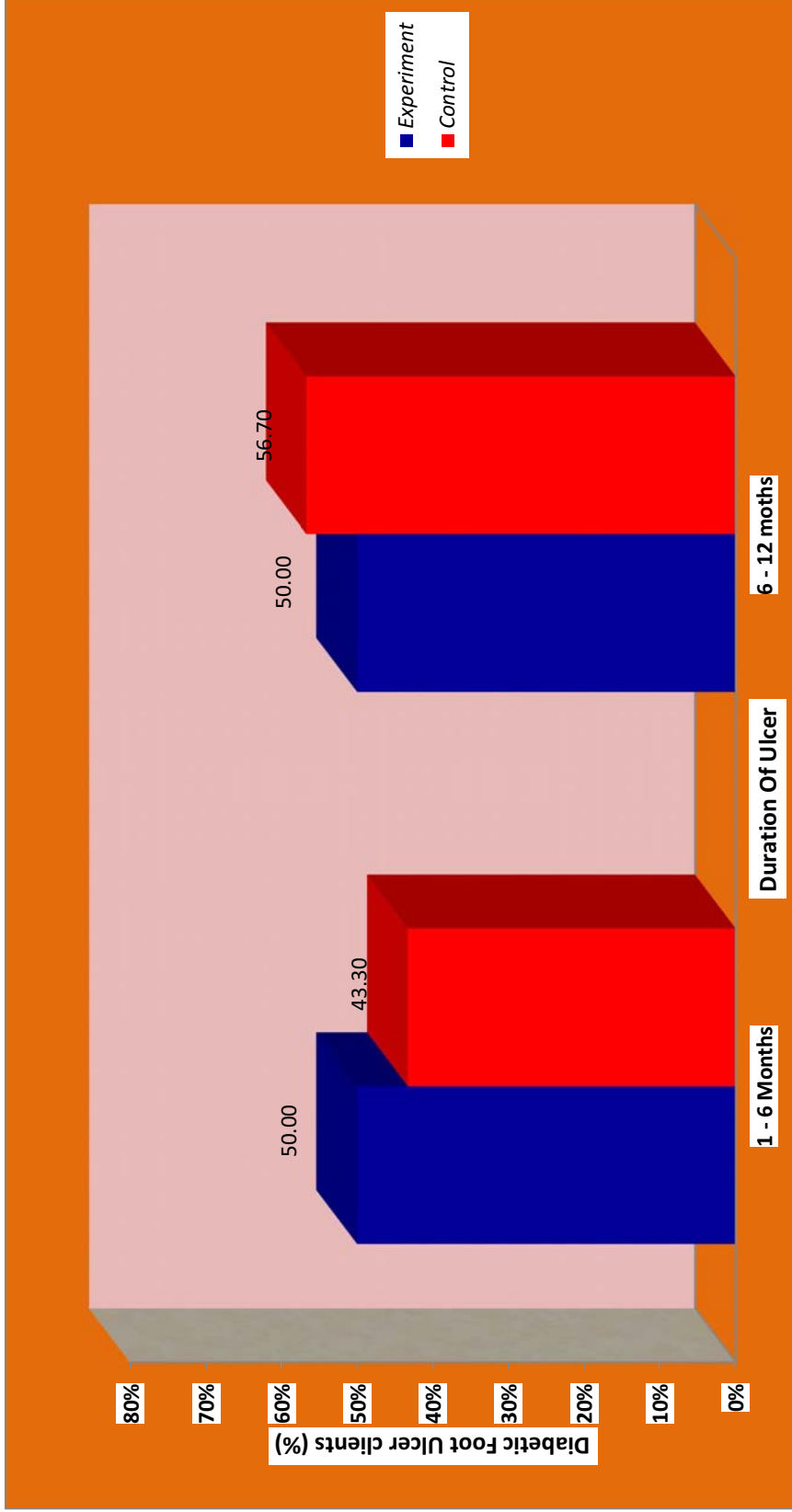


Fig 4.11 Duration of ulcer wise distribution of Clients with diabetic foot ulcer.

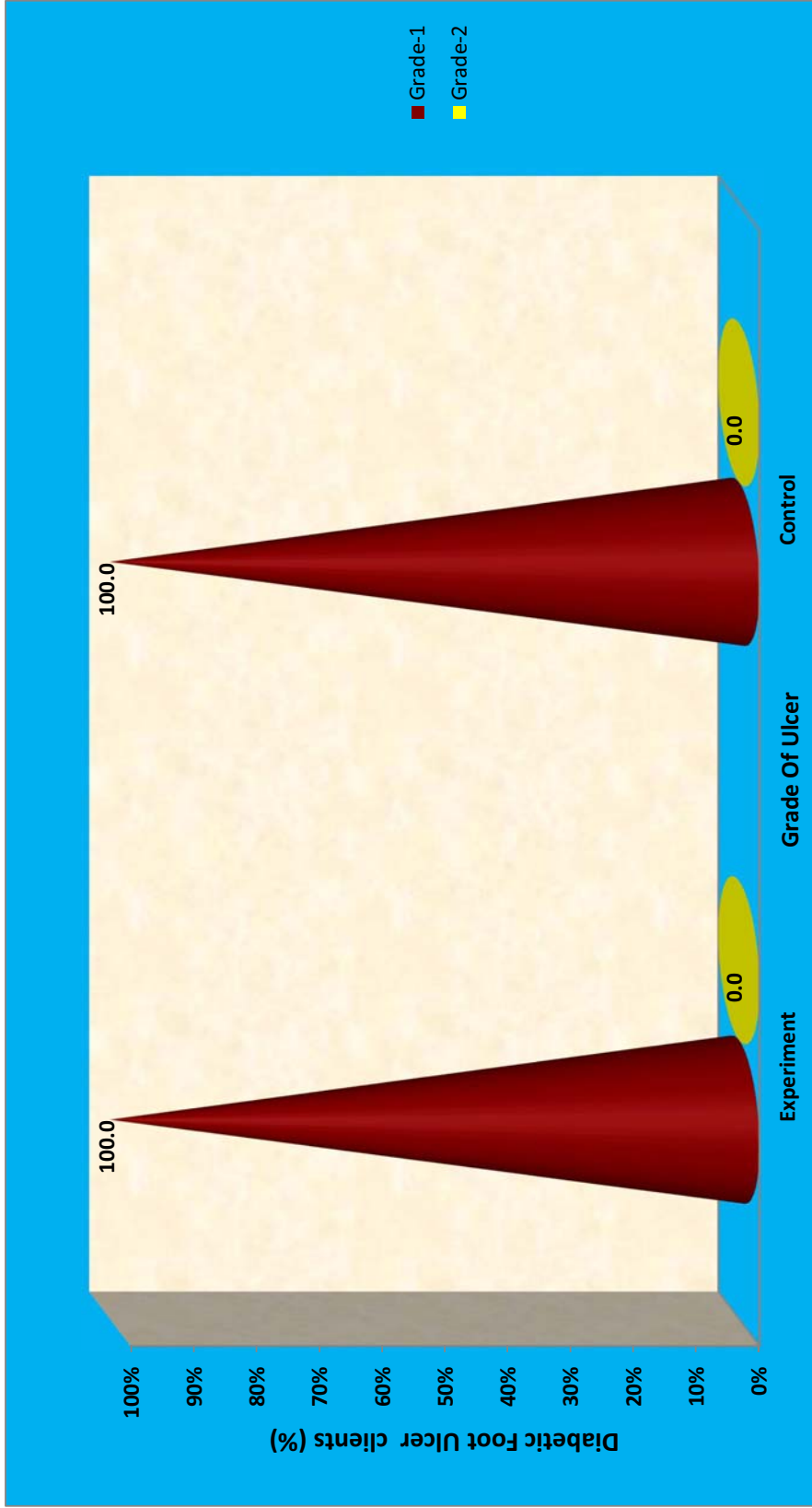


Fig 4.12 Grade of ulcer wise distribution of clients with diabetic foot ulcer.

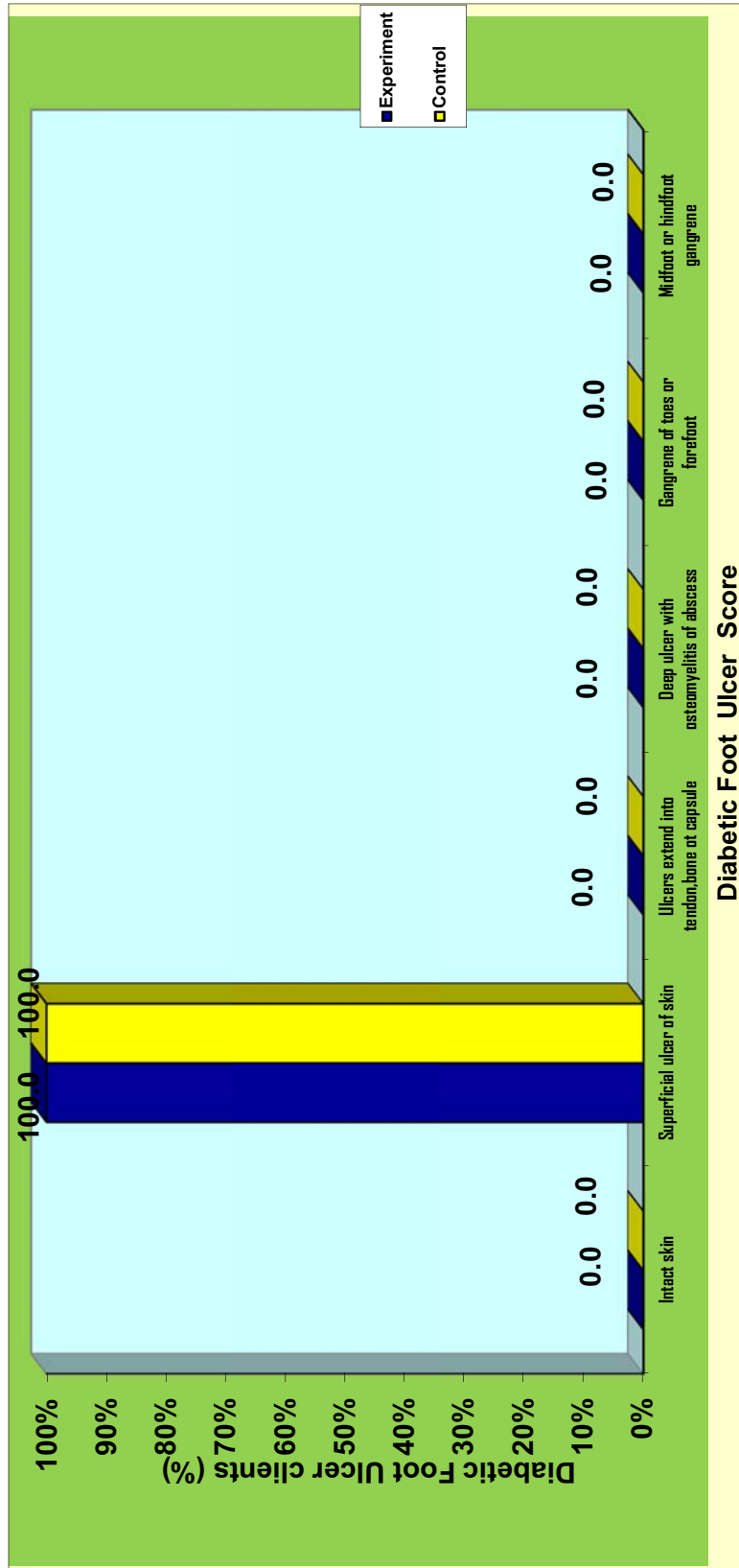


Fig 4.13 Pre test level of diabetic foot ulcer score

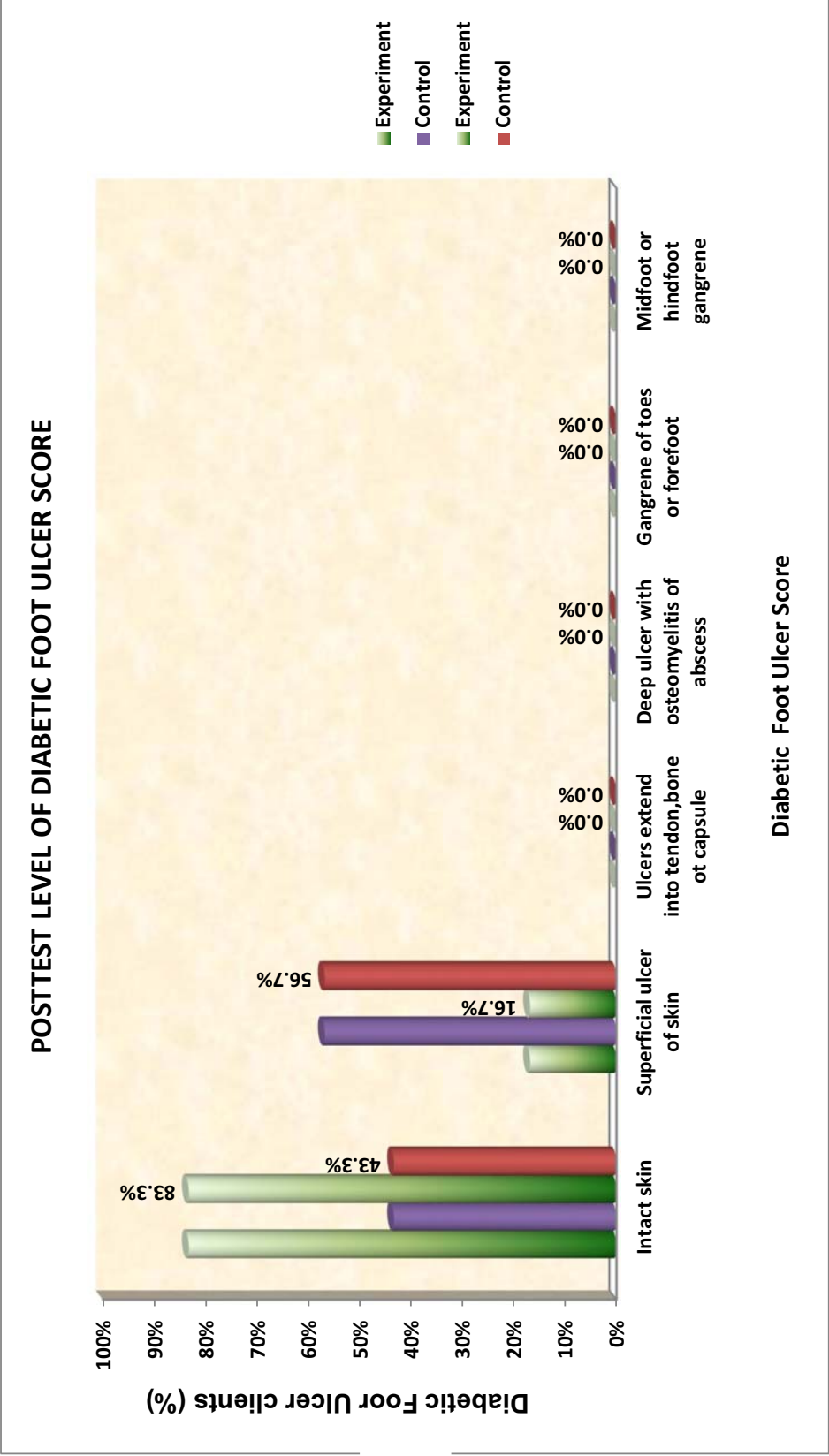


Fig 4.14 Post test level of diabetic foot ulcer score

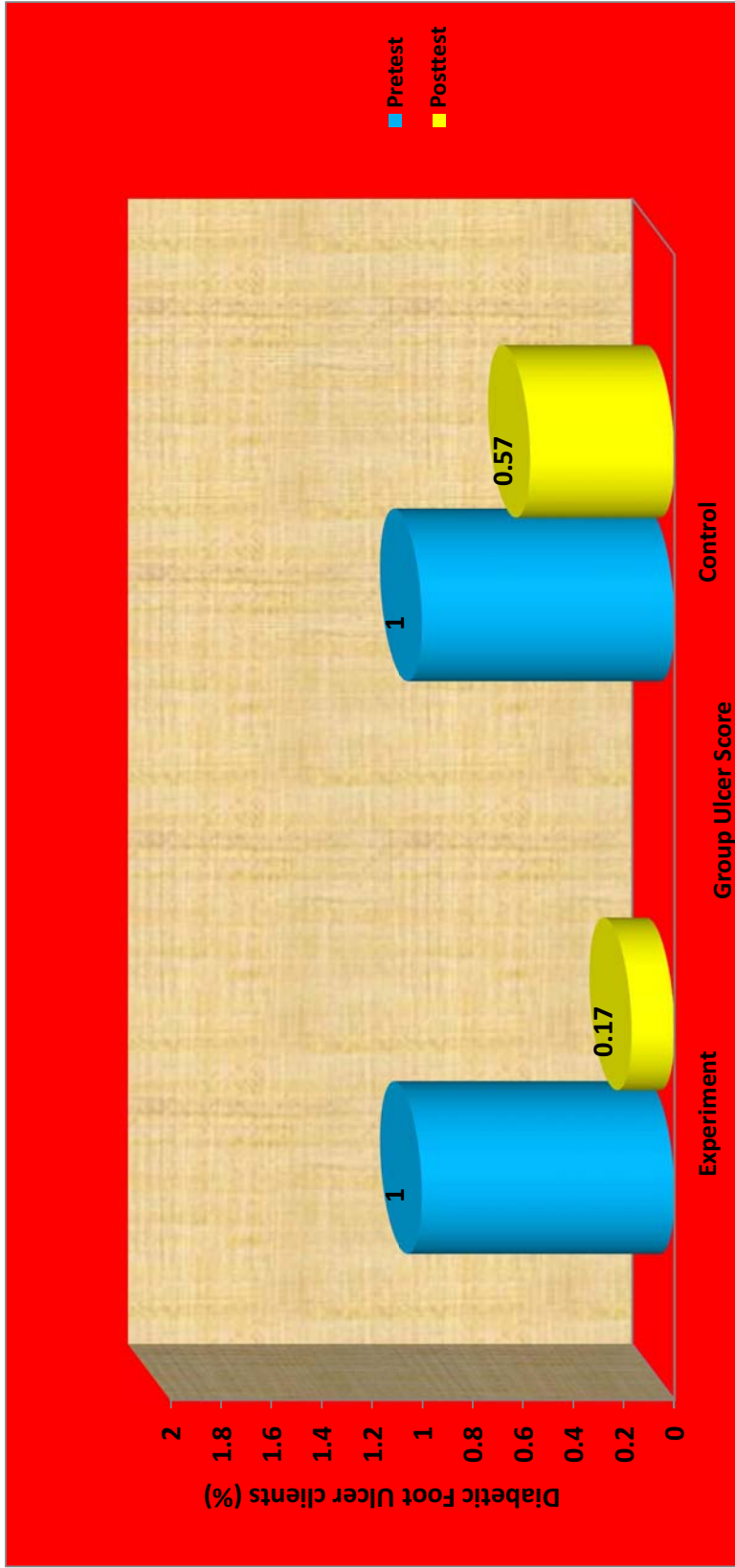


Fig 4.15 Comparison of experiment and control group diabetic foot ulcer score post test.

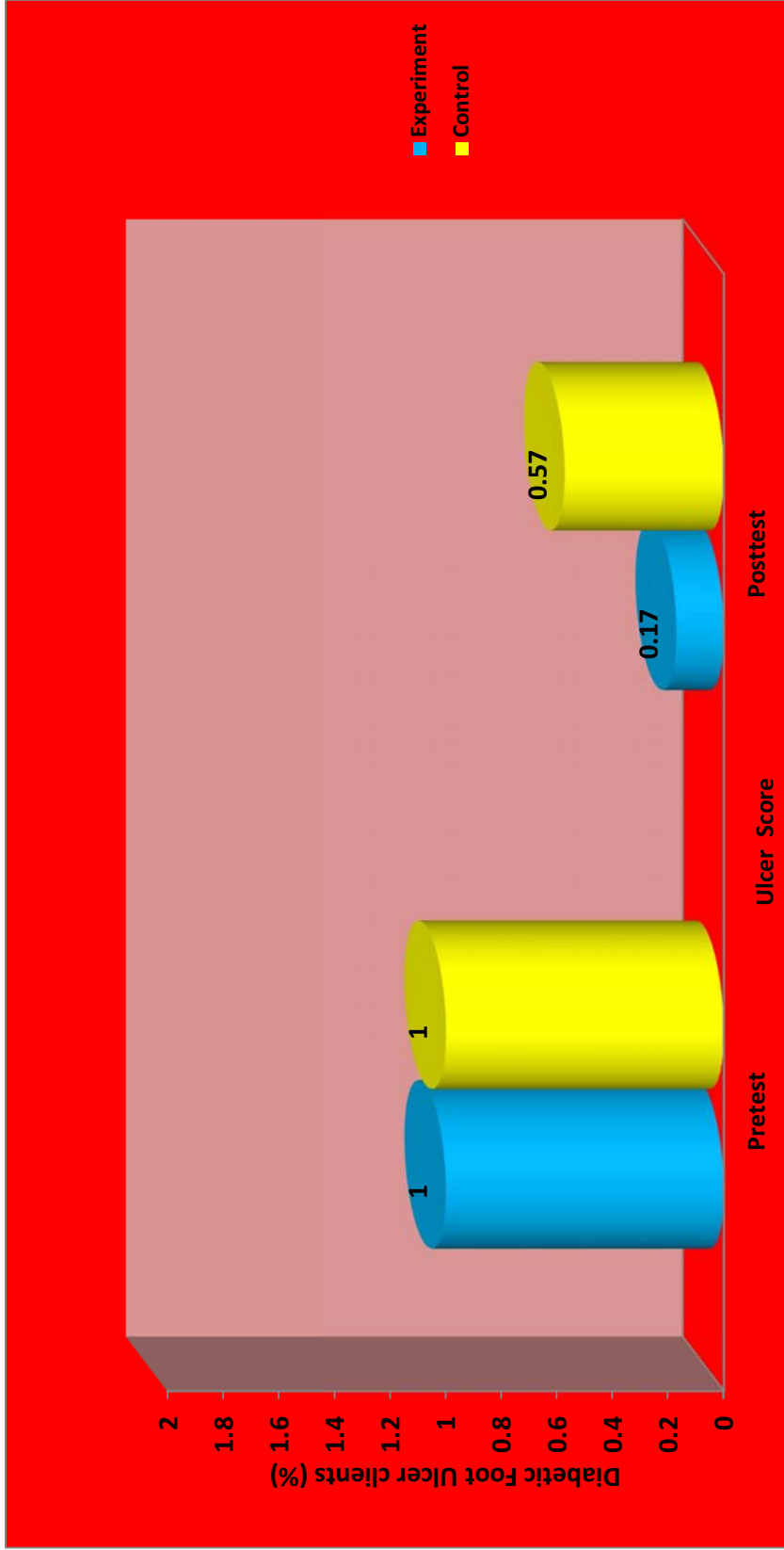


Fig 4.16 Comparison of pre test and post test diabetic foot ulcer score of control and experimental group.

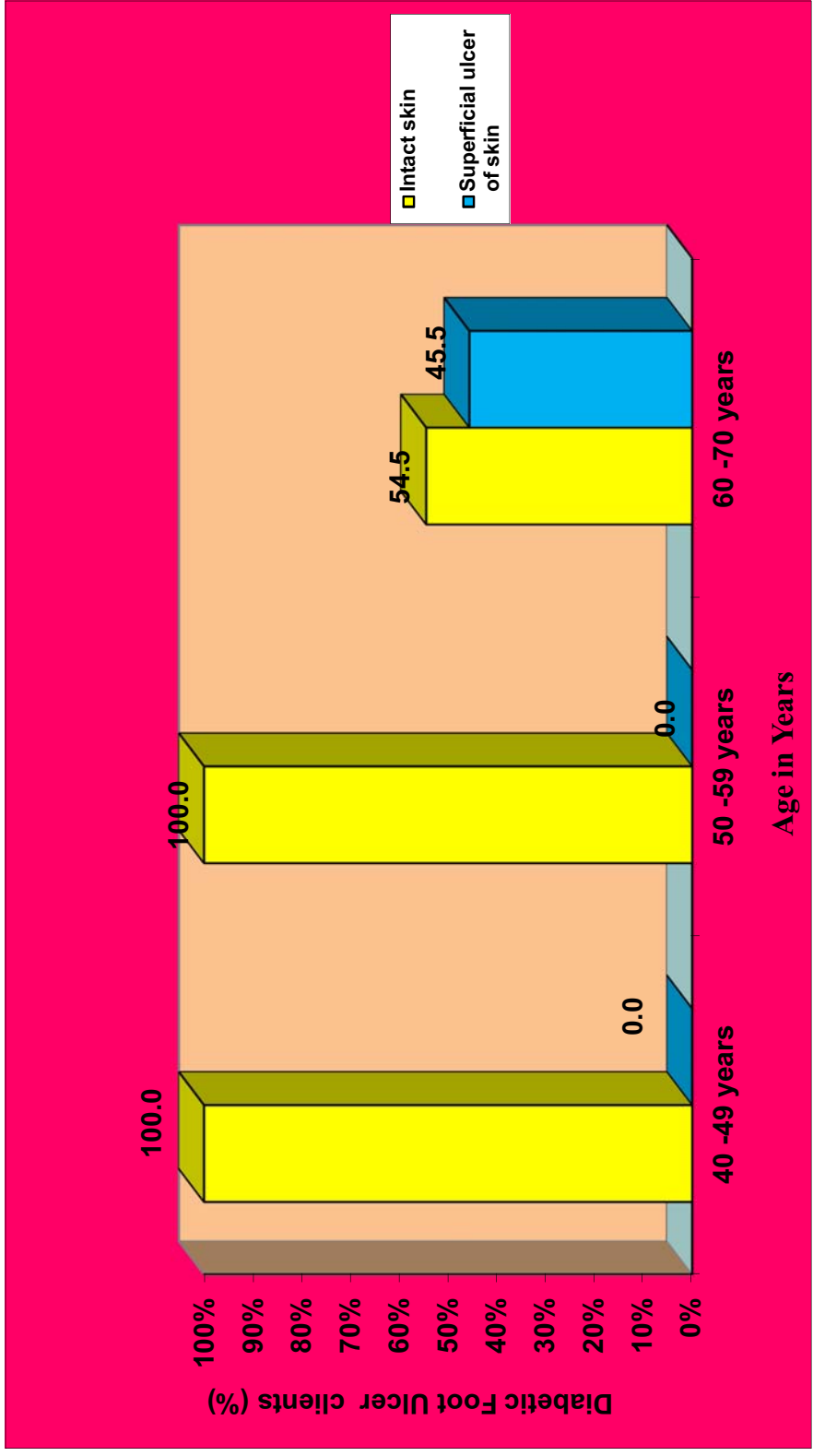


Fig 4.17 Association between post test level of diabetic foot ulcer score and Age wise Distribution of Diabetic clients. (Experimental)

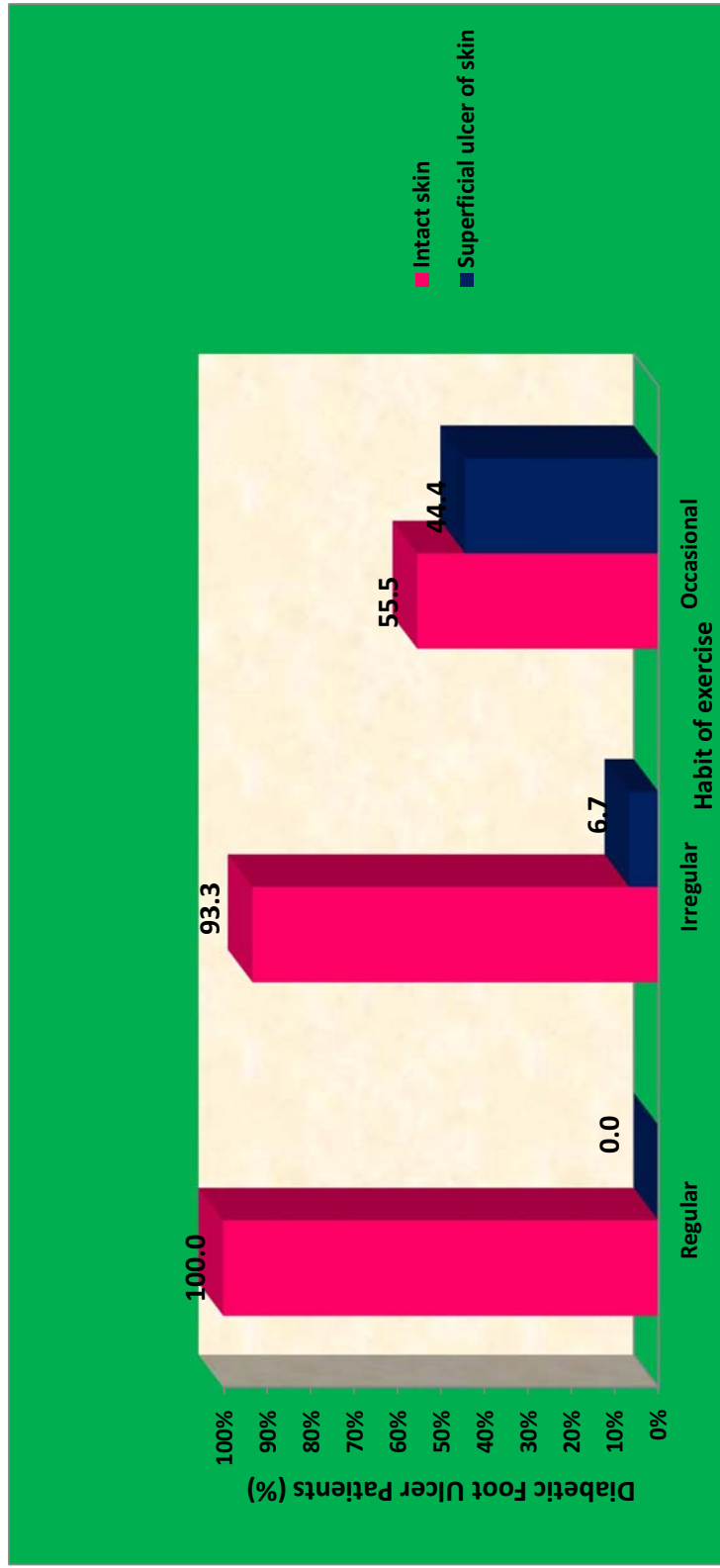


Fig 4.18 Association between post test level of diabetic foot ulcer score and habit of Exercise (Experimental).

CHAPTER – V

SUMMARY

CHAPTER-V

SUMMARY

6.1 *Summary of results*

The purpose of the study “A Study to assess the Effectiveness of Papaya Dressing on diabetic foot ulcer Among clients admitted in Diabetology Ward at Rajiv Gandhi Government General Hospital, Chennai.

Diabetic foot ulcers is the one of the most common and devastating complication of diabetes mellitus, the macro vascular and micro vascular changes and the neuropathy all contribute to changes in to the lower extremity called the diabetic foot. Diabetic foot ulcer comprises the typical sequence of events with a soft tissue injury of the foot, formation of a fissure between the toes or in an area of dry skin, or formation of a callus. Injuries are not felt by the patient with an insensitive foot.

Carica papaya was selected to see the wound healing potential. *Carica papaya* have antibacterial activity against various micro-organisms including Staphylococcus aureus, Bacillus cereus, Bacillus subtilis, E coli, Enterobacter cloacae, Proteus vulgaris, Klebsiella pneumonia, Salmonella typhi, Pseudomonas aeruginosa and Shigella flexner. Raw papaya contain plenty of latex which is a rich source of four cysteine endopeptidases namely papain, chymopapain, glycyloendopeptidase and caricain. Papita (*Carica papaya* Linn) is mentioned Mohallil (resolvent) in Unani medicine. Reported activity of its latex (enzyme papain&pseudocarpaine) shows proteolytic action, prevents ulcers (gastro duodenal) and diabetic foot ulcer.

So the Investigator undertook the study to assess the effectiveness of papaya dressing on Diabetic foot ulcer among clients admitted in Diabetology ward at Rajiv Gandhi Government General Hospital, Chennai.

The objectives of the study are

1. .To assess the demographic and clinical variables among experimental and control group.
2. .To assess the pre test and post test level of diabetic foot ulcer among the experimental and control group.
3. To compare the pre test and post test level of diabetic foot ulcer score among the experimental and control group.
4. To assess the Effectiveness of papaya dressing on Diabetic foot ulcer among Experimental group.
5. To find the association between the selected demographic variables and the effectiveness of Papaya Dressing in both experimental and control group.

The study was based on the assumption there will be significant difference the papaya dressing on diabetic foot ulcer.

The research Hypothesis formulated was

- H1-** There is significant change in the level of Diabetic foot ulcer among clients in control and Experimental group in pretest and posttest.
- H2-** There is significant difference in Effectiveness of papaya dressing on Diabetic foot ulcer among clients in Experimental group.

The variables of the study were

Independent variable : Papaya Dressing.

Dependent variable : foot ulcer of diabetic clients.

The conceptual frame work for the study was based on Donabedian's structure process and outcome theory and it provide a comprehensive framework for achieving the objective of the study. The research design selected for this study was experimental design.

The study was conducted in Diabetology wards in Rajiv Gandhi Government General Hospital, Chennai.

The tool consisted of demographic data, clinical data and Wagner wound healing grading scale .The tool was validated by experts in the medical and surgical Nursing Experts.

The pilot study was conducted after getting formal permission from the Director and HOD, Department of diabetology at Rajiv Gandhi Government General Hospital, Chennai. Pilot study was conducted at male and female diabetology ward at Rajiv Gandhi Government General Hospital, Chennai for 5 days before conducting the actual main study. It was to Check the feasibility and use of the instrument and see whether any modification are needed to be done before actual implementation of the study. Totally 10 patient have been selected, among that 5 were allotted to the experimental group and 5 were allotted to the control group. Specific nursing intervention was to the experimental group using this tool and routine care was given to the control group clients by the staff nurses. Analysis of the study shows the positive effects of specific nursing intervention when compared to the control group. The study was practically feasible for the investigator. The sample who are selected and observed for pilot study were not included in the main study.

The main study was conducted from the period (16.7.15 to 16.8.15), in the department of Diabetology , Rajiv Gandhi Government General Hospital, Chennai. Among clients from diabetology ward Selecting by systemic random sampling method was adopted. The data collected was analyzed using both Descriptive and Inferential statistics.

6.2. Major findings of the study

- ❖ In experimental group (36.75%) of the participants were between the age group of 60-70 Years and (46.7%) of the sample in the age group 50-59 years in control group.
- ❖ Nearly (60.0%) of female in the experimental group and (50.0%) of male and female in control group shows the equal distribution .
- ❖ Majority of (40.0%) of the participants had completed primary education in Experimental group and (43.3%) had completed their secondary education in control group.
- ❖ Nearly (70.0%) of the samples doing Moderate work in control group, and (70.0%) of the sample are doing moderate work in control group.
- ❖ Majority of (76.7%) are taking mixed type in experimental group. In control group (80.0%) are taking Mixed type diet.
- ❖ In Experimental group (50.0%) of the samples were doing Irregular exercise and (50.0%) were doing Irregular Exercise in control group.
- ❖ Majority of (73.3%) of the sample of Experimental group belongs to Hindu Religion and (70.0%) were belongs to Hindu in the control group.
- ❖ Majority of (70.0%) of the sample earning < RS 3000 per month in experimental group and (76.7%) were earn between Rs 3000to 5000 in control group.
- ❖ Majority (56.7%) of the sample from the Experimental Group residing in urban, and (70.7%) of the sample were living in the urban area in control group.

- ❖ Majority (50.0%) of the sample from Nuclear family as well Joint family in Experimental Group and (60.0%) of the sample from Joint family in control Group.
- ❖ Majority (50.0%) of the sample from duration of ulcer 1-6 and 6-12 months in Experimental Group, and (56.7%) of the sample having ulcer from 6-12 months..
- ❖ In posttest Among experiment group, 83.3% of them are having intact skin and 16.7% of them are having Superficial ulcer of skin .similarly among control group 43.3% of them are having intact skin and 56.7% of them are having Superficial ulcer of skin .Statistically there is a significant difference.
- ❖ The result showed that Considering experiment group in experiment, in pretest, clients are having 1.00 dressing score and in posttest , they are having 0.17 score. Difference is 0.83 score. The difference between pretest and posttest score is large and it is statistically significant. Differences between pretest and posttest score was analyzed using Student paired t-test.
- ❖ Considering control group in pretest clients are having 1.00 dressing score and in posttest , they are having 0.57 score. Difference is 0.43 score. The difference between pretest and post test score is large and it is statistically significant. Differences between pretest and posttest score was analyzed using Student paired t-test.
- ❖ The association of posttest level of ulcer reduction score with selected demographic variable . Younger, regular exercise and less duration ulcer clients are benefitted more than others in experimental group.
- ❖ The association of posttest level of ulcer score with selected demographic variable . Younger, and male clients are benefitted more than others.

CHAPTER –VI

DISCUSSION

CHAPTER-VI

DISCUSSION

This chapter concentrates on the findings of this study derived from the statistical analysis and its pertinence to the objectives set for the study. The purpose of the study was “ A study to assess the effectiveness of papaya Dressing on Diabetic Foot ulcer among clients Admitted in Diabetology ward at Rajiv Gandhi Government General Hospital, Chennai.

Characteristics of Demographic and clinical Variables

60 Subject between the age group of 40 to 70 years with diabetic foot ulcer Grade I

Samples were selected by systematic random sampling technique and assigned as Experimental Group and control group (30 samples for each group)

Semi structured questionnaire was used to gather information from the subject of both group with Diabetic foot ulcer Grade I. Degree of Diabetic foot ulcer and Duration of illness related to medical history were assessed in both group before intervention. Then Raw unripe Papaya Dressing was applied for experimental group and Hospital Routine care procedure carried out for control group. After that Post intervention, Effectiveness of wound healing assessed by using Wagner wound assessment tool. Data collection was done with the permission of Institutional Ethics committee.

The collected Data were collected in two sections.

Section-A: Socio Demographic Data.

Section-B: Medical related information. Data were verified and entered in the computer for processing.

Objective 1

To assess the demographic and clinical variables among experimental and control group.

In view of gender 12(40.0) are male and 18 (60.0) are female in the experimental group. While taking the control group 15(50.0) are male and 15(50.0%) are female.

Ihtasham Muhammad Ch*, Shaukat Ali Shaikh *, Haroonur Rashid etal (2014)** Conducted to assess the role of papaya dressings in the management of diabetic foot in terms of healing of ulcers. In this experimental study clients with diabetic foot (n=43) were included. The Majority(72,1%) were males. Initial management included empirical antibiotics, surgical debridement or amputation, Control of glycemia and then wound care with the help of papaya dressings. Dressings were changed after every 48 hours. The wounds were declared healthy when they were filled with healthy granulation tissue and had epithelial growth on their edges. Topical papaya dressing provides cost effective and favorable outcome in clients with diabetic foot ulcer by decreasing the healing duration, reducing surgical interventions.

Objective 2

To assess the pre test and post test level of diabetic foot ulcer among the experimental and control group.

Among experimental and control group pre test results revealed 100% had superficial skin ulcer. There is statistically no difference in level of diabetic foot ulcer. In post 83.3% had intact skin and 16.75% had superficial skin ulcer. The results show there is statistically significant difference in the level of diabetic foot ulcer.

Pradeepa R et al.(2015) conducted a cohort study to determine the prevalence of, and risk factors, diabetic neuropathy (DN) in south Indian type 2 diabetic subjects. A total of 1629 diabetics subjects were included, of whom 1291 were known to have diabetes (KD) subjects and 338 were randomly selected newly detected diabetics (NOD) subjects. Neuropathy was diagnosed if vibratory perception threshold at the great toe, measured by biothesiometry, exceed mean +2 SD of a healthy non-diabetic study population aged 20-45 years. The overall prevalence of DN was 26.1 %(aged-adjusted 13.1%) with no significant difference in gender. The prevalence of neuropathy was significantly higher in KD subjects compared with NDD subjects (P, <0.0001) were higher in those with neuropathy compared with those without. Duration of diabetics (P=0.045) to be significantly.

Objective 3

To compare the pre test and post test level of diabetic foot ulcer score among the experimental and control group.

Considering experiment group in experiment, in pretest, clients are having 1.00 dressing score and in post test, they are having 0.17 score. Difference is 0.83 score. The difference between pretest and posttest score is large and it is statistically significant. Differences between pretest and posttest score was analyzed using Student paired t-test. Considering control group in pretest clients are having 1.00 dressing score and in posttest , they are having 0.57 score. Difference is 0.43 score. The difference between pretest and post test score is large and it is statistically significant. Differences between pretest and posttest score was analyzed using Student paired t-test.

In posttest Among experiment group, 83.3% of them are having intact skin and 16.7% of them are having Superficial ulcer of skin .similarly among

control group 43.3% of them are having intact skin and 56.7% of them are having Superficial ulcer of skin .Statistically there is a significant difference.

Gurung S, Et Al. (2013) conducted a group study to investigate the healing efficiency of papaya latex formulated as 1.0 and 2.5% hydrogels. Burns were induced in swiss albino mice divided into five groups as following; group-I (negative control) received no treatment. Group-ii was treated with carbopol 974p nf empty gel. Groups-iii and -IV were treated with carbopol gel containing 1.0 and 2.5% of dried papaya latex, respectively. Group-v (positive control) received the standard drug (silver sulphadiazine and chlorhexidine gluconate cream). The efficacy of treatment was evaluated based on the hydroxyproline content, wound contraction and epithelialization time. Results show that hydroxyproline content was found to be significantly increased in the group-iii. Significant increase in percentage wound contraction was observed from day 12 in group-iv and from day 20 in groups-iii and -v. the epithelialization time was found to be the shortest in group-iv. It study concluded that papaya latex formulated in the carbopol gel is effective in the treatment of burns and thus supports its traditional use.

Objective 4

To assess the Effectiveness of papaya dressing on Diabetic foot ulcer among Experimental group.

Among experiment group, in pretest 100% of them are having Superficial ulcer of skin, after papaya dressing, in posttest , 83.3% of them are having intact skin and 16.7% of them are having Superficial ulcer of skin. .There is a Statistically significant difference in post test level of diabetic foot ulcer.

Considering experiment group in experiment, in pretest, clients are having 1.00 dressing score and in post test, they are having 0.17 score. Difference is 0.83 score. The difference between pretest and posttest score

is large and it is statistically significant. Differences between pretest and posttest score was analyzed using Student paired t-test. Considering control group in pretest clients are having 1.00 dressing score and in posttest , they are having 0.57 score. Difference is 0.43 score. The difference between pretest and post test score is large and it is statistically significant. Differences between pretest and posttest score was analyzed using Student paired t-test.

Murthy, Man gala .R et al (2012) et all done a interventional study related to comparison of safety and efficacy of papaya dressing with hydrogen peroxide solution on wound bed preparation in clients with wound gape, the abstract was published a Indian journal of pharmacology. The results Revealed that papaya dressing is more efficacious and equally safe as compared to hydrogen peroxide dressing when used for wound bed preparation in clients with postoperative wound gape.

Objective 5

To find the association between the selected demographical variables and the effectiveness of Papaya dressing in both experimental and control group.

The association of posttest level of ulcer reduction score with selected demographic variable. Younger, regular exercise and less duration of clients are benefitted more than others. The study was based on the assumption there will be significant effective wound healing Diabetic foot ulcer.

Jeffcott, William J; Chip chase, Susan Y., et al (2006) conducted. consecutive cohort study multidisciplinary foot care clinic university of Texas ,USA related to assessing the outcome of the management of diabetic foot ulcers using ulcer-related and person-related measures. The purpose of this study was to compare different outcome measures in the audit of management of diabetic foot ulcers data collected prospectively in a

consecutive cohort of clients referred to a specialist multidisciplinary foot care clinic between 1 January 2000 and 31 December 2003 were analyzed. In 449 clients (63.7% male, mean age 66.7 ± 13.2 years), 352 (78.%) ulcers were superficial [s(ad)sad/at grade 1] and 134 of these (38.1% of 352) were neither ischemic nor infected. These data illustrate the extent to which ulcer-related outcomes may underestimate the true morbidity and mortality associated with diabetic foot disease.

CHAPTER –VII

**CONCLUSION AND
RECOMMENDATION**

CHAPTER VII

CONCLUSION AND RECOMMENDATION

Diabetic foot is the most common complication of Diabetic mellitus. Chronic complication of Diabetic mellitus can have important implication for planning nursing care irrespective of patient is at home and hospital. carica papaya is effective in removing dead cells and healing the diabetic foot ulcer. The present study to assess the effectiveness of diabetic foot ulcer. The results revealed statistically significant in level of diabetic foot ulcer.

7.1 Implication of the study

The investigator had drawn the following implications of the study, Which are Necessary in the field of Nursing practice, Nursing Education, Nursing Administration and Nursing Research.

7.2 Nursing Practice

- ❖ Nursing play a vital role in care of wound, since most of the patient having ineffective diabetic wound healing.
- ❖ Nurses must have adequate Knowledge regarding other non pharmacological dressing application for effective diabetic ulcer like papaya dressing.
- ❖ Nurses should possess the skill of assessing the wound by using the wound assessment scale.
- ❖ Specific dressing application like papaya dressing may be given in order to improve the wound healing status.
- ❖ Papaya dressing is cost effective and easily available can also be introduced as a policy for non pharmacotherapy management.

7.3 *Nursing education*

- ❖ Nurses must have adequate Knowledge regarding papaya dressing and medicinal effect of papaya before implementing on the clients.
- ❖ Nursing student should be exposed to clinical areas and to learn regarding these interventions. These basis Nursing curriculum must be modified to adapt to this internationally proved intervention.

7.4 *Nursing administration*

- ❖ The nurse administrator must supervise the staff nurses and identify the problem faced by them and help them to find out solutions for a particular problem.
- ❖ Nurse administrators play a vital role in updating the knowledge level of staff nurses by arranging for In-service education programme and conferences.
- ❖ Nurse administrators must allocate resources for conducting various staff development programme and should provide opportunity for the nurses to attend national and International conferences.

7.5 *Nursing research*

- ❖ Nursing research plays a vital role in the clinical practice. Nurse researcher should encourage clinical nurse to conduct various research activities in their concerned field and motivate them to apply the findings and results in the clinical settings.
- ❖ Nurse researcher must make arrangement to make use of available resources and guidance and constant support for the clinical nurse to undertake research activities on papaya dressing.

- ❖ The study finding should be analyzed for its reliability, feasibility and its significance and the results should be disseminated to others.

7.6 *Limitations of the study*

Data collection period four weeks was not adequate.

Study was conducted for small scale of sample.

7.7 *Recommendations of the study*

The investigator recommends the following for further research.

- ❖ The same study can be conducted in different setting like hospital and community.
- ❖ The study can be replicated with large sample size to generalize the finding.
- ❖ The study can be conducted with other intervention of wound healing for diabetic foot ulcer.
- ❖ The study can be conducted to assess to knowledge and practice of nurses as well as patient regarding application of papaya dressing on Diabetic foot ulcer.

Conclusion

The present study was conducted to assess the effectiveness of papaya dressing on Diabetic foot ulcer clients in diabetology ward. The Result Revealed that Effect of papaya dressing had statistically significant effect on the healing of diabetic foot ulcer in the Experimental group. The results shows 83.3% of Diabetic client had intact skin and 16.7% had superficial skin ulcer. The difference between pretest and post test score 0.40. The difference between pretest and posttest is large and it is statistically significant in diabetic foot ulcer. So the hypothesis was proved. This research study can be implemented in different settings.

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APPENDICES

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI-3

EC Reg No.ECR/270/Inst./TN/2013
Telephone No. 044 25305301
Fax : 044 25363970

CERTIFICATE OF APPROVAL

To
Mrs. S. GEETHLAKSHMI
M.Sc., (Nursing)
College of Nursing
Madras Medical College,
Chennai – 600 003.

Dear Mrs. S. GEETHLAKSHMI,

The Institutional Ethics Committee has considered your request and approved your study titled **A STUDY TO ASSESS THE EFFECTIVENESS OF PAPAYA DRESSING ON DIABETIC FOOT ULCER AMONG PATIENTS ADMITTED IN DIABETOLOGY WARD AT RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI .No.39102014.**

The following members of Ethics Committee were present in the meeting held on 21.10.2014 conducted at Madras Medical College, Chennai-3.

- | | |
|--|----------------------|
| 1. Dr.C.Rajendran, M.D., | : Chairperson |
| 2. Dr.R.Vimala, M.D., Dean, MMC, Ch-3 | : Deputy Chairperson |
| 3. Prof.B.Kalaiselvi, M.D., Vice-Principal, MMC, Ch-3 | : Member Secretary |
| 4. Prof.R.Nandhini, M.D., Inst.of Pharmacology, MMC | : Member |
| 5. Prof.K.Ramadevi, Director i/c, Inst.of Biochemistry, MMC | : Member |
| 6. Prof.Saraswathy, M.D., Director, Pathology, MMC, Ch-3 | : Member |
| 7. Prof.S.G.Sivachidambaram, M.D., Director i/c,
Inst.of Internal Medicine, MMC | : Member |
| 8. Dr.Raghumani, M.S., Professor of Surgery, MMC | : Member |
| 9. Thiru S.Rameshkumar, Administrative Officer | : Lay Person |
| 10. Thiru S.Govindasamy, B.A., B.L., | : Lawyer |
| 11. Tmt.Arnold Saulina, M.A., MSW., | : Social Scientist |

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.


Member Secretary, Ethics Committee

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that tool prepared by **Ms.S.Geethalakshmi**, studying M.Sc.Nursing II year ,College of Nursing, Madras Medical College, undertaking Research study on “ **A STUDY TO ASSESS THE EFFECTIVENESS OF PAPAYA DRESSING ON DIABETIC FOOT ULCER AMONG PATIENTS ADMITTED IN DIABETOLOGY WARD AT RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL,CHENNAI-03**” has been validated by me and is found to be valid upto date and she can proceed with this tool to conduct the main study.


16/7/2015

Signature

Director and Professor,
Institute of Diabetology,
(Seal) Madras Medical College,
Rajiv Gandhi Government General Hospital
Chennai - 600 003

Name : **D.P. DHARMARAJAN**

Designation : **Director + Prof.**

Date : **16/7/2015**

Place : **CHENNAI - 3**

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that a tool prepared by **Ms. S.Geethalakshmi**, studying M.Sc.Nursing II year ,College of Nursing, Madras Medical College, undertaking Research study on “ **A STUDY TO ASSESS THE EFFECTIVENESS OF PAPAYA DRESSING ON DIABETIC FOOT ULCER AMONG PATIENTS ADMITTED IN DIABETOLOGY WARD AT RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL,CHENNAI-03**” has been validated by me and is found to be valid up to date and she can proceed with this tool to conduct the main study.

Name : **DR.TAMILARASI .B**

Designation : **PRINCIPAL**

Date : **15.07.2015**

Place : **CHENNAI**




PRINCIPAL
SIGNATURE WITH SEAL
MADHA COLLEGE OF NURSING
MADHA NAGAR, KUNDRATHUR,
CHENNAI - 600 069
PHONE : 24780736

From

Ms. S.Geethalakshmi
M.Sc(Nursing) II year,
College of Nursing,
Madras Medical College,
Chennai-3.

To

The Dean,
Madras Medical College
Chennai -3.

Through Proper Channel,

Respected Madam,

Sub: Requesting Permission to conduct a research study-reg

I, Ms. S.Geethalakshmi, studying M.Sc.Nursing II year ,College of Nursing, Madras Medical College, kindly request you to grant me permission for the study proposed to conduct on the topic " A STUDY TO ASSESS THE EFFECTIVENESS OF PAPAYA DRESSING ON DIABETIC FOOT ULCER AMONG PATIENTS ADMITTED IN DIABETOLOGY WARD AT RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL,CHENNAI-03"to fulfill the requirement of data collection. I assure you that it will not interfere with routine activities of the study settings.

Thanking you, .

Date: 17/15

Place: Chennai-3.

Yours sincerely,

S. Geethalakshmi
(Geethalakshmi)

Permit
Sec
01.02.15

Forwarded
Johs
01/07/15

Yes
[Signature]

PERMISSION LETTER

From

Ms. S.Geethalakshmi
M.Sc(Nursing) II year,
College of Nursing,
Madras Medical College,
Chennai-3.

TO

The Director,
Institute of Diabetology
Rajiv Gandhi Government General Hospital
Chennai -3.

Through Proper Channel,

Respected Sir/Madam,

Sub: Requesting Permission to conduct a Research study-reg

I, **Ms. S.Geethalakshmi**, studying M.Sc.Nursing II year ,College of nursing, Madras Medical college, request you to kindly grant me permission for the study proposed to conduct on the topic “ **A STUDY TO ASSESS THE EFFECTIVENESS OF PAPAYA DRESSING ON DIABETIC FOOT ULCER AMONG PATIENTS ADMITTED IN DIABETOLOGY WARD AT RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL,CHENNAI-03**” to fulfill the requirement of data collection. I assure you that it will not interfere with routine activities of the study settings.

Thanking you,

Yours sincerely,

S. Geethalakshmi
(S.Geethalakshmi)

Date: 1/7/15

Place: Chennai-3

*Permit
by
01.07.15*

*Forwarded
Jeb
01/07/15*

*7/7/15
Maybe printed after
Dean/ISC approval*

[Signature]
Director and Professor,
Institute of Diabetology,
Madras Medical College,
Rajiv Gandhi Government General Hospital
Chennai - 600 003

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

Ms. S.Geethalakshmi
M.Sc(Nursing) II year,
College of Nursing,
Madras Medical College,
Chennai-03.

To

The Director,
Institute of Diabetology,
Rajiv Gandhi Government General Hospital
Chennai -03

Through Proper Channel,
Respected Sir/Madam,

Sub: Requisition for expert opinion on suggestion for content validity of the tools.

I, **Ms.S.Geethalakshmi** , studying M.Sc.Nursing II year, College of nursing, Madras Medical college Chennai-03 affiliated to Dr.M.G.R Medical University, Chennai. As a partial fulfilment of the requirement in the M.Sc Nursing Programme, I have to complete my dissertation and the topic I have selected is titled "A STUDY TO ASSESS THE EFFECTIVENESS OF PAPAYA DRESSING ON DIABETIC FOOT ULCER AMONG PATIENTS ADMITTED IN DIABETOLOGY WARD AT RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL,CHENNAI-03." Herewith, I have enclosed the tool for content validity and for your expert opinion and valuable suggestions.

Thanking you,

Yours sincerely,

S. Geethalakshmi
(S.Geethalakshmi)

Enclosures

1. Statement and objectives of the study
2. Blue print of the tools
3. Content validity certificate

7/7/15
Maybe printed after
IEC/Dean's consent

[Signature]
7/7/15

Director and Professor,
Institute of Diabetology,
Madras Medical College,
Rajiv Gandhi Government General Hospital
Chennai - 600 003

PERMISSION LETTER

From

Ms. S.Geethalakshmi
M.Sc(Nursing) II year,
College of Nursing,
Madras Medical College,
Chennai-3.

TO

The Director,
Institute of General Surgery,
Rajiv Gandhi Government General Hospital
Chennai -3.

Through Proper Channel,

Respected Sir/Madam,

Sub: Requesting Permission to conduct a Research study-reg

I, **Ms. S.Geethalakshmi**, studying M.Sc.Nursing II year ,College of nursing, Madras Medical college, request you to kindly grant me permission for the study proposed to conduct on the topic “ **A STUDY TO ASSESS THE EFFECTIVENESS OF PAPAYA DRESSING ON DIABETIC FOOT ULCER AMONG PATIENTS ADMITTED IN DIABETOLOGY WARD AT RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL,CHENNAI-03** to fulfill the requirement of data collection. I assure you that it will not interfere with routine activities of the study settings.

Thanking you,

Yours sincerely,

S. Geethalakshmi
(S.Geethalakshmi)

Date: 11/7/15

Place: Chennai-3

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Dr. P. RAGUMANI, M.S
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Institute of General Surgery
Madras Medical College,
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01.07.15*

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01/07/15*

ANNEXURE

TOOLS ON DEMOGRAPHIC VARIABLES

Name:

Sample No

Ward:

Division:

Put a tick (✓) mark against the column for right answer

SECTION-B

- 1) Age in Years
 - a) 40-49 years
 - b) 50-59 years
 - c) 60-70 years
- 2) Gender
 - a) Male
 - b) Female
 - c) Transgender
- 3) Educational Status
 - a) No formal Education
 - b) Primary Education
 - c) Secondary Education
 - d) Graduate
- 4) Nature of Occupation
 - a) Sedentary Work
 - b) Moderate Work
 - c) Heavy Work
- 5) Dietary Habits
 - a) Vegetarian
 - b) Non Vegetarian
 - c) Mixed Diet
- 6) Exercise
 - a) Regular
 - b) Irregular
 - c) Occasional

- 7) Religion
- a) Hindu
 - b) Christian
 - c) Muslim
- 8) Income
- a) Rs.3000/- Month
 - b) Rs3000/- to Rs.5000/- Month
 - c) Above Rs.8000/- Month
- 9) Residential Status
- a) Slum
 - b) Rural
 - c) Urban
- 10) Type of Family
- a) Nuclear Family
 - b) Joint Family
 - c) Extended Family

SECTION-B (Clinical Data)

- 11) Duration of Ulcer
- a) 1-6 Months
 - b) 6 Months to 1 Year
 - c) Above 1 Year
- 12) Grade of Diabetic Foot Ulcer
- a) Grade-1
 - b) Grade-2
 - c) Grade-3

சுய விவர தகவல் பட்டியல்

பெயர் :

பங்கேற்பாளர் எண்:

பிரிவு:

மருத்துவமனை அனுமதி எண்:

கீழ்க்காணும் பட்டியலில் தங்களுக்கு பொருத்தமானவற்றை

(✓) குறியிட்டு காண்பிக்கவும்.

பிரிவு-அ

- 1) வயது (வருடங்களில்)
 - அ) 40-49 வயதிற்குள்
 - ஆ) 50-59 வயதிற்குள்
 - இ) 60-70 வயதிற்குள்
- 2) பாலினம்
 - அ) ஆண்
 - ஆ) பெண்
 - இ) திருநங்கை
- 3) கல்வித்தகுதி
 - அ) முறையான கல்வி பயிலாதவர்
 - ஆ) முதல்நிலைக் கல்வி
 - இ) உயர்நிலைக் கல்வி
 - ஈ) பட்டப் படிப்பு
- 4) வேலையின் தன்மை
 - அ) எளிமையான வேலை
 - ஆ) மிதமான வேலை
 - இ) கடினமான வேலை
- 5) உணவு பழக்கம்
 - அ) சைவம்
 - ஆ) அசைவம்
 - இ) இரண்டும் கலந்த உணவு

- 6) உடற்பயிற்சி
- அ) தொடர்ந்து முறையான உடற்பயிற்சி
- ஆ) முறையற்ற உடற்பயிற்சி
- இ) எப்பொழுதாவது
- 7) மதம்
- அ) இந்து
- ஆ) கிறிஸ்துவர்
- இ) இஸ்லாம்
- 8) வருமானம்
- அ) ரூ.3000/- மாதம்
- ஆ) ரூ.3000/- முதல் ரூ.5000/- மாதம்
- இ) ரூ.8000/- மேல்/ மாதம்
- 9) வாழ்மிடம்
- அ) குடிசைவாசிகள்
- ஆ) கிராமம்
- இ) நகரம்
- 10) குடும்ப நிலை
- அ) தனிக்குடும்பம்
- ஆ) கூட்டுக்குடும்பம்
- இ) இணை கூட்டுக்குடும்பம்
- பிரிவு - ஆ**
- 11) புண்ணின் கால அளவு
- அ) 1-6 மாதத்திற்குள்
- ஆ) 1 மாதம் முதல் 1 வருடத்திற்குள்
- இ) 1 வருடத்திற்கு மேல்
- 12) சர்க்கரை நோயினால் ஏற்படும் கால் புண்ணில் எந்த நிலையைச் சார்ந்தது
- அ) நிலை-1
- ஆ) நிலை-2
- இ) நிலை-3

DATA COLLECTION SCHEDULE

	Pre Test	Day1	Day7	Day14	Post Test
* Experimental Group					
** Control Group					

*Application of papaya dressing with routine care.

** Routine Care.

Wagner Diabetic foot ulcer Assessment scale.

- 0 - Intact Skin
- 1 - Superficial ulcer of skin or subcutaneous tissue
- 2 - Ulcers extend into tendon, bone, or capsule
- 3 - Deep ulcer with osteomyelitis, or abscess
- 4 - Gangrene of toes or forefoot
- 5 - Midfoot or hindfoot gangrene

Data collection procedure

The study was conducted after getting permission with the Head of the Department and the Institutional Ethical committee. Inclusion criteria were followed for sample selection. Information about the study was given to the subject and informed consent was obtained in the prescribed form. The investigator assured the confidentiality. Subject selected for pilot study were excluded. 60 subjects were selected by simple random sampling technique 30 per each experimental group and control group respectively. Pre Test wound assessment done by Wagner grading system for control group and Experimental group. Data was collected from the subject. Diabetic wound cleaned with normal saline. Then Raw Unripe Papaya was washed with water. Then peel the skin and discard. Make a thin slice of papaya. Slice

papaya applied according to the wound size. Then sterile dressing material applied over papaya. Daily once the dressing changed. Wound healing status was observed. For control group routine care was done. Post Test was done for both the group at 14Th day. Effectiveness of the Papaya Dressing was compared with the control group.

Indications

- ❖ Diabetic foot ulcer Grade I
- ❖ Type I and Type II Diabetic Mellitus.

Contraindication

- ❖ Allergic to papaya.
- ❖ Deep ulcer up to bone involvement.

Duration

14 Days

Articles

Dressing Tray containing dressing materials.

- ❖ Artery forceps, thumb forceps, bowl
- ❖ Normal saline
- ❖ Mackintosh, large basin, kidney tray
- ❖ Plaster, scissors.
- ❖ Knife
- ❖ Slicer.
- ❖ Unripe papaya

Preparation of the patient

- ❖ Inform the patient about the procedure.
- ❖ Screen the patient.
- ❖ Place the patient in comfortable position.
- ❖ Place the Mackintosh under the needed part of the patient.

Steps for papaya dressing

- ❖ Establishing the rapport with the patient.
- ❖ Assessing the wound status.
- ❖ Clean with normal saline.
- ❖ clean the papaya with water. peel the outer skin and remove the papaya seeds.
- ❖ Make the papaya into a slice.
- ❖ Apply the papaya slice over the diabetic wound.
- ❖ Sterile Dressing is applied over the wound daily.

After care

- ❖ Make the patient comfortable.
- ❖ Unscreened the Patient and clean the area.
- ❖ Record the procedure date and time.

ஆராய்ச்சி தகவல் தாள்

ஆராய்ச்சி தலைப்பு :	சர்க்கரை நோயினால் கால்களில் ஏற்படும் புண் பப்பாளி காயை அதன் மேல் வைத்து கட்டு போடுவதால் புண் எளிதில் குணமடைகிறது என்பதனை குறித்த ஆய்வு.
ஆய்வாளர் பெயர் :	ஸ்ரீ. கீதாலட்சுமி
பங்கேற்பாளர் பெயர் :	
தேதி :	
வயது/பாலினம் :	
இடம் :	சர்க்கரை நோயாளர் வார்டு அரசு இராஜீவ் காந்தி பொது மருத்துவமனை, சென்னை - 3.

❖ ஆய்வாளர் மேற்கொள்ளும் ஆராய்ச்சியில் பங்கேற்க யாருடைய கட்டாயமுமின்றி முழுமனதுடனும் சம்மதிக்கலாம். இதில் பங்கேற்பதன் நோக்கம் இந்த ஆராய்ச்சியில் தகவல்களை தெரிந்து கொள்வதற்காகவும், அதனை பயன்படுத்துவதற்காக மட்டும் தான்.

❖ இந்த ஆராய்ச்சியின் நோக்கம், சர்க்கரை நோயின் விளைவால் கால்களில் புண் ஏற்படும் போது பப்பாளி காயை வைத்து கட்டுவதால் புண் எளிதில் குணமடைகிறது என்பதனை அறிந்து கொள்வது.

ஆராய்ச்சி மேற்கொள்ளும் முறை:-

❖ இந்த ஆராய்ச்சி, நோயாளியின் ஒப்புதலின் பேரில் தொடங்கப்பட்டு, பப்பாளி பயன்படுத்துவதற்கு முன்பு மற்றும் பயன்படுத்திய பின்பு காலில் ஏற்பட்டு உள்ள புண்ணின் மாற்றத்தை உணர்வது, மேலும்

வேறு முறையில் சிகிச்சை அளிக்கப்பட்டவர்களுக்கு உள்ள கால் புண்ணின் நிலையை அறிதல்.

இதனால் ஆய்வாளருக்கான பயன்:-

இந்த ஆய்விற்குபின் ஆய்வாளர் சர்க்கரையினால் ஏற்பட்டுள்ள கால் புண்ணிற்கு பப்பாளி மருத்துவத்தின் பயன்பாட்டியை அறிதல். மேலும் பிற்காலத்தில் இதை பயன் படுத்துவதற்கு ஒரு வாய்ப்பாக அமையும்.

இதனால் பங்கேற்பாளருக்கான பயன்

- ❖ இந்த ஆராய்ச்சியின் பங்கேற்பவர் பப்பாளியின் மருத்துவ குணத்தை பற்றி அறிந்து கொள்ளவும், பயன் பெறவும் வழி வகை செய்யவும்.
- ❖ ஆராய்ச்சியில் பங்கேற்றவரில்லை என்றாலும், உங்களில் சராசரி வாழ்க்கை முறை, மருத்துவரின் ஆலோசனைமற்றும் சிகிச்சை முறையில் எந்த வித மாற்றமும் ஏற்படாது என்பதனை தெரிவிக்கிறேன்.
- ❖ இந்த ஆராய்ச்சியில் பங்கேற்க விருப்பம் இல்லை என்றால் உங்களின் முழுமனதுடன் நீங்கள் இந்த ஆராய்ச்சியல் இருந்து விலகிகொள்ளலாம் என்பதனை தெரிவிக்கிறேன்.
- ❖ இந்த ஆராய்ச்சியின்தகவல்களை வெளியிடும் போது, உங்களை பற்றி அடையாளங்கள் வெளிவராது என்பதனை உறுதிசூறுகிறேன்.

ஆய்வாளர் கையொப்பம்.

பங்கேற்பாளர் கையொப்பம்

தேதி

தேதி

ஆராய்ச்சி ஒப்புதல் கடிதம்

- ஆராய்ச்சி தலைப்பு : சர்க்கரை நோயின் விளைவால் கால்களில் புண் ஏற்பட்டுள்ள நோயாளிகளுக்கு பப்பானி காயை அதன் மீது வைத்து கட்டுவதால் புண் எளிதில் குணமடைகிறது என்பதனை பற்றிய ஆய்வு.
- ஆய்வாளர் பெயர் : ஸ்ரீ. கீதாலட்சுமி
- பங்கேற்பாளர் பெயர் :
- தேதி :
- வயது/பாலினம் :
- இடம் : உள் நோயாளியிரிவு
அரசு இராஜீவ் காந்தி பொது மருத்துவமனை,
சென்னை - 3.

- ❖ ஆய்வாளர் மேற்கொள்ளும் செவிலிய ஆராய்ச்சியில் பங்கேற்க யாருடையகட்டாயமுமின்றி முழுமனுதுடனும் சுயநினைவுடனும் சம்மதிக்கிறேன்.
- ❖ ஆய்வாளர் மேற்கொள்ளும் பரிசோதனைகளைமிக தெளிவாக விளக்கி கூறினார்.
- ❖ எனக்கு விருப்பமில்லாத பட்சத்தில் செவிலிய ஆராய்ச்சியிலிருந்து எந்நேரமும் விலகலாம். என்பதனையும் ஆய்வாளர் மூலம் அறிந்து கொண்டேன்.

- ❖ இந்த ஆராய்ச்சி ஒப்புதல் கடிதத்தில் உள்ள விவரங்களை நன்கு புரிந்து கொண்டேன். எனது உரிமைகள் மற்றும் கடமைகள் ஆராய்ச்சியாளர் மூலம் விளக்கப்பட்டது.
- ❖ நான் ஆராய்ச்சியாளருடன் ஒத்துழைக்க சம்மதிக்கிறேன். எனக்கு ஏதேனும் உடல் நலக்குறைவு ஏற்பட்டால் ஆராய்ச்சியாளரிடம் தெரிவிப்பேன்.
- ❖ நான் வேறு எந்த ஆராய்ச்சிலும் தற்சமயம் இடம் பெறவில்லை என்பதனை தெரிவித்து கொள்கிறேன்.
- ❖ இந்த ஆராய்ச்சியின் போது தகவல்களை வெளியிட சம்மதிக்கிறேன். அப்படி வெளியிடும் போது என் அடையாளம் வெளிவராது என்பதனை அறிவேன்.
- ❖ எனக்கு இந்த ஒப்புதல் கடிதத்தின் நகல் கொடுக்கப்பட்டது.

ஆய்வாளர் கையொப்பம்.

பங்கேற்பாளர் கையொப்பம்

தேதி

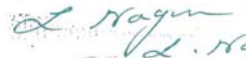
தேதி

CERTIFICATE OF ENGLISH EDITING

To whom so ever it may concern, This is to certify that the dissertation work “ A study to assess the effectiveness of papaya dressing on diabetic foot ulcer among patients admitted in Diabetology ward at Rajiv Gandhi Government General Hospital, Chennai-03,” done by Ms.Geethalakshmi.S M.sc (N) II year college of Nursing, Madras Medical College, Chennai-03 is edited for English language appropriateness.

Signature

:-


V. Nagaraj
VICE-PRINCIPAL,
SINGARAMPILAY MATHE. HR. SECY. SCHOOL
CHENNAI-600 049.

Designation

:-

Seal

:-

IMAGES RELATED TO PAPAYA DRESSING



WAGNER CLASSIFICATION OF DIABETIC FOOT ULCER

Wagner Classification of Diabetic Foot Ulcer (DFU)

Grade 0

- Preulcer stage
- Skin is intact
- Redness of skin
- Calluses
- Bony deformities

It Can be prevented
It should be reassessed
Annually



Wagner Classification of DFU

Grade 1

Superficial (shallow)
Ulceration

Should be reassessed
every 3 monthly



CODING SHEET

EXPERIMENTAL GROUP

Sample No	Age	Gender	Educational Status	Occupation	Dietary Habits	Exercise	Religion	Income	Residential Status	Type of Family	Duration of Ulcer	Grade of Ulcer	Pre Test	Post Test 14 days
1	B	A	C	B	C	C	A	B	C	A	B	A	1	0
2	C	B	B	B	C	B	A	A	B	A	B	A	1	0
3	A	B	C	A	A	C	B	B	C	A	B	A	1	0
4	A	B	C	B	C	B	A	B	C	A	B	A	1	0
5	B	B	D	B	A	A	A	B	C	A	A	A	1	1
6	A	A	C	B	C	B	B	B	C	B	A	A	1	0
7	C	B	B	B	A	B	A	A	B	B	B	A	1	0
8	B	B	A	B	C	C	A	B	B	B	B	A	1	0
9	A	A	D	C	C	A	B	C	A	B	B	A	1	0
10	C	A	C	B	C	B	C	B	C	B	A	A	1	1
11	C	B	B	B	A	C	A	A	B	B	B	A	1	0
12	B	B	D	B	C	B	B	C	C	A	B	A	1	0
13	C	A	C	B	C	B	A	B	C	A	A	A	1	0
14	C	A	C	B	C	C	A	A	B	B	A	A	1	0
15	B	A	B	A	C	C	A	A	B	B	A	A	1	0
16	A	B	B	B	C	A	A	B	B	A	A	A	1	0
17	C	B	A	B	C	C	A	B	B	A	A	A	1	0
18	A	B	A	B	C	A	A	B	B	A	A	A	1	0
19	B	B	B	C	C	C	B	B	C	A	A	A	1	0
20	B	B	C	A	A	A	A	B	C	A	B	A	1	0
21	C	A	C	C	C	B	A	B	C	B	B	B	1	0
22	B	A	B	B	C	B	A	B	C	A	B	A	1	0
23	B	A	C	B	C	B	B	B	C	B	A	A	1	1
24	LA	B	A	B	C	A	A	B	B	A	A	A	1	0
25	C	B	A	B	C	B	C	A	C	B	B	A	1	0
26	C	B	A	A	A	C	A	B	B	B	A	A	1	0
27	B	B	B	A	A	B	A	B	C	B	A	A	1	0
28	C	B	A	C	B	B	A	B	A	B	A	A	1	0
29	A	A	C	B	C	B	A	C	C	B	B	A	1	0
30	A	A	C	B	C	B	A	B	C	B	B	A	1	0

CONTROL GROUP

Sample No	Age	Gender	Educational Status	Occupation	Dietary Habits	Exercise	Religion	Income	Residential Status	Type of Family	Duration of Ulcer	Grade of Ulcer	Pre Test	Post Test 14 days
1	A	B	B	B	C	B	B	A	B	A	A	A	1	0
2	B	A	A	B	C	C	B	B	C	A	B	A	1	1
3	C	B	A	B	C	C	B	A	C	A	B	A	1	0
4	A	B	C	B	A	C	A	C	C	B	B	A	1	0
5	C	A	B	B	A	C	A	A	B	B	B	A	1	0
6	B	B	B	B	C	B	B	B	C	B	A	A	1	1
7	B	B	C	C	A	C	A	C	B	B	B	A	1	0
8	C	A	B	B	C	C	A	B	C	A	B	A	1	0
9	B	A	C	B	C	C	B	B	B	A	A	A	1	0
10	C	A	C	B	C	B	A	B	C	B	B	A	1	1
11	B	B	C	C	C	C	A	B	C	B	B	A	1	0
12	C	A	C	B	C	B	A	B	C	B	B	A	1	0
13	B	B	B	A	C	B	A	B	C	B	B	A	1	0
14	A	B	A	B	C	B	C	C	C	B	A	A	1	1
15	B	A	A	C	C	B	A	B	C	B	A	A	1	1
16	C	A	B	B	A	B	A	B	B	A	A	A	1	0
17	A	B	C	B	C	B	A	B	C	B	B	A	1	1
18	B	A	C	C	C	B	A	B	C	B	B	A	1	0
19	B	B	B	A	C	C	A	B	C	B	A	A	1	0
20	B	B	A	B	C	B	A	B	C	A	A	A	1	1
21	C	A	B	A	B	B	B	B	C	B	A	A	1	1
22	B	A	C	B	C	B	A	B	C	B	A	A	1	0
23	C	A	C	B	C	B	A	B	C	B	B	A	1	1
24	B	A	C	B	C	B	A	B	B	B	B	A	1	0
25	B	B	B	C	A	B	A	B	B	B	A	A	1	1
26	C	B	B	B	C	B	A	A	A	A	A	A	1	1
27	C	B	A	A	A	B	B	B	C	A	A	A	1	1
28	B	A	C	B	C	B	A	B	C	B	B	A	1	1
29	C	B	B	B	C	B	A	B	C	B	B	A	1	1
30	A	A	C	B	A	A	B	B	B	A	B	A	1	1