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A STUDY TO ASSESS THE EFFECTIVENESS OF ALOE VERA DRESSING AMONG PATIENTS WITH DIABETIC FOOT ULCER RESIDING IN SELECTED RURAL COMMUNITY AREAS, KRISHNAGIRI

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ABSTRACT

Quantitative research approach was used for this study. The study design adopted was pretest posttest experimental design. Forty samples are selected using simple random sampling technique and grouped into experimental and control. The subjects in the experimental group were treated using Aloe vera gel dressing for 10 days and control group with conventional dressing. The data was collected before and after intervention using pre assessment questionnaire and modified Bates-Jensen wound assessment tool. The data was analyzed using descriptive and inferential statistics (paired and independent 't' test and Chi Square test).

Key words: Assess, effectiveness, Aloe vera dressing, wound healing, Diabetic Foot Ulcer.

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INTRODUCTION

Diabetes mellitus, commonly known as diabetes, is a metabolic disease that causes high blood sugar. The hormone insulin moves sugar from the blood into your cells to be stored or used for energy. With diabetes, your body either doesn't make enough insulin or can't effectively use the insulin it does make. Untreated high blood sugar from diabetes can damage your nerves, eyes, kidneys, and other organs.

There are a few different types of diabetes:

- Type 1 diabetes is an autoimmune disease. The immune system attacks and destroys cells in the pancreas, where insulin is made. It's unclear what causes this attack. About 10 percent of people with diabetes have this type.
- Type 2 diabetes occurs when your body becomes resistant to insulin, and sugar builds up in your blood.
- Prediabetes occurs when your blood sugar is higher than normal, but it's not high enough for a diagnosis of type 2 diabetes.
- Gestational diabetes is high blood sugar during pregnancy. Insulin-blocking hormones produced by the placenta cause this type of diabetes.

A rare condition called diabetes insipidus is not related to diabetes mellitus, although it has a similar name. It's a different condition in which your kidneys remove too much fluid from your body.

Diabetic Foot Pain and Ulcers

Foot ulcers are a common complication of poorly controlled diabetes, forming as a result of skin tissue breaking down and exposing the layers underneath. They're most common under your big toes and the balls of your feet, and they can affect your feet down to the bones. All people with diabetes can develop foot ulcers and foot pain, but good foot care can help prevent them. Treatment for diabetic foot ulcers and foot pain varies depending on their causes. Discuss any foot pain or discomfort with your doctor to ensure it's not a serious problem, as infected ulcers can result in amputation if neglected.

Aloe vera Dressing:

It is a type of Dressing to the Wound by using commercially available Aloe vera preparation impregnated on the gauze.

OBJECTIVES OF THE STUDY:

1. To Assess the existing wound status of the patient with Diabetic Foot Ulcer in experimental and control group during pretest.
2. To Assess the Effectiveness of Aloe vera Dressing on wound healing among patients with Diabetic Foot Ulcer in experimental group during posttest.
3. To Assess the wound status of the patient with Diabetic Foot Ulcer in control group during posttest.
4. To find out the Association between Wound healing in patients with Diabetic Foot Ulcer and selected demographic variables.

DEVELOPMENT AND DESCRIPTION OF TOOL

PART A : Demographic variable includes age, sex, education, occupation, monthly income, antibiotic intake, duration of diabetes mellitus, duration of wound, history and duration of smoking, range of fasting blood sugar level, wound management, degree of physical activity and dietary pattern.

PART B: Modified Bates-Jenson wound assessment tool- It consist of 13 criteria to determine the size, depth, edge, undermining, necrotic tissue type, necrotic amount, exudate type, exudate amount, surrounding skin colour, peripheral tissue edema, peripheral tissue induration and epithelialization of wound.

SCORE INTERPRETATION

PART B Modified Bates-Jenson wound assessment tool consist of 13-65 points. 13 criterias are assessed using this tool, each criteria has a minimum score of 1 and a maximum score of 5. The tool help todetermine the size, depth, edge, undermining, necrotic tissue type, necrotic amount, exudate type, exudate amount, surrounding skin colour, peripheral tissue edema, peripheral tissue induration and epithelialization of wound.

- Score
- Normal healthy skin - 1 – 13
- Good wound healing/Wound regeneration - 14 – 26
- Better wound healing - 27 – 39
- Poor wound healing - 40 – 52
- Worst wound healing/Wound degeneration - 53 – 65

Table: 1 show the distribution of pre-test data on existing wound status of subjects according to wound scale classification in experimental and control group. Data reveals that one **(5%)** each in experimental and control group was having good wound status and under Good wound status and **19(95%)** subjects each in experimental and control group were having better wound healing. There were no subjects belongs to poor wound healing and worst wound healing.

Table: 2 shows the comparison of pretest values of two groups, the data reveals that the mean difference was only 0.750 and the 't'value is 3.559 which is not significant at $p<0.05$. This data concludes that there is no significant difference between the pretest values of experimental and control group. Thus the investigator may reject the null hypothesis (H_{o1}).

Table: 1 Distribution of existing wound status of subjects according to wound healing classification (n=40)

Wound scale classification	Experimental group		Control group	
	n	%	n	%
Normal healthy skin (1-13)	-	-	-	-
Wound regeneration /Good wound healing (14-26)	1	5	1	5
Better wound healing/Status (27-39)	19	95	19	95
Poor wound healing/Status (40-52)	-	-	-	-
Wound degeneration /Worst wound healing (53-65)	-	-	-	-

Table: 2 Distribution of pretest data on mean wound assessment score of Experimental and Control group among patients with Diabetic Foot Ulcer (n=40)

Group	Mean	Mean Difference	N	S D	't' value (df)	P value
Experimental Group	29.30	0.750	20	2.638	3.559 (38)	0.377
Control Group	30.05		20	2.665		

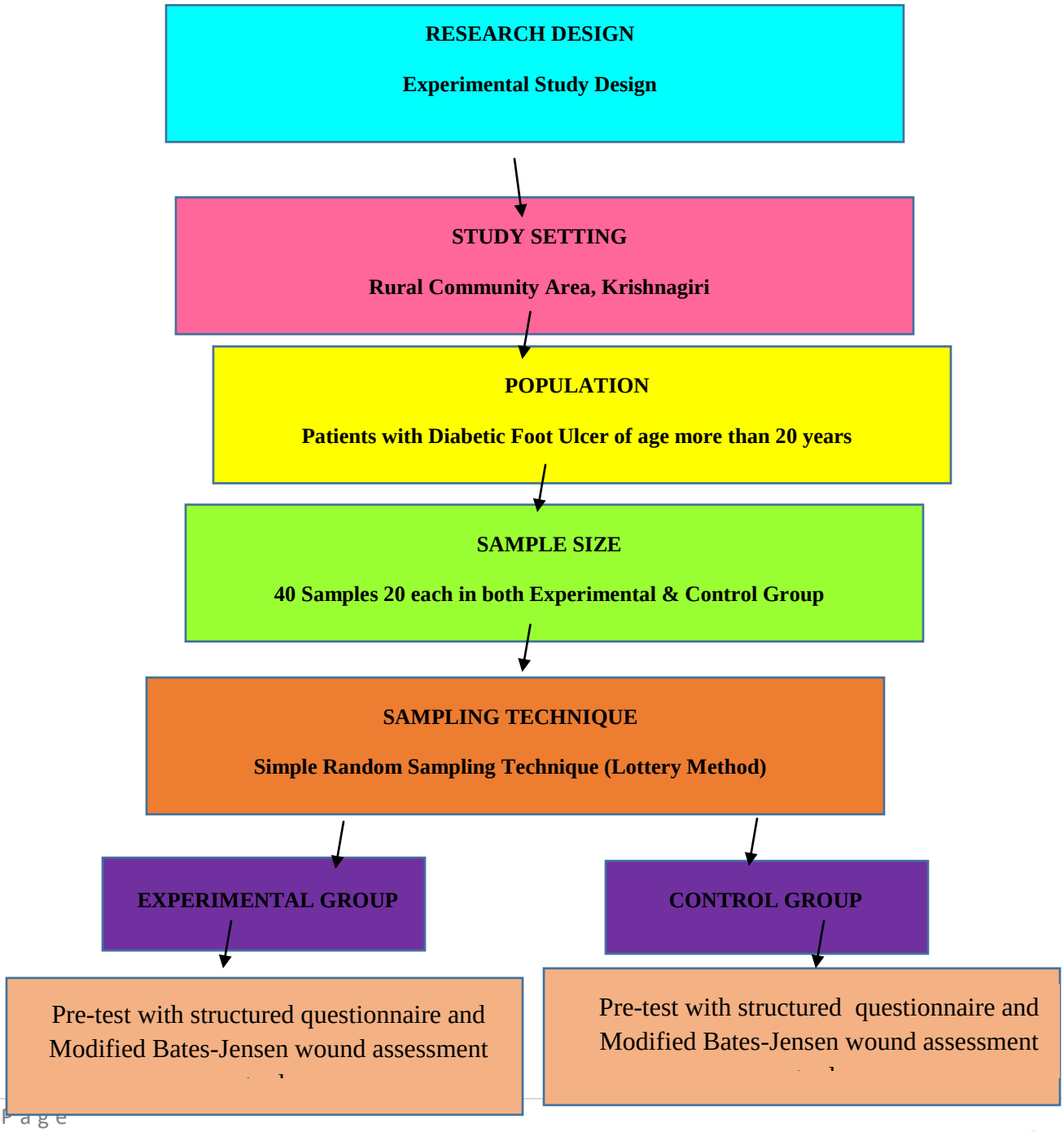
Table: 3 Distribution of pre and post test data on mean wound assessment score of Experimental group among patients with Diabetic Foot Ulcer. (n=40)

Group	Test	Mean	MD	N	SD	't' value	P value
	Pre test	29.30	0.700	20	2.638	6.658	0.000
	Post test-1	28.60		20	2.437		

						df:19	P<0.05
Experimental Group (Aloe vera Dressing)	Pre test	29.30		20	2.638		
	Post test-2	26.40	2.900	20	2.437	20.241 df:19	0.000 P<0.05
	Pre test	29.30		20	2.638		
	Post test-3	23.75	5.550	20	2.731	24.853 df:19	0.000 P<0.05

RESEARCH METHODOLOGY

Figure:1 Schematic Representation of Research Methodology



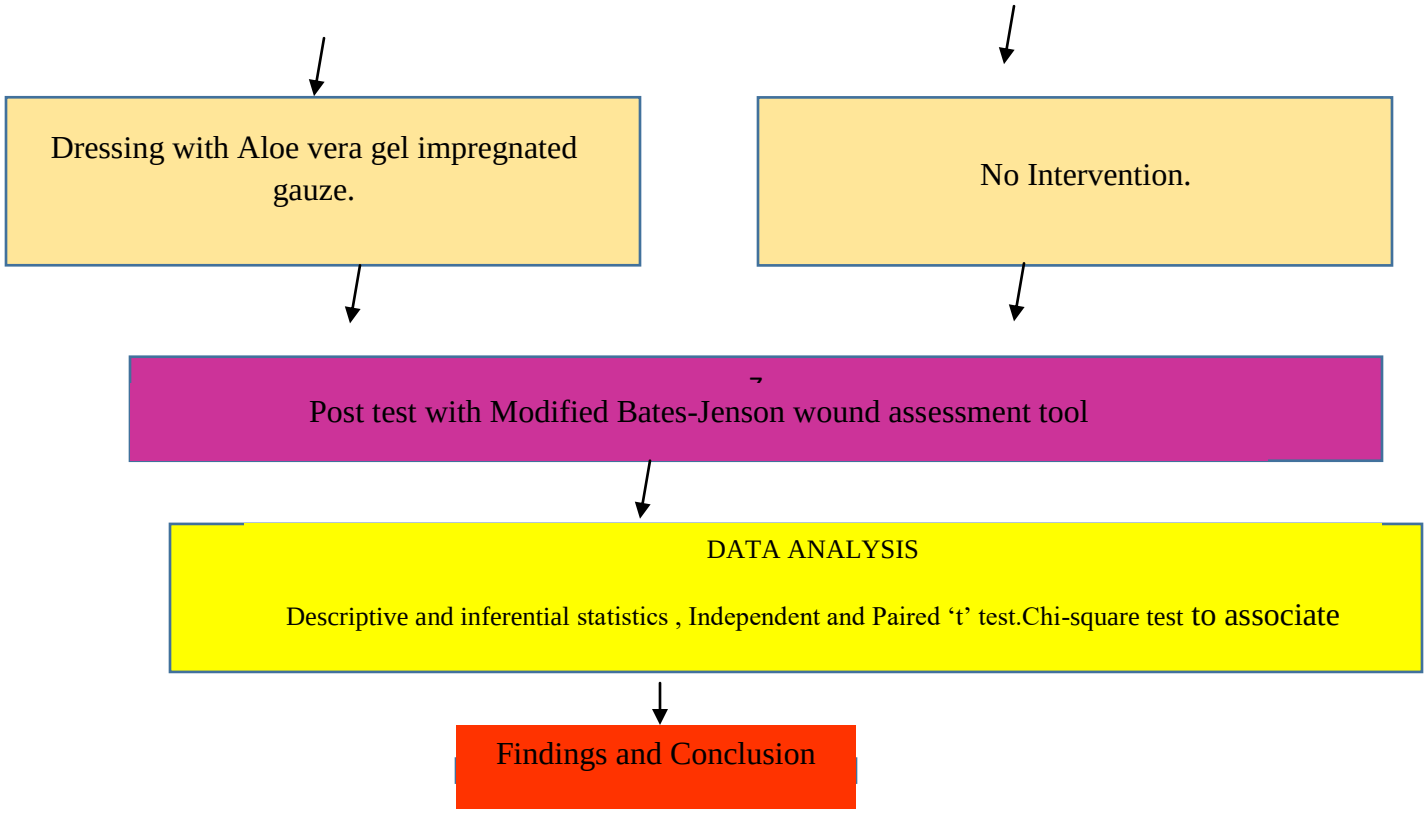


Table: 3 reveals that the mean difference was 0.70 between pretest mean score (29.30) and posttest-1 mean score (28.60). The obtained 't' value 6.658 was significant at $p<0.05$. The mean difference was 2.90 between pretest mean score (29.30) and posttest-2 mean score (26.40). The obtained 't' value 20.241 was significant at $p<0.05$. The mean difference was 5.550 between pretest mean score (29.30) and posttest-3 mean score (23.75). The obtained 't' value 24.853 was significant at $p<0.05$.

The table shows that there is decrease in standard deviation values from post test-1 to posttest-3 and the paired difference between standard deviation is increasing and there is significant increase in 't' values.

Hence there is a significant difference between pretest and posttest values on wound condition in experimental group. It was inferred that Aloe vera dressing was effective in managing diabetic foot ulcer. Thus the investigator may reject the null hypothesis (H_{02}).

CONCLUSION:

The results indicated that Aloe vera dressing was effective in healing Diabetic Foot Ulcers ($P<0.05$). The investigator recommended that further research has to be carried out to find out the effectiveness of Aloe vera in chronic wounds.

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