



Original Article

Effect of coconut oil usage in risk of pressure ulcers among bedridden patients of selected hospitals in North India

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Abstract: Pressure sores are areas of damaged skin caused by staying in one position for too long. *Cocos nucifera* (coconut) has various medical values like it Supports tissue healing and repair, Kills bacteria that cause ulcers. **Methodology:** A total of 60 patients bed ridden for minimum of 15 days were categorized into experimental (30) and control group (30) by simple random sampling technique. The experimental group received back care every two hourly following which coconut oil was applied to back, where as in control group only received back care two hourly. The post test was conducted on fourth day. The data was processed using spss and excel. **Results-** The demographic characteristics of patients in experimental and control group showed almost no difference. In the pretest experimental group, 4 (13%) were at risk, 14 (47%) were at moderate risk, 12 (40%) were at high risk, the other hand control group 8 (27%) were at risk, 12 (40%) were at moderate risk and 10 (33%) were at high risk of bedscore 12. In the posttest experimental group, 6 (20%) were at risk, 12 (40%) were at moderate risk, 12 (40%) were at high risk, 14 and on the other hand control group out of 30 samples, 4 (13%) were at risk, 12 (40%) were at moderate risk, 14 (47%) were at high risk. mean score is 12.8. **Discussion:** The study has proved that the coconut oil back care reduces the risk of pressure ulcer among chronic bedridden patients. This study supports that the coconut oil can be used as emollient to prevent bed sore in bedridden patients.

Key words: *Cocos nucifera* (coconut), Pressure sores, nursing care

Introduction:

Pressure sores are areas of damaged skin caused by staying in one position for too long. They commonly form where your bones are close to your skin, such as your ankles, back, elbows, heels and hip ,sacrum, coccygeal areas, ischeal tuberosities, greater trochanter, scapula, medial condyle of tibia, fibular head. Those who bedridden, using wheelchair, or unable to change position are the

high risk group for pressure sores. Pressure sores can cause serious infections, which may be life threatening. Pressure ulcers are defined by National Pressure Ulcer Advisory panel as lesions caused by unrelieved pressure against soft tissue, usually over bony prominences. These wounds were incorrectly termed as bed sores or decubitus ulcer. The Latin definition of the term decubitus implies lying flat, so decubitus was changed to

pressure after researchers found that the pressure ulcer can develop while in any body position, on anybody location and from any source of pressure [1],

Pressure damage occurs when skin and other tissue are compressed between bone and another surface. Body cells will die if flow of blood in the capillary bed is not sufficient to supply oxygen, carbohydrate and amino acids for metabolism and to remove carbon dioxide and the products of metabolism. Presence of reactive hyperemia is a strong indicator of potential damage like pressure ulcers. Prevention requires identification of high risk patients and provision of appropriate nursing care. Back massage, gives comfort both physically and psychologically .This improves circulation revitalizes a lethargic body and mind, decrease pain, distress anxiety and improves sleep quality and provides a means of communication with patient through the use of touch [2].

The occurrence of pressure sore can be prevent by keeping skin clean and dry, changing position every two hours, using pillows and products that relieve pressure. Advanced sores are slow to heal, so early identification of risk groups and appropriate nursing intervention is best to prevent pressure sore [3].

The scientific name for coconut is *Cocos nucifera*. Early Spanish explorers called it coco, which means "monkey face" because the three indentations (eyes) on the hairy nut resemble the head and face of a monkey. *Nucifera* means "nut-bearing" On many islands coconut is a staple in the diet and provides the majority of the food eaten. Nearly one third of the world's population depends on coconut to some degree for their food and their economy. Among these cultures the coconut has a long and respected history. Coconut oil is of special interest because it possesses healing properties far beyond that of any other dietary oil and is extensively used in traditional medicine among Asian and Pacific populations. Pacific Islanders consider coconut oil to be the cure for all illness. The coconut palm is so highly valued by them as both a source of food and medicine that it is called "The Tree of Life." Only recently has modern medical science unlocked the secrets to coconut's amazing healing powers [4].

People from many diverse cultures, languages, religions, and races scattered around the globe have revered the coconut as a valuable source of both food and medicine. Wherever the coconut palm grows the people have learned of its importance as a effective medicine. For thousands of years coconut products have held a respected and valuable place in local folk medicine. In traditional medicine around the world coconut is used to treat a wide variety of health problems including abscesses, asthma, baldness, bronchitis, bruises, burns, colds, constipation, cough, dropsy, dysentery, earache, fever, flu, gingivitis, gonorrhoea, irregular or painful menstruation, jaundice, kidney stones, lice, malnutrition, nausea, rash, scabies, scurvy, skin infections, sore throat, swelling, syphilis, toothache, tuberculosis, tumors, typhoid, ulcers, upset stomach, weakness, and wounds[4].

Pressure sores remain common with a prevalence of 5 to 9% and more than 70% occurring in patients over 70 years of age. Older adults are particularly prone for pressure ulcers as a result of decreased mobility, multiple contributing diagnose, and loss of muscle mass and poor nutrition. The prevalence of pressure ulceration within the population receiving health care in Bradford, UK was 0.74 people per 1000 population. It's estimated that 1.5 to 3million patients develop pressure ulcers annually. They are often ascribed to poor nursing care because it is regarded as a potentially preventable complication of an acute immobility illness. Prevention involves identification of patients at risk, appropriate nursing care. Hospital need to develop proactive strategies to assess patients for Pressure sore susceptibility and provide the right nursing care to prevent pressure sores developing. Because Skin is a sensory organ and plays a major role in communication with others and self image. Wound requires adaptation in the physical as well as emotional dimensions. Actual and potential emotional stressors are common in all patients with wound. These stressors Include pain anxiety, and, changes in bodily image [5].

Modern medical science is now confirming the use of coconut in treating many of the disease conditions, based on the researches conducted by the *cocos nucifera*, Southern Illinois University

Cocos nucifera L, Perdue University, (2007). Published studies in medical journals showed that coconut oil is having a wide range of health benefits as it,

Reduces inflammation.

- Supports tissue healing and repair.
- Kills bacteria that cause ulcers, throat infections, urinary tract infections, gum disease and cavities, pneumonia, and gonorrhea, and other diseases
- Supports and aids immune system function.

According to the studies of the pressure ulcers, it is difficult to determine the exact extend of the problem, including the number of new cases and number of patients who have pressure ulcers. Pressure ulcers have long been recognized as a quality of care problem. Prevention of pressure ulcers depends on the close observation, appropriate nutrition and Effective nursing care.

From the review findings it is apparent that there is lack of efficacy with traditional base practices for prevention of bed sore. This gave an idea to conduct a study on the effectiveness of base practice with an emollient coconut oil in preventing bed sore.

Caron Mazet J; Roth B;Guillaume JC, conducted a study to assess prevalence and management of chronic wounds in 14 geriatric institutions of the Haut-Rhin and found that 96 of the 1163 patients hospitalised at the time of our survey met the inclusion criteria. And found the global prevalence of sores was 8.3%, while that of bedsores was 6.4% and that of leg ulcers was 1.6% [6].

Berthe JV :Bustillo, conducted a prospective randomized clinical trial in 1729 patients .Forty-two of the 1729 patients (2.4%) who entered the study developed at least one pressure sore. Twenty-one of the 657 patients (3.2%) nursed on the Kliniplot mattress, and 21 of the 1072 patients (1.9%) on the standard mattress developed bedsores ($p = 0.154$). The median time for the occurrence of pressure sores was 31 days (range 6-87) with the Kliniplot mattress and 18 days (range 2 to 38) with the standard mattress ($p < 0.001$) results shown that the occurrence of pressure sores is not reduced but is delayed when patients are

nursed on a Kliniplot pressure-decreasing mattress.[7]

Brown SJ, conducted a study to assess the relationship of bed surfaces and pressure sore prevention and found that many special products designed to prevent or treat pressure sores are more effective than standard hospital foam mattresses in preventing and treating pressure sores, Special Pressure-relieving for patients at risk for skin breakdown [8].

Gould D, conducted a study be to assess the relationship between Pressure sore prevention, treatment and nurses' failure to implement research findings and found that main reasons is the failure of nurse educationalists to incorporate relevant material into basic and post-basic teaching programmes [9].

Catz A, Zifroni A, Philo O, conducted an economic assessment of pressure sore prevention by using a computerized mattress system in patients with spinal cord injury and found that the computerized mattress system is advisable for patients with SCI who require assistance for repositioning, but Its profitability depends on the employment terms of the nursing manpower [10].

Deeks JJ, conducted a study to determine the effectiveness of the use of risk assessment scales for pressure ulcer prevention in clinical practice, degree of validation of risk assessment scales, and effectiveness of risk assessment scales as indicators of risk of developing a pressure ulcer. And found that there is no evidence that the use of risk assessment scales decreases pressure ulcer incidence. The Braden Scale offers the best balance between sensitivity and specificity and the best risk estimate. Both the Braden and Norton Scales are more accurate than nurses' clinical judgement in predicting pressure ulcer risk [11].

Ousey K, Department of Nursing and Health Sciences, University of Huddersfield, Queensgate, Huddersfield, conducted a study to understand the challenges of promoting quality and found that pressure ulcers affect quality of life and general wellbeing, and create significant difficulties for patients, their careers and families, pressure ulcers are associated with morbidity and mortality, and prove costly for healthcare providers [12].

Reddy M; Gill SS, conducted a study to review the evidence by examining interventions to prevent pressure ulcers and found that using support surfaces, repositioning the patient, optimizing nutritional status, and moisturizing sacral skin are appropriate strategies to prevent pressure ulcers[13].

Barateau M ;Corompt A; Soulan J; Bourdel, conducted a multicenter nursing study on the importance of nutritional support for the prevention of bedsores in the elderly at risk and found that increasing the energy and protein supply by a distribution of enriched food supplements has had a beneficial influence in the bedsores prevention among the old people [14].

Agero AL, Verallo-Rowell VM, conducted a randomized double-blind controlled trial comparing extra virgin coconut oil with mineral oil as a moisturizer for mild to moderate xerosis and found that Coconut oil is as effective and safe as mineral oil when used as a moisturizer [15].

Karunakara N, Al-Azmi D, conducted a study on radon absorption efficiencies of edible oils produced in India and found that oils such as coconut oil, gingelly oil (till oil), ground nut oil, mustard oil, sunflower oil, and saffola kardi oil are also good absorbers for radon, and among them coconut oil and gingelly oils are better absorbers than olive oil [16].

Nevin KG, Rajamohan T, conducted a study to assess the beneficial effects of virgin coconut oil on lipid parameters and in vitro LDL oxidation and demonstrated the potential beneficiary effect of virgin coconut oil in lowering lipid levels in serum and tissues and LDL oxidation by physiological oxidants. This property of VCO may be attributed to the biologically active polyphenol components present in the oil [17].

Rele AS, Mohile RB, conducted a study to assess the effect of mineral oil, sunflower oil, and coconut oil on prevention of hair damage and found the the strong impact that coconut Oil application to hair as compared to application of both sunflower and mineral oils[18].

Nevin KG, Rajamohan, conducted a study to identify the effect of topical application of Virgin Coconut Oil on Skin Components and Antioxidant Status during Dermal Wound and found that VCO-treated wounds healed much faster, as indicated by a decreased time of complete epithelization and higher levels of various skin components [19].

Statement of the Problem

A study to assess the effectiveness of coconut oil usage in risk of pressure ulcers among chronic bedridden patients at selected hospital in North India.

Objectives

- To assess the risk of pressure ulcers in chronic bedridden patients in experimental group.
- To assess the risk of pressure ulcer in chronic bed ridden patients in control group.
- To assess the effectiveness of coconut oil back care in risk of pressure ulcers in experimental group
- To compare the risk of pressure ulcer between the control and experimental group after giving coconut oil back care.

Research Hypothesis

H₁: There will be significant difference in the risk of pressure ulcers before and after coconut oil back care in experimental group.

H₂: There will be significant difference in the risk of pressure ulcer in experimental and control group after giving coconut oil back care.

Conceptual Frame Work

The conceptual frame work is based on Imogene M King's theory of goal attainment.

Methodolog

The study is longitudinal experimental study with evaluative approach. Before-After (pretest-posttest) experimental design was used to assess the effectiveness of coconut oil back care in pressure ulcer among chronic bedridden patients in Baba Hospital,Lucknow, Uttar Pradesh. The inclusion criteria for sample selection were 1, Patient who are chronic bedridden for a minimum period of 15 days. 2. Clients who are willing to participate in this study. 3. Clients who can understand and speak Hindi or English. 4. Clients who are admitted to orthopedic, medical and surgical wards.

The exclusion criteria were Patient who already had pressure ulcer 2.Critically ill patients 3.

Clients who are not willing to participate in this a study. Totally 60 chronic bed ridden patients were categorized into experimental (30) and control group(30) by simple random sampling technique. The tool used for the data collection was Braden scale.

Ethical committee clearance was obtained for the study, following which prior permission was obtained from the hospital authorities. Informed consent was taken from all the patients before enrolling into the study. The data was collected from August 2012 to January 2013.

After the pretest the patients in experimental group received the back care every two hourly following which coconut oil was applied to back, where as in control group the patient only received back care two hourly. The post test was conducted on fourth day. All special precautions were taken not to spill the coconut oil on the floor and on bed. Aseptic techniques were strictly adhered at all the time of procedure.

Result

The collected data was analyzed by both descriptive and inferential statistics (paired't' test, unpaired't' test and chi square test).

The age wise distribution of chronic bedridden patients shows out of 30 control group 73% are in the age group of 30-50 years and 27% in 50-70 years. Where as in the experimental group (n=30) 67% are in the age group 30-50 years and 33% in 50-70 years.

The gender wise distributions of chronic bedridden patient's shows out of 15 control group 73% of patients were male and 27% were female. In experimental group (n=30) 60% of patients were male and 40% were females.

The duration of hospital stay wise distribution of chronic bedridden patient's shows out of 15 control group 20% are in the duration of hospital stay of 15-20 days and 33% in 20-25 days 47% in 25-30 days. Where as in experimental group (n=30) 27% are in the duration of hospital stay of 15-20 days and 33% in 20-25 days and 40% in 25-30 days.

The monthly income wise distribution of chronic bedridden patients shows out of 15 control group 60% are having the monthly income of 1000-4000/- and 40% having 4000-8000/-. Where as in experimental group (n=30) 53% having the monthly income of 1000-4000/- and 57% having 4000-8000/-.

All the patients of both experimental and control group were married.

The religion wise distribution of chronic bedridden patients shows out of 15 control group 100% are Hindus and in experimental group 67% are Hindus and 33% are Muslims.

The occupation distribution of chronic bedridden patient's shows out of 30 control group 33% are industrial workers and 67% are daily wages workers. In experimental group out of 15, 47% are industrial workers and 53% are daily wages workers.

The dietary pattern of patient in control group (n=30) 27% patients were vegetarian and 73% were having both vegetarian and non-vegetarian diet. In experimental (n=30) 47% were vegetarian and 53% have both vegetarian and non-vegetarian diet.

The type of family wise distribution of chronic bedridden patient's shows out of 15 control groups is 100% belongs nuclear family. Where as in experimental group (n=30) 87% belongs to nuclear family and 13% belongs to joint family.

In the pretest score of experimental group out of 30 samples, 4 (13%) were at risk, 14 (47%) were at moderate risk, 12 (40%) were at high risk.

In the pretest score of control group out of 30 samples, 8 (27%) were at risk, 12 (40%) were at moderate risk and 10 (33%) were at high risk.

The experimental group, the mean score is 13 and standard deviation is 2.19. In control group the mean score is 12.4 and the standard deviation is 1.15.

In the posttest score of experimental group out of 30 samples, 6 (20%) were at risk, 12 (40%) were at moderate risk, 12 (40%) were at high risk.

In the posttest score of control group out of 30 samples, 4 (13%) were at risk, 12 (40%) were at moderate risk, 14 (47%) were at high risk.

In experimental group the mean score is 14 and standard deviation is 1.36. In control group the mean score is 12.8 and standard deviation is 1.26.

Paired 't' value obtained for experimental group is 8.596 (P=2.145) from this we can conclude that there is significant difference between pre and post test score of experimental group.

Unpaired 't' value obtained for post test score of experimental and control group is 2.7370 (p=2.042). From this we can conclude that there is significant difference between control group post test score and experimental group post test score.

There was no association of pretest score of control group with selected socio demographic variables.

There was no association of post test score of experimental group with selected socio demographic variables.

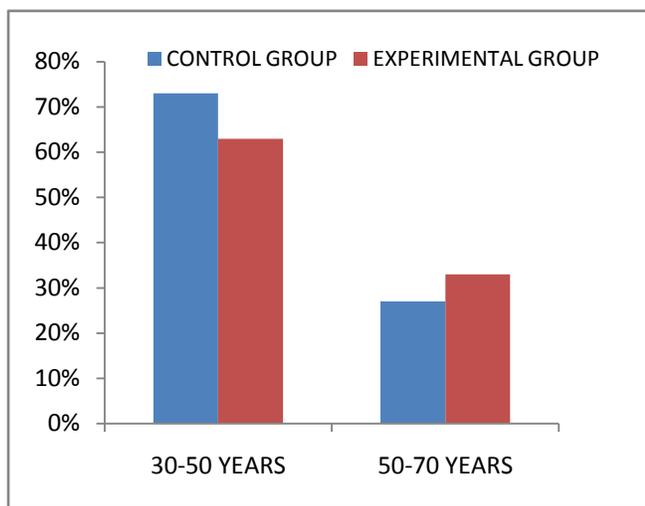


Figure no 1: Percentage analysis of socio demographic variables. (Distribution of chronic bedridden patients according to age)

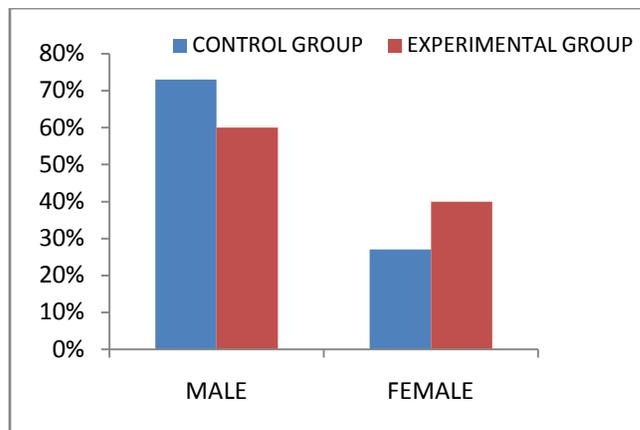


Figure no 2: Distribution of chronic bedridden patient according to gender.

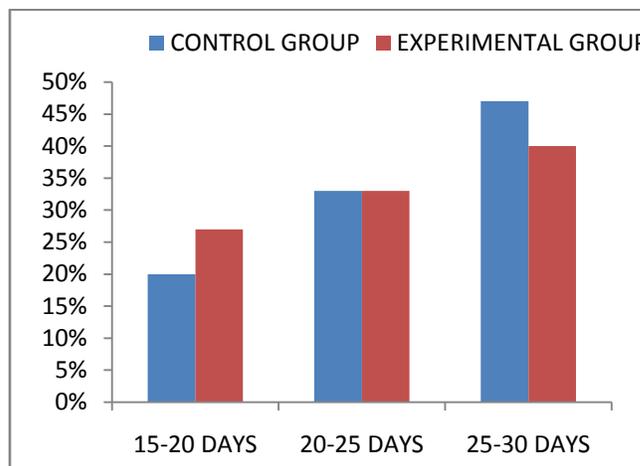


Figure no 3: distribution of chronic bedridden patient according to duration of hospital stay.

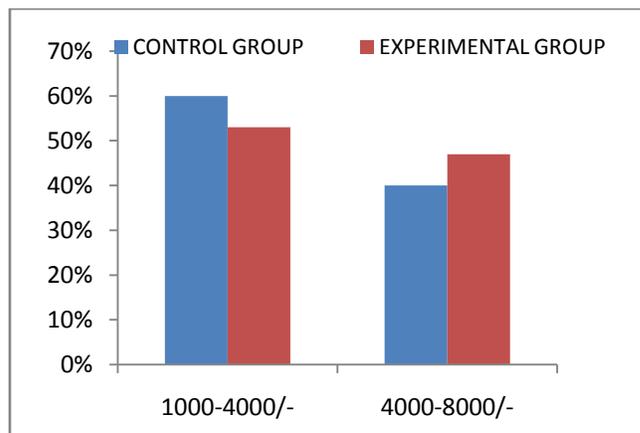


Figure no 4: Distribution of chronic bedridden patient according to monthly income.

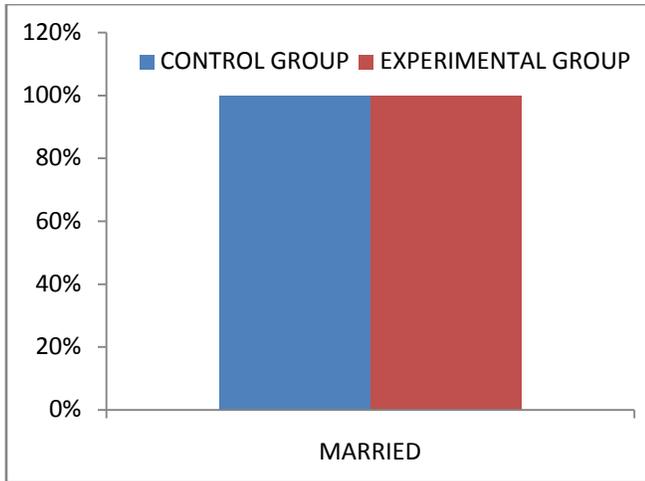


Figure no 5: Distribution of chronic bedridden patient according to marital status.

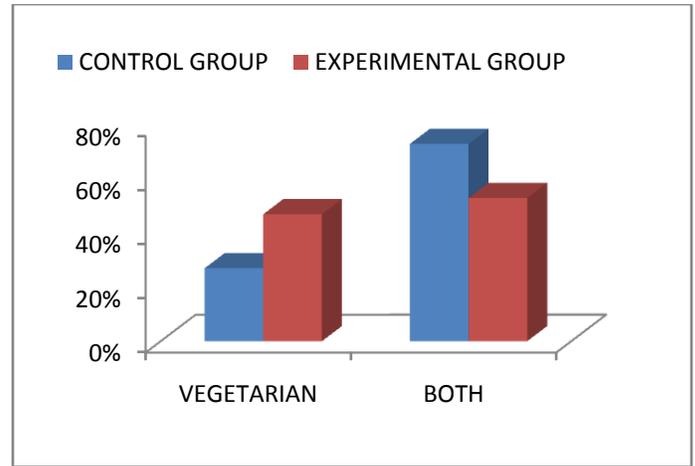


Figure no 8: Distribution of chronic bedridden patient according to dietary pattern.

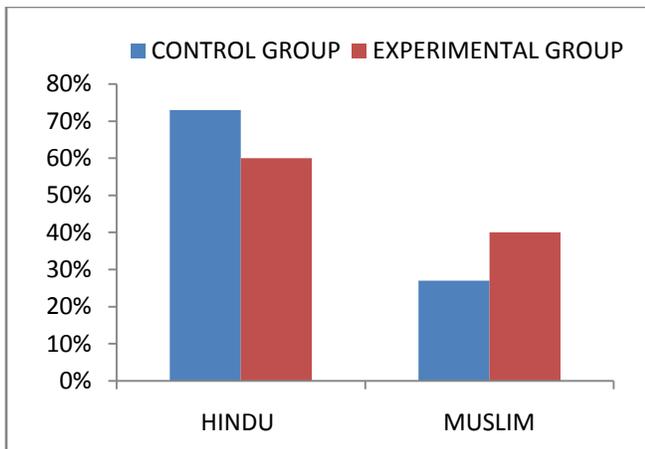


Figure no 6: Distribution of chronic bedridden patient according to religion.

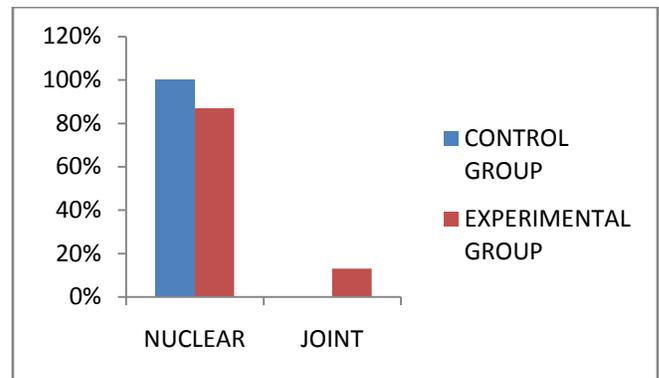


Figure no 9: Distribution of chronic bedridden patient according to type of family.

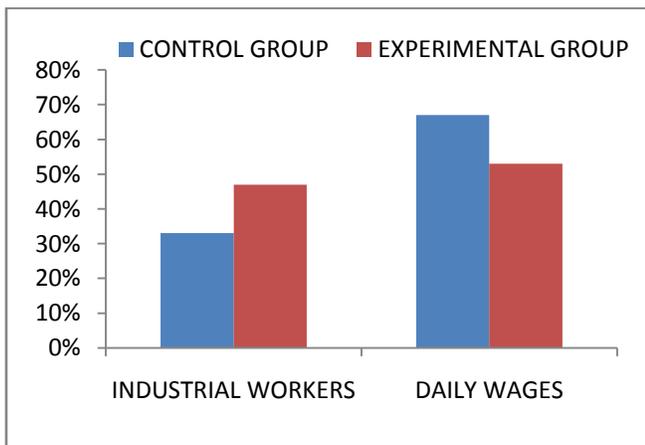


Figure no 7: Distribution of chronic bedridden patient according to occupation.

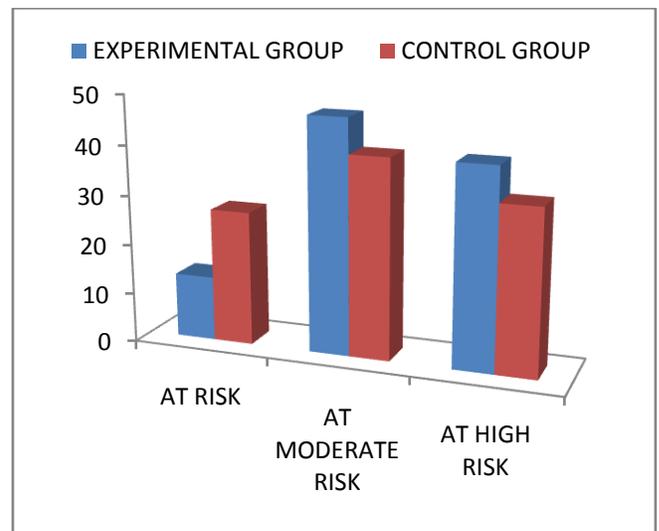


Figure no 10: analysis and interpretation of pretest score of experimental and control group.

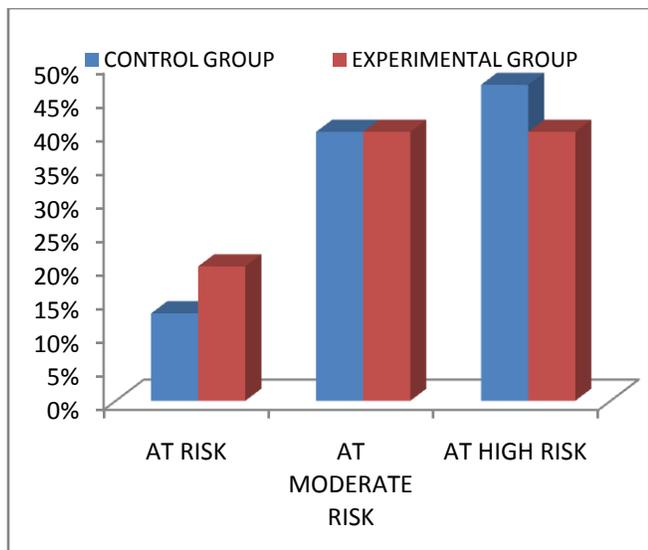


Figure no 11: Analysis and interpretation of posttest score of experimental and control group.

Sr no	Control Group		Mean Difference
	Posttest score	Pretest score	
1	12.8	12.4	0.4

Table 1: distribution of pretest and posttest score and mean difference of control group.

Sr no	Experimental Group		Mean Difference
	Posttest score	Pretest score	
1	12.8	13	0.2

Table 2: Distribution of pretest and posttest score and mean difference of experimental group.

Sr no	Level of score	Number of chronic bedridden patients		%	Paired 't' value
		Pretest score	Posttest score		
1	At risk	4	6	17	8.96
2	At moderate risk	14	12	43	
3	At high risk	12	12	40	

Table 3: Comparison of Pre and Posttest Score of Experimental Group

Conclusion

The finding of the study showed that the coconut oil back care was effective as evidenced by the result of pretest and post test score. The study has proved that the coconut oil back care reduce the risk of pressure ulcer among chronic bedridden patients.

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