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 bed-sores (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

H_1: There will be significant difference in the risk of pressure ulcers before and after coconut oil back care in experimental group.

H_2: 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, un paired'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 405 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 thepretest score of control group out of 30 samples, 8 (27%) were at risk, 12 (40%) were at moderate risk and10 (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.
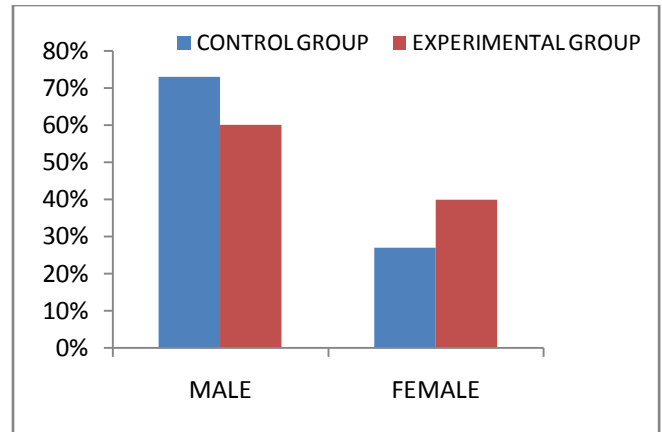
Figure no 2: Distribution of chronic bedridden patient according to gender.
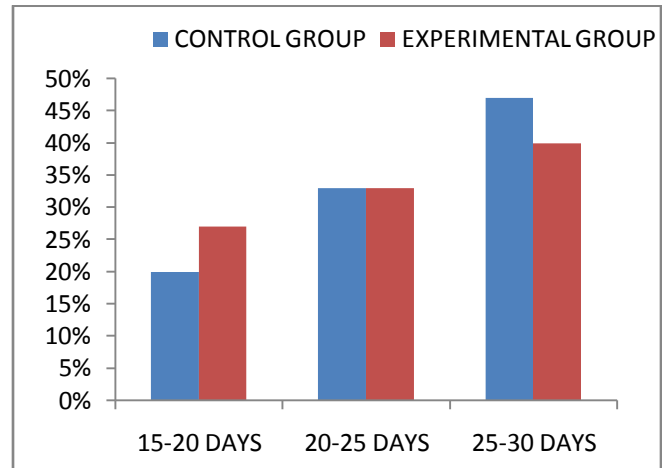
Figure no 3: distribution of chronic bedridden patient according to duration of hospital stay.
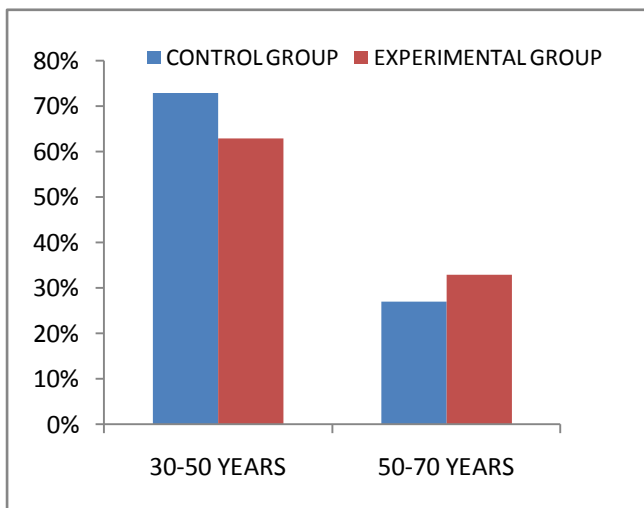
Figure no 1: Percentage analysis of socio demographic variables.
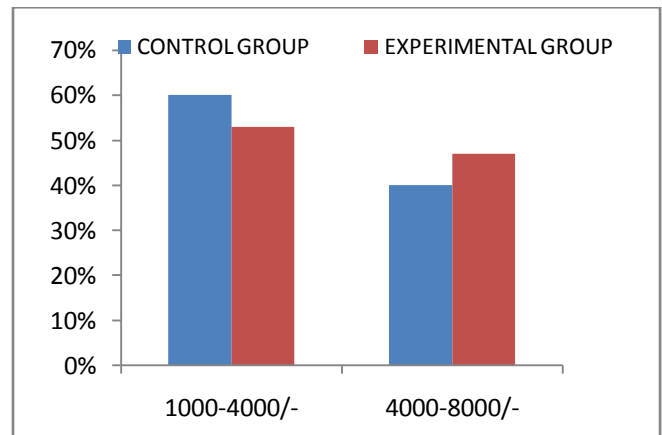(Distribution of chronic bedridden patients according to age)

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 6: Distribution of chronic bedridden patient according to religion.

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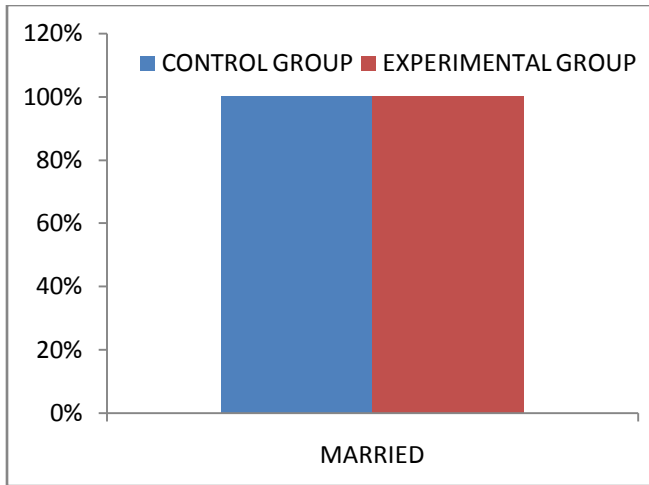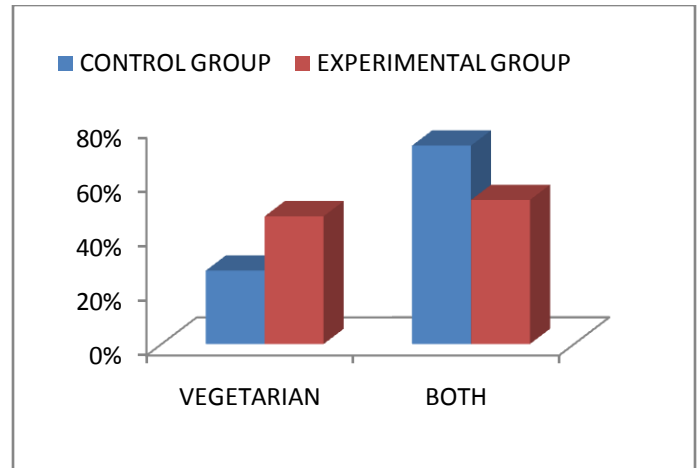

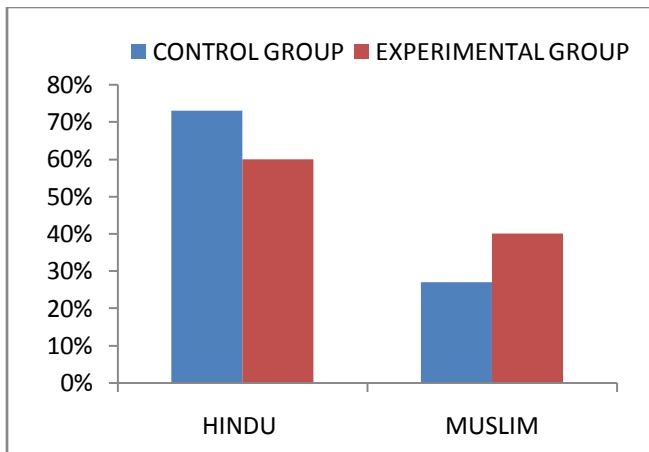Figure no 8: Distribution of chronic bedridden patient according to dietary pattern.

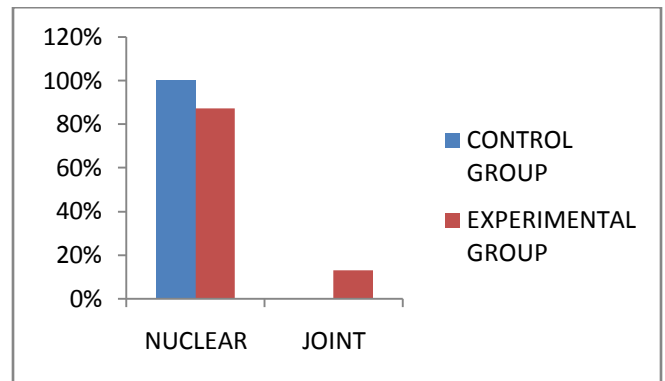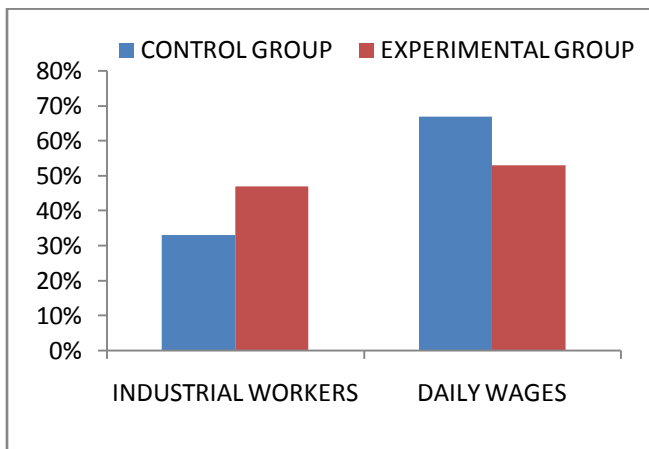Figure no 9: Distribution of chronic bedridden patient according to type of family.
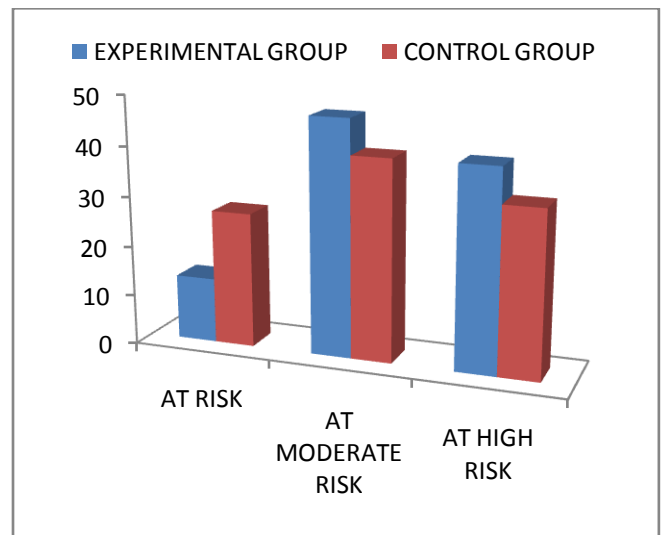

Figure no 10: analysis and interpretation of pretest score of experimental and control group.
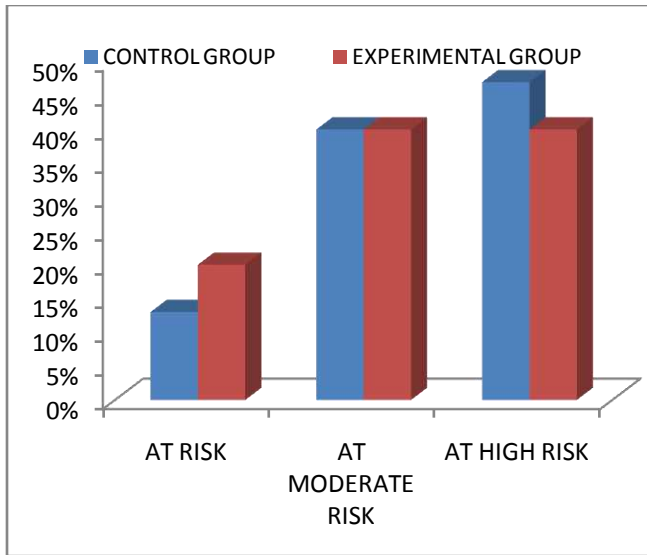
Figure no 11: Analysis and interpretation of posttest score of experimental and control group.

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	Posttes t score		
1	At risk	4	6	17	
2	At moderate risk	14	12	43	8.96
3	At high risk	12	12	40	

Table 3: Comparsion 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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Original Research Article

FIND THE INCIDENCE OF COMPLICATIONS RELATED TO INFUSION THERAPY AMONG THE CHILDREN ADMITTED AT PAEDIATRIC WARD IN SELECTED HOSPITALS AT MORADABAD.

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Abstract: Background of the study: Peripheral infusion is a stressful procedure for children. It is estimated that over 80% of all children entering hospital to receive IV therapy, some of the minor problems were pain, trauma, swelling, joint immobility, but these can lead to life threatening conditions like thrombosis, embolism, variety of infections and so on.

Aim: The main objective of the study was to find the incidence of complications related to infusion therapy among the children admitted at paediatric ward in selected hospitals at Moradabad.

Material and Methods: The descriptive research design was used. The study was conducted at various hospitals of Moradabad, U.P. 100 children's (1-18 years) selected as a sample for the study. Non-probability convenient sampling technique was used for the selection of samples. The tool designed to collect the data were sociodemographic Performa and observational checklist regarding incidence of complications related to infusion therapy.

Results: Data gathered were analyzed by using descriptive statistics in terms of frequency, percentage. The results revealed that out of 100 children were had 82% infection, 41% infiltration, 33% air embolism, 25% hematoma, 7% phlebitis, 4% thrombophlebitis and 1% cellulitis.

Conclusion: This study concluded that majority of incidence of complication related to infusion therapy was infection i.e 82%.

Keywords: Incidence, complications related to infusion therapy, children and paediatric ward.

Introduction: Intravenous or peripheral infusions means introduction of large amount of fluid into the body via veins. It is useful in the restore fluid volume that is lost from the body due to haemorrhage, vomiting, diarrhoea, drainage, etc, A bolus or a large amount can also be infused without much pain, therefore it is very useful for fluid replacement in dehydration and burns.[1]

Children are not little adult, but adults are grown up children. Most of the basic principles of safe administration of IV solutions

and medications are the same, regardless of the patient's age. Some of the very important differences exist in the preparation of the parent's and child, calculation of flow rates, veins used for infusion, equipment and procedure, methods of protecting the child and the site of infusion.[2]

Research Methodology:

Research approach	Quantitative approach
Research design	Non-experimental design(descriptive research design)
Setting of the study	Paediatric wards of selected hospitals.
Population	• **Target population:** Children admitted in hospitals at Moradabad. • **Accessible population:** Children admitted in paediatric wards of selected hospitals at Moradabad.
Sample and sample size	• **Sample:** Children (1-18 years) • **Sample size:** 100
Sampling technique	Non-randomized sampling (convenient sampling technique)
Variables	• **Research variable:** Complications related to infusion therapy. • **Demographic variables:** ◆ Age, ◆ gender, ◆ weight (in kg), ◆ length of stay in hospital, ◆ Information on IV cannulation ✦ Site of cannula ✦ Size of cannula ✦ Type of fluid and medication infused ◆ How long the catheter in place.

Method of Data Collection: The study was done from 29/01/2016 to 13/02/2016. The subjects were explained about the purpose of the study. Consent was taken from each subject. Data was collected through observational checklist.

Plan for Data Analysis

1. Descriptive statistics used to analyze the variable, frequency and percentage.

Results and Discussion:

Section 1: Description of Sample Characteristics

Table no.1   **N=100**

Demographic Characteristics		Frequency(f)	Percentage (%)
Age	**1-3 years**	21	21%
	4-6 years	30	30%
	7-12 years	33	33%
	13-18 years	16	16%
Gender	Male	42	42%
	Female	58	58%
Weight	7kg-15kg	33	33%
	16kg-22kg	33	33%
	23kg-43kg	30	30%
	44kg-52kg	04	04%

Length of stay in hospital	<3 days	17	17%
	4 days-7 days	47	47%
	1 week-2 weeks	29	29%
	More than 2 weeks	07	07%
Site of cannula	Hand	77	77%
	Wrist	18	18%
	Scalp	00	00%
	External jugular	00	00%
	Dorsal foot	05	05%
Size of cannula	18G	05	05%
	20G	18	18%
	22G	56	56%
	24G	21	21%
	26G	00	00%
Type of fluid and medication	*Isotonic solution*	*81*	*81%*
	Hypotonic solution	*14*	*14%*
	Hypertonic solution	*05*	*05%*
How long the catheter in place	<24hrs	03	03%
	24-48hrs	51	51%
	49-72hrs	46	46%
	4th day and above	00	00%

Section 2: Incidence Of Complications Related To Infusion Therapy
Table no.2   **N=100**

S. No.	Complications	Frequency(f)	Percentage (%)
1.	**Infiltration**	41	41%
2.	**Phlebitis**	07	07%
3.	**Thrombophlebitis**	04	04%
4.	**Hematoma**	25	25%
5.	**Cellulitis**	01	01%
6.	**Air embolism**	33	33%
7.	**Infection**	82	82%

Recommendation and Suggestions:
1. Awareness building among staff nurse to make them understand the serious consequences of complications related to infusion therapy.
2. Increased focus on staff nurse while performing cannulation procedure on children.
3. Instruct the parents about their participation in the management and outcome of intravenous infusion, while children receive intravenous infusion therapy.

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Quality of life in CABG patients: A review of literature

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Abstract

Coronary artery bypass grafting (CABG) is a type of surgery that improves blood flow to the heart. Surgeons use CABG to treat people who have severe coronary heart disease (CHD).CHD is a disease in which a waxy substance called plaque (plak) builds up inside the coronary arteries. CABG is the most common cardiac surgery. In this procedure arteries or veins from elsewhere in the patient's body is grafted to coronary artery to bypass blockages and improve blood supply to the heart. Research showed that Indians were particularly at risk of heart diseases, with Indian subcontinent 45% of global burden of CAD. Its widely believed that "Indian genes are three times more vulnerable to heart disease. The average age for heart attacks in the west for instance, is 65 years, where in India, it is 45. Quality of life (QOL) is a broad multidimensional concept that usually includes subjective evaluations of both positive and negative aspects of life. What makes it challenging to measure is that, although the term "quality of life" has meaning for nearly everyone and every academic discipline, individuals and groups can define it differently. This article focus up on the quality of life the post CABG patients have and what the existing literature is today.

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1. Introduction

Cardiovascular disease is the most common cause of morbidity and mortality in developed countries, and controlling it is a major challenge for health care systems. The authors of the latest American Heart Association report predict a significant increase in the burden of cardiovascular disease in the USA by 2030, and a huge cost for its treatment [1, 2]. In developed countries, population aging will become a major cause of the increased incidence of cardiovascular disease. Reduction of the premature mortality associated with cardiovascular disease is possible in Poland and throughout the world. The scale of the problem has been highlighted in a number of randomized studies, including The National Cardiovascular Disease Prevention and Treatment Program (POLKARD) 3 in Poland and the Japan Assessment of Pitavastatin

and Atorvastatin in Acute Coronary Syndrome (JAPAN-ACS) [4]. The achievement of positive results in the treatment of patients suffering from coronary heart disease (CHD) is possible thanks to the common introduction of invasive procedures on the heart, particularly in the coronary arteries. These procedures are performed more and more often in elderly patients [5, 6]. Coronary artery bypass grafting (CABG) is mainly performed in elderly patients to reduce mortality and improve their quality of life (QoL) [5]. A significant theme in assessment of QoL in patients after CABG is the long-term outcomes of treatment [7, 8]. The research referring to evaluation of QoL after CABG has been inconclusive. In the majority of patients, QoL has improved after CABG, but often in a differentiated manner, depending on the gender of patients studied [9] .

Ancient Indian legacy

The word "Surgery" has multiple meanings it is the branch if medicine concerned with diseases and conditions which require or are amenable to operative or manual procedure. Surgery is the word done by a surgeon Surgery (In Latin "Hand Work") is an ancient medical specialty that uses operative, manual and instrumental techniques on a patient to investigate and /or treat a pathological condition such as disease or injury or to help improve bodily function or appearance surgery is the treatment of bodily injuries or disorders by an incision or manipulation as, "opposed to drugs " (Oxford Dictionary).

The earliest known compendium on surgery where penned down by ancient Indians. Sushruta, father of Indian Surgery and Ophthalmology extensively described about various surgeries in his Sanskrit text "SushrutaSamhita" ranging from rhinoplasties, labioplasties and caesarians. From the ancient period going through historic period, Middle Ages to modern surgery; it has developed rapidly with scientific era. In the Scientific era three main developments permitted the transitions to modern surgical approaches – control bleeding, control of infection and control pain (anesthesia). Now the branches of surgery

became its full fledged form that is surgical specialty and sub specialties. Of which cardiac surgery has its own importance; as heart is one of the vital organ in human body [10].

Heart is a myogenous muscular organ found in all animals with a circulatory system that is responsible for pumping blood throughout the blood vessel by repeated rhythmic contractions. The average human heart beating at 72beats per minute will beat approximately 2.5 billion times during an average 66 year life span. It weighs approximately 250-350 gm. As it is a vital organ in human body the role of the heart is enormous [11].

As per WHO estimation globally almost 42% deaths from cardiovascular diseases are due to ischemic heart diseases. Cardiovascular diseases are the number one cause of death globally. An estimated 17.3 million people died because of cardiovascular diseases in the year of 2008.In India percentage of total deaths of all ages is 24% due to cardiovascular diseases (WHO estimation 2010)."More than 50000 heart surgeries are performed every year in India. In India, the fourth largest numbers of heart surgeries in the world are conducted."(Speech by Dr.APJ Abdul Kalam at the thirty second convocation of All India Institute of Medical Sciences).

Quality of life and CABG

Quality of life is important to everyone. Although the World Health Organization (WHO) defined health very broadly as long as a half century ago, it is very essential part of wellbeing. Quality of life (QOL) is a broad multidimensional concept that usually includes subjective evaluations of both positive and negative aspects of life. What makes it challenging to measure is that, although the term "quality of life" has meaning for nearly everyone and every academic discipline, individuals and groups can define it differently. Although health is one of the important domains of overall quality of life, there are other domains as well—for instance, jobs, housing, schools, the neighborhood. Aspects of culture, values, and spirituality are also key domains of

overall quality of life that add to the complexity of its measurement [12].

Surgical revascularization of the coronary arteries leads to changes in quality of life (QoL) for patients with coronary heart disease. Coronary artery bypass grafting (CABG) is a type of surgery that improves blood flow to the heart. Surgeons use CABG to treat people who have severe coronary heart disease (CHD).CHD is a disease in which a waxy substance called plaque (plak) builds up inside the coronary arteries. These arteries supply oxygen-rich blood to your heart. Over time, plaque can harden or rupture (break open). Hardened plaque narrows the coronary arteries and reduces the flow of oxygen-rich blood to the heart. This can cause chest pain or discomfort called angina (an-JI-nuh or AN-juh-nuh).If the plaque ruptures, a blood clot can form on its surface. A large blood clot can mostly or completely block blood flow through a coronary artery. This is the most common cause of a heart attack. Over time, ruptured plaque also hardens and narrows the coronary arteries. CABG is one treatment for CHD. During CABG, a healthy artery or vein from the body is connected, or grafted, to the blocked coronary artery. The grafted artery or vein bypasses (that is, goes around) the blocked portion of the coronary artery. This creates a new path for oxygen-rich blood to flow to the heart muscle. Surgeons can bypass multiple coronary arteries during one surgery [13].

Coronary Artery Bypass Surgery also Coronary Artery Bypass Graft (CABG pronounced as "cabbage") surgery and colloquially "heart bypass" or "bypass surgery" is a surgical procedure performed to relieve angina and to reduce risk of death from Coronary Artery Disease (CAD).Angina is chest pain due to ischemia (Lack of blood supply and further leads to lack oxygen supply) of the heart muscle, generally due to obstruction or spasm of the coronary arteries (The heart's blood vessels). Coronary Artery Disease, the main cause of angina is due to atherosclerosis (It's a condition in which an artery wall thickens as a result of the accumulation of fatty materials, such as cholesterol.) of cardiac arteries.

Hypercholesterolemia is a condition there is abnormal increase of cholesterol content in blood-that is that is, higher concentrations of Low Density Lipoprotein (LDL) and lower concentrations of functional High Density Lipoprotein (HDL)—are strongly associated with cardiovascular disease because these promote atherosclerosis [14].

CABG is the most common cardiac surgery. In this procedure arteries or veins from elsewhere in the patient's body is grafted to coronary artery to bypass blockages and improve blood supply to the heart. According to number of arteries bypassed the term may be single bypass, double bypass, triple bypass, quadruple bypass and quintuple bypass. CABG is indicated when other alternative like medical management (antianginal medications plus statins, antihypertensive, smoking cessation, tight blood sugar control in diabetics) and Percutaneous Interventions(PCIs-otherwise known as Angioplasty-is a technique of mechanically widening a narrowed or obstructed blood vessel by passing a balloon tipped catheter) fails. Both PCIs and CABG are effective than medical management at relieving symptoms (For example angina, fatigue, difficulty in breathing).CABG is superior to PCIs for some patients with multivessel CAD. For a conventional CABG a Cardiopulmonary Bypass (CPB) is essential.CPB is a technique that temporarily takes over the function of lung and heart during surgery maintaining the circulation of blood and oxygen content of body. The CPB pump itself is often referred to as a heart lung machine or "the pump". It took 3-6 hours to complete CABG surgery depending on the number of blockages [15].

First CABG

The first CABG surgery was performed in the USA on May 2, 1960, at The Albert Einstein College of Medicine-Boronx municipal Hospital centre by a team led by Dr.Robert Goetz. The first CABG surgery in India was performed by Dr.Cherian in 1975.World's first conscious off pump CABG surgery was done in India [16].

Research showed that Indians were particularly at risk of heart diseases, with

Indian subcontinent 45% of global burden of CAD. It's widely believed that "Indian genes are three times more vulnerable to heart disease. The average age for heart attacks in the west for instance, is 65 years, where in India, it is 45.

Reviews of CABG and health related quality of life

A study on assessment of health-related quality of life after coronary revascularization. The use of patient-oriented outcomes, in particular health related quality if life (HRQOL), to evaluate coronary revascularization is continuously increasing. Current data underline that patients undergoing conventional CABG show a tremendous improvement of HRQOL status as early as 3 months postoperatively. The benefits of minimal invasive CABG via mini-thoracotomy are compromised by increased incidence of pain during the immediate postoperative period. Totally endoscopic approaches seem to be more effective with regard to pain reduction and resume of everyday activities. Compared to catheter-based interventions there is evidence that conventional CABG offers significant advantages over PCI. The influence of drug-eluting stents and newer surgical techniques on HRQOL remains to be determined. Inclusion of HRQOL data in CABG and PCI databases can play a central role in order to identify patient groups who benefit the most from each revascularization strategy [17].

A study was conducted on health-related quality of life and functional capacity following coronary artery bypass graft surgery. Comprehensive data on 508 CABG patients were prospectively collected, including preoperative risk factors and postoperative morbidity in a surgical center and in all eighteen secondary referral hospitals up to discharge. The RAND-36 Health Survey (RAND-36) was used as indicator of quality of life. The primary outcome was change in the physical component summary; mental component summary and General Health summary scores from the RAND-36. All assessments were made preoperatively and repeated 12 months later. Analysis was based on three age groups: 64 years or less (282 patients), 65-74 years (175 patients), and 75 or more years (51patients). Thirty-day and 1-year survival rates were 98.2 and 96.7%, respectively. A great majority (86.4%) of the patients recovered without major complication. In all, the present data showed significant improvement in all eight domains of QOL as well as in functional capacity and NYHA class during the 1st year after CABG. However, the mean change in RAND-36 Mental Component Summary scores among patients aged 75 years or more did not reach a statistically significant level (P=0.097) and they had significantly minor improvement as compared to younger patients (P<0.05).Moreover, patients General Health score improvement was poorer and statistically insignificant (P=0.817) [18].

A study was conducted on health-related quality of life after coronary artery bypass grafting by using Euro score. Three hundred and two patients were evaluated for the Euro SCORE risk and health-related quality of life (HRQoL) during three years after CABG as assessed by the 15D instrument. Both additive and logistic Euro SCORE correlated significantly with the 15D score at 6, 18 and 36 months. A clinically important increase > or =0.03 in the 15D score was achieved by 50.6% of patients at 6 months, 40.0% at 18 months and 35.9% at 36 months. The rates were similar among patients with increasing Euro SCORE at 6 and 18 months, but tended to decrease at 36 months in the highest Euro SCORE group (Euro SCORE 0-2: 46.8%; 3-5: 34.8%; and 6-14: 33.3%, respectively, P=0.13). Both additive (area under the receiver operating characteristic curve, AUC: 0.582, P=0.024) and logistic Euro SCORE (AUC: 0.575, P=0.039) were predictors of a significant increase of the 15D score. The best cut-off value of the additive Euro SCORE for prediction of a clinically important improvement of the 15D score during 3-year follow-up was 3, as 46.7% of patients with Euro SCORE 0-3 and 30.1% of patients with a score >3 (P=0.006) improved clinically. The present study showed that the Euro SCORE also predicts long-term HRQoL after CABG [19].

A study was conducted on Health-related quality of life, anxiety and depression before and after coronary artery bypasses grafting. Aim of the study was to assess health-related quality of life as well as anxiety and depression in patients undergoing coronary artery bypass graft (CABG). A total of 54patients answered questionnaires assessing quality of life (SF-36, MacNew), anxiety and depression (STAI, HADS-D) before surgery as well as 4 weeks and 3 months afterwards. Significant improvements in health-related quality of life (MacNew) were identified 3 months after surgery. Whereas preoperative anxiety significantly correlated with health-related quality of life (MacNew) three months after surgery, correlations between preoperative depression and postoperative quality of life were only found for singular scales. Regarding clinical practice providing information about the probable course of quality of life and explaining surgery as a kind of input for the benefit of long-term enhancement seems necessary. Furthermore the assessment of preoperative well-being should be integrated in routine care in order to identify and support patients with higher levels of anxiety and/or depression [20].

A study was conducted to evaluate Health-related quality-of-life outcomes among coronary artery bypass graft surgery patients. In this paper, researchers review the current literature on HRQL and CABG surgery, including changes in HRQL following CABG, preoperative predictors of HRQL after CABG surgery, HRQL as a predictor of post-CABG mortality and comparisons of CABG with other revascularization and treatment strategies [21].

A study was conducted to assess the Health-related quality of life after coronary artery bypass grafting. Objective outcome measures (i.e., survival, mortality, morbidity, complication rate, symptom recurrence, and need for re-interventions) have long been used as benchmarks for successful cardiac surgery, including coronary artery bypass grafting (CABG).If an increasing proportion of adult patients referred for CABG are elderly, octogenarians or even nonagenarians, the acquired HRQoL benefit from bypass surgery

should be considered to be at least as important an outcome measure as potentially marginal improvement in life expectancy or longevity alone. To achieve the maximal HRQoL benefit and to optimize patient selection, a comprehensive analysis and understanding of contributors that affect pre- and postoperative self-perceived HRQoL is essential. These include patient-related characteristics (e.g., demographics and underlying co morbidities), surgical technique-related factors, and healthcare-related attributes. In this paper the investigators review the randomized controlled trials published during the last ten years to analyze the effect of CABG on HRQoL. Specifically, investigators focus on the differences between the on-pump and off-pump (OPCAB) bypass techniques; investigate the factors that contribute to post-CABG HRQoL, and study post-CABG HRQoL in elderly patients [22].

A study on Relief of symptoms and improvement of health-related quality of life five years after coronary artery bypass graft in women and men. The study was undertaken to determine the relief of symptoms and improvement in other aspects of health-related quality of life (QoL) during 5 years after CABG in women and men. Patients who underwent CABG in western Sweden were approached prior to and 5 years after surgery. Health-related QoL was estimated with Physical Activity Score (PAS), Nottingham Health Profile, and Psychological General Well-Being Index. Women (n = 381) had a 5-year mortality of 17% compared with 13% for men (n = 1,619; NS). After 5 years, 1,719 patients (survivors) were available for the survey; of these, 876 (51%) answered the inquiry both prior to and after 5 years, The results shows that in general, women suffered more than men both prior to and after CABG; however, in some aspects the improvement was more pronounced in men. Because of the limited response rate, the results may not be applicable to a non selected population who had undergone CABG [23].

A study was conducted to compare health-related quality-of-life outcomes of men and women after coronary artery bypass surgery through 1 year: findings from the POST

CABG Bio behavioral Study. A longitudinal study of symptoms and health-related quality of life was conducted among patients from four clinical centers enrolling both men (n = 405) and women (n = 269) in the Post CABG Bio behavioral Study in the United States and Canada. After 6 weeks from CABG (average 81 days), both men and women had less anxiety and symptoms related to depression than before surgery (P <.001). After 6 months (average 294 days), both men and women improved in physical and social functioning (P <.001). Although changes in scale scores were similar for men and women at each time point, women scored lower than men on these domains (P <.001, adjusted for baseline medical and socio demographic differences) and had more symptoms related to depression through 1 year after CABG (P =.003).The results shows that both male and female patients improve in physical, social, and emotional functioning after CABG, and recovery over time is similar in men and women. However, women's health-related quality-of-life scale scores remained less favorable than men's through 1 year after surgery [24].

A study was conducted to assess the Effect of coronary artery bypass graft surgery on older women's health-related quality of life. The purpose of this study was to determine if health-related quality of life (HRQL) improves after coronary artery bypass graft (CABG) surgery in older women. Study participants included 34 women 61 years or older who had elective or urgent CABG surgery for the first time. OUTSOME MEASURES: The 2 measures of HRQL were the Medical Outcomes Study Short Form-36 and the Feeling Thermometer (FT). The Short Form-36 is composed of 8 subscales that are summarized into the Physical and the Mental Composite Scores. The FT is a utility measure that rates patients' preferences for different health states. HRQL of older women was improved after CABG surgery: 7.79 points in the physical composite scores (P = .001), 7.26 in the mental composite scores (P = .008), and 29.77 points in the FT scores (P < .001). Age was a predictor of HRQL, with older women demonstrating poorer physical and better mental HRQL 3 months after the operation. HRQL of older women is improved significantly as early as 3 months after CABG surgery [25].

A study was conducted to evaluate Health-related quality of life in the elderly after coronary artery bypass grafting. The health related quality of life was measured with the EASY Care questionnaire and similar one of own construction supplemented with some items of the WHOQol-BREF scale. Two years after CABG, 100 patients were available for the study (six persons died and three persons refused). Response rate was 92%. Significant reduction of symptoms of the coronary artery disease was shown. The chest pain was declared in 18% in I group vs. 70% in II group; palpitation in 23% in I group vs. 38% in II group and effort angina in 38% in I group vs. 65% in II group. The positive evaluation of the health status was declared significantly more often in the patients of I group in comparison to patients in II group. CABG caused positive change concerning health-related quality of life in the elderly two years after surgery [26].

Conclusion

Elderly patients with CHD have decreased QoL, which improves following CABG in women and normalizes in men. Surgical revascularization of the coronary arteries in patients with CHD decreases depression and improves the ability to perform basic activities of daily living. The quality of life of CABG patients depends on multiple aspects. The CABG now commonly practiced in many hospitals all around the globe, tends to miss the quality of life parameter in to due consideration by the health care workers. Nurses have very much to do to help the patients to attain maximum better quality of life. As said its is add life to years and years to life.

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Review article

EBP in action: An experience on nursing interventions to promote sleep-application of Iowa Model of evidence-based practice to promote quality care

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Abstract

Evidence based practice (EBP) is the conscientious use of current best evidence in making decisions about patient care. Against a background of financial constraints, risk reduction, increased managerialism research evidence, and more specifically research about effectiveness, have assumed pre-eminence. However, the practice of effective nursing, which is mediated through the contact and relationship between individual practitioner and patient, can only be achieved by using several sources of evidence. The Iowa Model of EBP was developed by Marita G. Titler which answers many clinically problems in a team effort. The author identified that sleep problems in COPD patients are not addressed properly as there is no clear guidlines for nursing interventions are available. Hence with the support of administration a team was setup for the EBP for nursing interventions to promote sleep in COPD patients By Iowa model. The post implementation of EBP practice showed much better sleep by the feedback received from the Patients, patient relatives, Nurses and medicos

Keywords: Evidence based practice (EBP), COPD.

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1. Introduction

Evidence based practice (EBP) is the conscientious use of current best evidence in making decisions about patient care (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000).[1]Evidence-based practice (EBP) is spreading in popularity in many health care disciplines. One of its main features is the reliance on the partnership among hard scientific evidence, clinical expertise, and individual patient needs and choices [2].

Against a background of financial constraints, risk reduction, increased managerialism research evidence, and more specifically research about effectiveness, have assumed pre-eminence. However, the practice of effective nursing, which is mediated through the contact and relationship between individual practitioner and patient, can only be achieved by using several sources of evidence. The research, clinical experience, patient experience and information from the local context. Fundamentally, drawing on these four sources of evidence will require the bringing together of two approaches to

care: the external, scientific and the internal, intuitive [3].

Evidence-based medicine appears to motivate the search for answers to numerous questions related to costs and quality of health care as well as access to care. Scientific, relevant evidence is essential in clinical care, policy-making, dispute resolution, and law. Consequently, evidence based practice brings together pertinent, trustworthy information by systematically acquiring, analyzing, and transferring research findings into clinical, management, and policy arenas [4].

Evidence based nursing can date back to the 1800s if one considers Nightingale's first steps forward. Her "Notes on Nursing" was first published in 1859 in England and in 1860 in America (Evidence-Based Nursing, 2012). At the time, Nightingale was spreading the word of the importance of sanitation in nursing care; though not entirely true, and lacking scientific fact about germs and bacteria, her observations indicated that patients healed faster if the materials used to treat them were clean and if physicians

washed their hands. As she worked to guide the medical practices of her day, her idea remained that "What you want are facts, not opinions...The most important practical lesson that can be given to nurses is to teach them what to observe-how to observe-what symptoms indicate improvement-which are of none-which are the evidence of neglect-and what kind of neglect." (Evidence-Based Nursing, 2012) [5].

Nurses and midwives form the bulk of the clinical health workforce and play a central role in all health service delivery. There is potential to improve health care quality if nurses routinely use the best available evidence in their clinical practice. Since many of the factors perceived by nurses as barriers to the implementation of evidence-based practice (EBP) lie at the organisational level, it is of interest to devise and test an evidence based practice form for implementation in clinical patient care [6].

The Iowa Model of EBP was developed by Marita G. Titler, PhD, RN, FAAN, Director Nursing Research, Quality and Outcomes
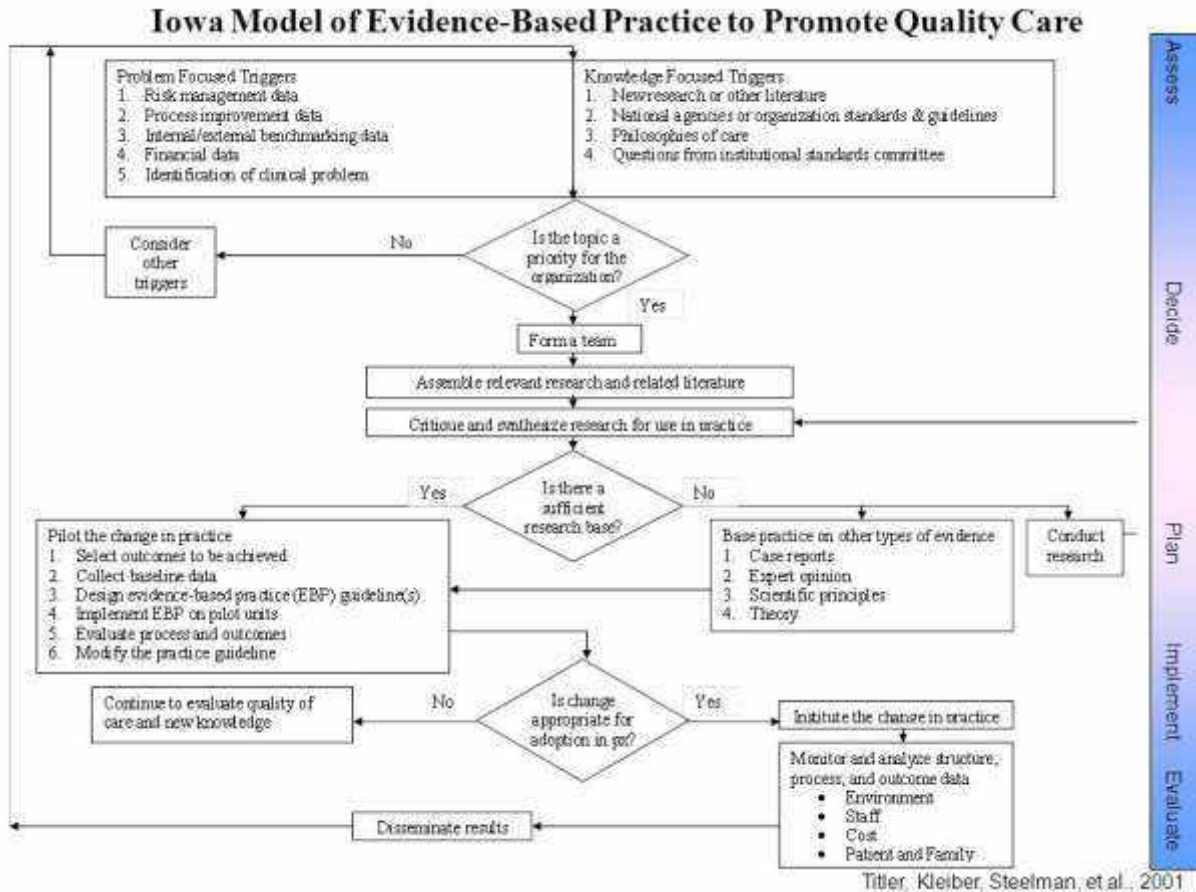

Figure 1.1 Iowa model of evidence based practice to promote quality care

Management, Department of Nursing Services and Patient Care, University of Iowa Hospitals and Clinics, Iowa City, Iowa, and her colleagues to describe knowledge transformation and to guide implementation of research into clinical practice [7].

The Iowa model highlights the importance of considering the entire healthcare system from the provider, to the patient, to the infrastructure, using research within these contexts to guide practice decisions. A number of steps have been identified in the Iowa model to facilitate NP engagement in problem identification and solution development as it relates to incorporating evidence findings into practice.

In clinical evaluation of nursing services once a patient complained about insomnia in health care facility. The need for standardization of the sleep promoting care was identified and the decision was made to make it a evidence based practice based on Iowa model.

Steps involved in EBP development

I. Basics

The organization agreed that this knowledge trigger indicates a need for change in the healthcare delivery system. For this change to happen, the literature needs to have evaluated and reviewed, as well as the topic needs to be considered in the context of the population of patients served by the organization.

One of the most challenging issues in using EBP in the clinical setting is learning how to adequately frame a clinical question so that an appropriate literature review can be performed. One method used is called the "PICO" model:

P= Who is the Patient Population=> COPD patients with sleep disturbance
I= What is the potential Intervention or area of Interest? =>Nursing Interventions
C= Is there a Comparison intervention or Control group? =>No
O= What is the desired Outcome? =>

The patients sleep continuously minimum of six continuous hours

II. The Priority of the topic

The topic has priority as the number of copd patients are increasing day by day and the hospital has large number of COPD in and out patients.

III. The team

The core team for developing EBP was Identified under the chairmanship of Nursing college Principal Mrs Lubna Rohit. The team comprised of 5 postgraduate nurses from college of nursing and 5 postgraduate nurses from clinical area. Out of these 5 one was holding a supervisory post .

IV. Review of literature

The core team collected and reviewed the research articles, text book literature, unpublished articles, expert opinion from pulmonary and critical care specialist nurses, various library materials for a period of one month from December 2013 to 1st January 2014.

V. Synthesizing

The data collected from various sources concluded that

a) There were no direct study correlating nursing interventions with sleep quality in copd patients before

b) The research studies were mostly done in abroad; so as the complete mere following may not be feasible

c) More researches are needed for accurate management for the problem

d) It has been also understood that the interventions are individualized and tailor based interventions may not be feasible for all yet the common interventions shall be applied.

VI. The various nursing interventions identified for the sleep management of COPD patients are

1. Determine the client's sleep and activity pattern
2. Encourage patient to establish a bedtime routine to facilitate transition from wakefulness to sleep.
3. Encourage him to eliminate stressful situations before bedtime
4. Monitor bedtime food and beverage intake for items that facilitate or interfere with sleep.
5. Create an atmosphere to facilitate trust
6. Encourage verbalization of feelings, perceptions, and fears
7. Determine the client's decision-making ability.
8. Discourage long periods of sleep during the day unless signs and symptoms of sleep deprivation exist or daytime sleep is usual for client
9. Perform actions to relieve discomfort if present (e.g. reposition client; administer prescribed analgesics, antiemetics, or muscle relaxants
10. Encourage participation in relaxing diversional activities
11. Discourage intake of foods and fluids high in caffeine (e.g. chocolate, coffee, tea, colas)
12. Offer client an evening snack that includes milk or cheese unless contraindicated (the L-tryptophan in milk and cheese helps induce and maintain sleep)
13. Satisfy basic needs such as comfort and warmth before sleep
14. Encourage client to urinate just before bedtime
15. Reduce environmental distractions (e.g. close door to client's room; use night light rather than overhead light whenever possible; lower volume of paging system; keep staff conversations at a low level and away from client's room; close curtains between clients in a semi-private room or ward; keep beepers and alarms on low volume; provide client with "white noise" such as a fan, soft music, or tape-recorded sounds of the ocean or rain; have sleep mask and earplugs available for client if needed)
16. Ensure good room ventilation
17. Encourage client to avoid drinking alcohol in the evening (alcohol interferes with REM sleep)
18. If possible, administer medications that can interfere with sleep (e.g. steroids, diuretics) early in the day rather than late afternoon or evening
19. Administer prescribed sedative-hypnotics if indicated
20. Perform actions to reduce interruptions during sleep (80 - 100 minutes of uninterrupted sleep is usually needed to complete one sleep cycle)
21. Restrict visitors
22. Group care (e.g. medications, treatments, physical care, assessments) whenever possible.
23. Provide measures to take before bedtime to assist with sleep (e.g., quiet time to allow the mind to slow down, carbohydrates such as crackers, or a back massage). Simple measures can increase quality of sleep. Carbohydrates cause release of the neurotransmitter serotonin, which helps induce and maintain sleep (Somer, 1999). Research has shown back massage to effectively promote sleep (Richards, 1994).
24. Keep environment quiet (e.g., avoid use of intercoms, lower volume on radio and television, keep beepers on nonaudio mode, anticipate alarms on IV pumps, talk quietly on unit). Excessive noise causes sleep deprivation that can result in ICU psychosis (Barr, 1993). Health volunteers exposed to recorded critical care noise levels experienced poor sleep (Topf, 1992). More than half of the noises in ICUs were caused by human behavior such as talking and TV watching (Kahn, Cook, 1998).
25. For hospitalized stable clients, consider instituting the following sleep protocol to foster sleep:

➢ Night shift: Give client the opportunity for uninterruptedsleep from 1 AM to 5 AM. Keep environmental noise to a minimum.

- Evening shift: Limit napping between 4 PM and 9 PM. At 10 PM turn lights off, provide sleep medication according to individual assessment, and keep noise and conversation on the unit to a minimum.
- Day shift: Encourage short naps before 11 AM. Enforce a physical activity regimen as appropriate. Schedule newly ordered medications to avoid waking client between 1 AM and 5 AM.

26. Encourage social activities. Help elderly get outside for increased light exposure and to enjoy nature. Exposure to light and social interactions influences the circadian rhythms that control sleep (Elmore, Betrus, Burr, 1994; Sateia et al, 2000).

27. Suggest light reading or TV viewing that does not excite as an evening activity. Soothing activities decrease stimulation of the reticular activating system and helpsleep come naturally.

28. Increase daytime physical activity. Encourage walking as client is able.

29. Reduce daytime napping in the late afternoon; limit naps to short intervals as early in the day as possible. The majority of elderly nap during the day (Evans, Rogers, 1994). Avoiding naps in the late afternoon makes it easier to fall asleep at night.

30. Help client recognize that there are changes in length of sleep. Client may not be able to sleep for 8 hours as when younger, and more frequent awakening is part of the aging process (Floyd et al, 2000).

31. If client continues to have insomnia despite developing good sleep hygiene habits, refer to a sleep clinic for further evaluation (Pagel, Zafralotfi, Zammit, 1997).

32. Provide support to the family of client with chronic sleep pattern disturbance. Ongoing sleep pattern disturbances can disrupt family patterns and cause sleep deprivation in the client or family members, which creates increased stress on the family.

33. Encourage client to avoid coffee and other caffeinated foods and liquids and also to avoid eating large high-protein or high-fat meals close to bedtime. Caffeine intake increases the time it takes to fall asleep and increases awake time during the night (Evans, Rogers, 1994). A full stomach interferes with sleep.

34. advise the client that research on use of melatonin is still equivocal. While it may help the client to fall asleep faster, it does not improve the quality or length of time in the sleep interval, and long-term results are unknown (Hughes, Sack, Lewy, 1998; Defrance, Quera-Salva, 1998; Walsh et al, 1999).

35. Ask client to keep a sleep diary for several weeks.Often the client can find the cause of the sleep deprivation when the pattern of sleeping is examined (Pagel, Zafralotfi, Zammit, 1998).

36. Teach relaxation techniques, pain relief measures, or the use of imagery before sleep.

37. Teach client need for increased exercise. Encourage to take a daily walk 5 to 6 hours before retiring. Moderate activity such as walking can increase the quality of sleep (King et al, 1997).

38. Teach the following guidelines for good sleep hygiene to improve sleep habits:
- Go to bed only when sleepy.
- When awake in the middle of the night, go to another room, do quiet activities, and go back to bed only when sleepy.
- Use the bed only for sleeping—not for reading or snoozing in front of the television.
- Avoid afternoon and evening naps.
- Get up at the same time every morning.
- Recognize that not everyone needs 8 hours of sleep.
- Move the alarm clock away from the bed if it is a source of distraction.

> ➤ Do not associate lulls in performance with sleeplessness; sleeplessness should not be blamed for everything that goes wrong during the day.

VII. The development of protocol and implementation

The protocol was developed based on the identified nursing interventions and implemented in hospital with the help of nurse managers of the wards where the COPD patients treated.

VIII. Evaluation

The feedback was sought from patients, patients relatives, nursing staffs, medical personals and other paramedical staffs and it has shown considerable improvement in patients quality of sleep.

Lessons learned

Iowa model can be of great help for the development of EBP to improve quality of care in clinical area. Although It requires team effort and consistency from various levels of administers, nurses and patients. Making an EBP is laborious process but very productive if done rigorously with utmost dedication. Commitment of team members vital for the development of protocol and its successful results. Another big area is administorial support is vital for the development of protocol by providing material for the collection of review and arrangement of meetings. Commitment to follow the laid protocols from the nurse managers is another vital part. Dedicated scientific nursing care is the central to the entire process to achieve the results. The biggest lesson learned is the fact that the Iowa model can be used in various other issues central to nursing to come up with efficient quality nursing care .

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Review Article

Nursing Interventions to promote sleep in COPD patients

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Abstract

Chronic obstructive pulmonary disease COPD, or chronic obstructive pulmonary disease, is a progressive disease that makes it hard to breathe. Worldwide, COPD is a leading cause of chronic morbidity and mortality. Patients with COPD have a higher prevalence of insomnia, nightmares and daytime sleepiness than the general population. The nurse plays vital role in management of sleep related issues of COPD. This article focuses on the nursing interventions to promote sleep in COPD patients in the current era.

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Introduction

COPD, or chronic obstructive pulmonary disease, is a progressive disease that makes it hard to breathe. COPD can cause coughing that produces large amounts of mucus, wheezing, shortness of breath, chest tightness, and other symptoms. Cigarette smoking is the leading cause of COPD. Most people who have COPD smoke or used to smoke. Long-term exposure to other lung irritants—such as air pollution, chemical fumes, or dust—also may contribute to COPD [1].

Worldwide, COPD is a leading cause of chronic morbidity and mortality [2]. COPD is a leading and still-increasing cause of chronic morbidity and mortality worldwide, [3] and according to the World Health Organization (WHO), it is the fifth most common cause of death and the 10th most burdensome disease [3]. Chapman et al. [4] and Mannino et al., [5] projected that between 1990 and 2020, COPD will become the third most common cause of death worldwide. A Dutch study predicts that an increase of 76% in the prevalence of COPD can be expected within approximately twenty years [1].

Indian Study on Epidemiology of Asthma, Respiratory Symptoms and Chronic Bronchitis in Adults (INSEARECH) involving a total of 85105 men, 84470 women from 12 urban and 11 rural sites was reported. This study had shown that the overall prevalence of chronic bronchitis in adults >35 yr was 3.49 per cent (ranging 1.1% in Mumbai to 10% in Thiruvananthapuram). Thus there are wide variations in the prevalence of COPD in India subcontinent [8] COPD (Chronic obstructive pulmonary disease) is a major cause of morbidity and mortality in India especially in rural areas [9].

Chronic obstructive pulmonary disease (COPD), which includes chronic bronchitis and emphysema, is a chronic lung disease that makes it hard to breathe.

- Chronic bronchitis- the airways that carry air to the lungs get inflamed and make a lot of mucus. This can narrow or block the airways, making it hard for you to breathe.
- Emphysema - In a healthy person, the tiny air sacs in the lungs are like balloons. As you breathe in and out, they get bigger and smaller to move air through your lungs. But with emphysema, these air sacs are damaged and lose their stretch. Less air gets

in and out of the lungs, which makes you feel short of breath [7].

Patients with COPD have a higher prevalence of insomnia, nightmares and daytime sleepiness than the general population [10], with close to 50% of patients reporting significant disturbance in sleep quality [11]. Patients with severe COPD commonly exhibit abnormal sleep like insomnia contributing to chronic fatigue, daytime sleepiness. Additionally, medications used to treat COPD, such albuterol or prednisone may affect sleep quality. A nocturnal reduction of nocturnal oxygen levels commonly seen in patients with COPD can have profound effects and contribute to long-term sequelae, producing arrhythmias, myocardial stress, and, possibly, lower survival[12.] Sleep disturbance is one of the most common symptoms reported by COPD patients, occurring in ~40% of patients [12].

Sleep has several effects on breathing, which include changes in central respiratory control, lung mechanics and muscle contractility, that do not have an adverse effect in healthy individuals but may result in significant hypoxaemia and hypercapnia in patients with chronic obstructive pulmonary disease (COPD), particularly during rapid eye movement (REM) sleep [13].
These patients have problems initiating or maintaining sleep, and have increased light sleep and reduced REM sleep, frequent sleep stage shifts and micro-arousals. Sleep efficiency is low, in the range of 50–70%, in the majority of this patient population. Sleep disturbance likely contributes to the non-specific daytime symptoms of chronic fatigue, lethargy and overall impairment in quality of life described by these patients. Night-time symptoms in COPD patients frequently go unnoticed by physicians and/or are not reported by patients themselves [14].

Nursing management of COPD patients sleep
Sleep is a basic physiological need for all humans. People need to sleep and rest enough for a healthy and productive life. However, some factors may prevent attainment of adequate sleep and rest. While some of these factors may cause transient alterations in an individual's sleeprest routine, other factors can affect sleep chronically. Chronic systemic diseases are one of the most important factors that can affect the characteristics of people's sleep for a long-time period. Chronic diseases cause various sleep problems and impair sleep quality. One of the chronic systemic diseases that affects the sleep routine and sleep quality of people severely is Chronic Obstructive Pulmonary Disease (COPD).

The respiratory system provides the oxygen that the body needs on one part, it helps remove the carbon dioxide produced by the body's metabolic processes on the other part. Arrangement of the functions of the respiratory system basically occurs through negative feedback [15]. Ventilation is normally controlled by a combination of two systems: a metabolic system responsible for the automatic changes directly related to gas exchange, and a behavioral system responsible for the voluntary changes originating from cortical and forebrain structures [16,17] While metabolic rate decreases during sleep, responses to various chemical, mechanical, and cortical stimuli also decrease. The respiratory response to the changes observed in the partial oxygen and partial carbon dioxide pressures in the arterial blood differs significantly in comparison to the wakefulness period [18] Especially during REM sleep, such physiological changes may affect gas exchange and lead to hypoventilation resulting in clinically significant hypoxemia and hypercapnia in patients with COPD0 [19]

The common nursing management for the COPD patient with sleep problems

Assessment
- History, character, onset, and duration of symptoms
- Dyspnea, including its effects on ADLs and whether it is associated with any specific illness or event
- Cough
- Sputum production (amount, color, consistency)

- Pain in right upper quadrant (hepatomegaly)
- Smoking history
- Family history of COPD, respiratory illnesses
- Disease history, especially influenza, pneumonia
- History of respiratory tract infections, chronic sinusitis
- Past or present exposure to environmental irritants at home or at work
- Self-care modalities used to treat symptoms
- Current pattern of activity and rest, willingness to exercise
- Nutritional status—caffeine and alcohol use, history of eating disorders, weight history, food allergies, body mass index
- Medications taken and their effectiveness in relieving symptoms
- Sleeping habits
- Environment of sleep
- Sleep duration
- Characteristics of sleep
- Extend of the problems and difficulties observed by the patient.

Physical Examination:
Assess for:
- General appearance (Appearance and hygiene may be indicators of symptom interference with ADLs. Patient may appear underweight, overweight, or bloated, and skin color may be dusky or pale.) Increased AP diameter of chest ("barrel chest")
- Eye ,eye lids
- Orientation and mental status
- Patients yawning episodes
- Dependent edema and jugular venous distention
- Enlarged or tender liver
- Elevated temperature, tachycardia, tachypnea
- Use of accessory muscles of breathing, forward-leaning (tripod) posture, pursed-lip breathing, central cyanosis, clubbed fingers
- Sputum production: amount, color, consistency, time of day, change from baseline

- Signs of an altered sensorium (restlessness or lethargy), which may be the first indicator of hypoxia
- Auscultation of breath sounds, which may be distant as a result of increased AP diameter and decreased airflow; commonly reveal crackles (rales), especially in dependent lung fields; rhonchi (gurgles); and wheezes, especially on forced exhalation
- Relevant laboratory findings, including an elevated hemoglobin, hematocrit, and WBC count; alterations in ABGs; decreased FEV1, decreased VC, normal diffusing capacity, and normal to increased lung volumes (TLC, FRC, RV).

Nursing diagnosis (sleep)

- Sleep pattern disturbance
- Disturbed Sleep Pattern
- Insomnia

Nursing intervention for sleep management

- Determine the client's sleep and activity pattern
- Encourage patient to establish a bedtime routine to facilitate transition from wakefulness to sleep.
- Encourage him to eliminate stressful situations before bedtime
- Monitor bedtime food and beverage intake for items that facilitate or interfere with sleep.
- Create an atmosphere to facilitate trust
- Encourage verbalization of feelings, perceptions, and fears
- Determine the client's decision-making ability.
- discourage long periods of sleep during the day unless signs and symptoms of sleep deprivation exist or daytime sleep is usual for client
- perform actions to relieve discomfort if present (e.g. reposition client; administer prescribed analgesics, antiemetics, or muscle relaxants

- encourage participation in relaxing diversional activities
- discourage intake of foods and fluids high in caffeine (e.g. chocolate, coffee, tea, colas)
- offer client an evening snack that includes milk or cheese unless contraindicated (the L-tryptophan in milk and cheese helps induce and maintain sleep)
- satisfy basic needs such as comfort and warmth before sleep
- encourage client to urinate just before bedtime
- reduce environmental distractions (e.g. close door to client's room; use night light rather than overhead light whenever possible; lower volume of paging system; keep staff conversations at a low level and away from client's room; close curtains between clients in a semi-private room or ward; keep beepers and alarms on low volume; provide client with "white noise" such as a fan, soft music, or tape-recorded sounds of the ocean or rain; have sleep mask and earplugs available for client if needed)
- ensure good room ventilation
- encourage client to avoid drinking alcohol in the evening (alcohol interferes with REM sleep)
- if possible, administer medications that can interfere with sleep (e.g. steroids, diuretics) early in the day rather than late afternoon or evening
- administer prescribed sedative-hypnotics if indicated
- perform actions to reduce interruptions during sleep (80 - 100 minutes of uninterrupted sleep is usually needed to complete one sleep cycle)
- restrict visitors
- group care (e.g. medications, treatments, physical care, assessments) whenever possible.
- Provide measures to take before bedtime to assist with sleep (e.g., quiet time to allow the mind to slow down, carbohydrates such as crackers, or a back massage). *Simple measures can increase quality of sleep. Carbohydrates cause release of the neurotransmitter serotonin, which helps induce and maintain sleep (Somer, 1999). Research has shown back massage to effectively promote sleep (Richards, 1994).*
- Keep environment quiet (e.g., avoid use of intercoms, lower volume on radio and television, keep beepers on nonaudio mode, anticipate alarms on IV pumps, talk quietly on unit). *Excessive noise causes sleep deprivation that can result in ICU psychosis (Barr, 1993). Health volunteers exposed to recorded critical care noise levels experienced poor sleep (Topf, 1992). More than half of the noises in ICUs were caused by human behavior such as talking and TV watching (Kahn, Cook, 1998).*

For hospitalized stable clients, consider instituting the following sleep protocol to foster sleep:

➤ Night shift: Give client the opportunity for uninterrupted sleep from 1 AM to 5 AM. Keep environmental noise to a minimum.

➤ Evening shift: Limit napping between 4 PM and 9 PM. At 10 PM turn lights off, provide sleep medication according to individual assessment, and keep noise and conversation on the unit to a minimum.

Day shift: Encourage short naps before 11 AM. Enforce a physical activity regimen as appropriate. Schedule newly ordered medications to avoid waking client between 1 AM and 5 AM.

- Encourage social activities. Help elderly get outside for increased light exposure and to enjoy nature. *Exposure to light and social interactions influence the circadian rhythms that control sleep (Elmore,*

Betrus, Burr, 1994; Sateia et al, 2000).

- Suggest light reading or TV viewing that does not excite as an evening activity. *Soothing activities decrease stimulation of the reticular activating system and helpsleep come naturally.*
- Increase daytime physical activity. Encourage walking as client is able.
- Reduce daytime napping in the late afternoon; limit naps to short intervals as early in the day as possible. *The majority of elderly nap during the day (Evans, Rogers, 1994). Avoiding naps in the late afternoon makes it easier to fall asleep at night.*
- Help client recognize that there are changes in length of sleep. Client may not be able to sleep for 8 hours as when younger, and more frequent awakening is part of the aging process (Floyd et al, 2000).
- If client continues to have insomnia despite developing good sleep hygiene habits, refer to a sleep clinic for further evaluation (Pagel, Zafralotfi, Zammit, 1997).
- Provide support to the family of client with chronic sleep pattern disturbance. *Ongoing sleep pattern disturbances can disrupt family patterns and cause sleep deprivation in the client or family members, which creates increased stress on the family.*
- Encourage client to avoid coffee and other caffeinated foods and liquids and also to avoid eating large high-protein or high-fat meals close to bedtime. *Caffeine intake increases the time it takes to fall asleep and increases awake time during the night (Evans, Rogers, 1994). A full stomach interferes with sleep.*
- dvise the client that research on use of melatonin is still equivocal. While it may help the client to fall asleep faster, it does not improve the quality or length of time in the sleep interval, and long-term results are unknown (Hughes, Sack, Lewy, 1998;

Defrance, Quera-Salva, 1998; Walsh et al, 1999).
- Ask client to keep a sleep diary for several weeks.*Often the client can find the cause of the sleep deprivation when the pattern of sleeping is examined (Pagel, Zafralotfi, Zammit, 1998).*
- Teach relaxation techniques, pain relief measures, or the use of imagery before sleep.
- Teach client need for increased exercise. Encourage to take a daily walk 5 to 6 hours before retiring. *Moderate activity such as walking can increase the quality of sleep (King et al, 1997).*

Teach the following guidelines for good sleep hygiene to improve sleep habits:

➢ Go to bed only when sleepy.
➢ When awake in the middle of the night, go to another room, do quiet activities, and go back to bed only when sleepy.
➢ Use the bed only for sleeping—not for reading or snoozing in front of the television.
➢ Avoid afternoon and evening naps.
➢ Get up at the same time every morning.
➢ Recognize that not everyone needs 8 hours of sleep.
➢ Move the alarm clock away from the bed if it is a source of distraction.
➢ Do not associate lulls in performance with sleeplessness; sleeplessness should not be blamed for everything that goes wrong during the day.

Evaluation

➢ After nursing intervention the patient able to display improvement insleeping patternas evidenced by:
➢ The patientverbalized:
➢ The patient does not look weak and restlessness scompare to the past
➢ The presence of eye bags has been minimized or has gone.

➤ Decrease of the usual yawning

Conflict of interest: None

Reference

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Original Research Article

Cervical cancer: perception of peripheral health workers in Lucknow: a cross-sectional study

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ABSTRACT

Background: Cervical cancer is one of the most prevalent cancers among Indian women. Cervical cancer incidence reduces dramatically when effective screening programs linked with access to treatment are in place and are readily accessible. Peripheral health workers (PHWs) being frontline workers have a major influence on raising awareness among community about acceptability of available screening programmes. This study was thus conducted to assess the awareness of PHWs regarding risk factors, signs and symptoms, early detection and prevention for cervical cancer.

Methods: A questionnaire-based study was conducted among 450 PHWs (ASHAs and BHWs). Information was collected regarding their bio-social characteristics, awareness about female cancers, risk factors, signs/symptoms, early detection methods and services available for screening and prevention of cervical cancer.

Results: Awareness of different aspects of cervical cancer was found to be very low. Only eight per cent of the PHWs had good awareness score. BHWs obtained statistically significant better mean scores as compared to ASHAs. Few (7.6%) PHWs had received training for any type of female cancers. Only 17 per cent of the PHWs were aware of HPV vaccine availability and only 29 per cent from them could name the vaccine.

Conclusions: Majority of the PHWs had poor awareness about cervical cancer and available screening facility in our health system. They had almost no idea of availability of free HPV vaccination at the Sampoorna clinics. This low level of awareness calls for regular training of PHWs on cervical cancer which would ultimately trickle down to the community.

Keywords: Peripheral health workers, Basic health workers, ASHA, Cervical cancer, Awareness, Perception

INTRODUCTION

Cervical cancer is one of the most prevalent cancers among the women, having high cure rates when detected early and treated according to best practices.[1,2] According to GLOBOCAN 2018, estimated age standardized incidence and mortality for cervical cancer was 11.9 and 4.3 respectively among women age 15-49 years.[3]

A high proportion of cervical cancer patients present in late stages.[4] According to NFHS-4 India report, only 22.0 per cent of the women age 15-49 years had undergone examination of cervix. It was also reported that among 0.2 per cent self-reported cancer in women, only 61.0 per cent had ever sought treatment for the same. Cervical cancer screening programs are life-saving and cost saving interventions that can greatly improve the quality of life

for the women.[6] Cervical cancer incidence reduces dramatically when effective screening programs linked with access to treatment are in place and are readily accessible.[7]

PHWs comprising of Accredited Social Health Activists (ASHAs) and Basic Health Workers (BHWs) are the grass root level workers of the health system. ASHA is a health worker selected from the community which she serves, giving her an opportunity to reach every household while BHWs have the prospects of being in contact with community during various sessions. PHWs have a major influence on the behaviour of community women which could be helpful in increasing their awareness about cervical cancer. But to motivate the community women about cervical cancer and its early detection methods, they themselves need to be knowledgeable. Keeping this in mind the present study was conducted to assess the awareness of peripheral health workers (PHWs) regarding risk factors, signs and symptoms, early detection methods of cervical cancer and its prevention.

METHODS

This was a questionnaire-based study conducted from September 2017 to August 2018, among female PHWs (ASHAs and BHWs) working in rural and urban areas. The sample size for the study was calculated using the following formula $N=[(Z_{1-\alpha/2})^2 \times p \times (1-p)]/d^2 \times DEFF$. Value of Z statistic for 5% level of significance is 1.96, hypothesized per cent frequency of awareness of female cancers among PHWs (p) was taken as 65.75%±6.5, assuming 10 per cent as non-response rate, and design effect of 2, sample size was calculated to be 450.[8]

Sampling method

Out of nine rural and eight urban community health centers (CHCs) of Lucknow, three rural and three urban CHCs were randomly selected. List of all the PHWs (BHWs and ASHAs) working in the six selected CHCs were obtained. From this list, 450 PHWs (183 BHWs and 267 ASHAs) were selected by systematic random sampling method. Selected participants were contacted telephonically and meeting for the interview was fixed as per their working schedule. Participants, who could not be contacted telephonically, were contacted during their weekly or monthly meetings at their respective CHCs. Selected PHWs were informed about the purpose of the present study and written informed consent was taken from selected participant.

Data collection

A pre-designed and pre-tested semi-structured schedule was used for data collection. Information was collected regarding their bio-social characteristics (age, marital status, religion, category, family history of cervical cancer, education level, place of work, designation,

duration of service, socio economic status), training status of participants and their awareness about female cancers, awareness regarding risk factors, symptoms, early detection methods and services available for screening and prevention of cervical cancer. PHWs were also inquired whether they themselves had undergone screening for cervical cancer.

Data analysis

Data was analysed using SPSS version 24.0. Association between categorical variables was tested using Chi-Square test and t-test was used for continuous variables. A 'p' value of less than 0.05 was considered statistically significant. Bivariate and multivariate logistic regression model was performed to identify predictors of cervical cancer awareness. Results were reported in the form of adjusted odds ratios (AOR) and 95% confidence intervals (CIs).

Awareness score

Calculated by assigning score of 1 to correct response, 0 to incorrect or don't know. Scores of risk factors and symptoms of cervical cancer were calculated separately and then combined to get an overall score for cervical cancer.

RESULTS

Majority of the PHWs were married (388, 86.2%). More than half (104, 58.8%) of the BHWs had educational qualification graduate and above, while only one-third (83, 31.1%) of the ASHAs had education up to secondary school. About 3.1 per cent (14 PHWs) had family history of cervical cancer. Mean duration of service of the participants was 7.3±5.6 years. One third (152, 33.8%) of the PHWs belonged to lower middle socio-economic class (Table 1).

Majority of PHWs were aware of breast and uterine cancer but only about two third of the PHWs were aware of cervical cancer (Figure 1).
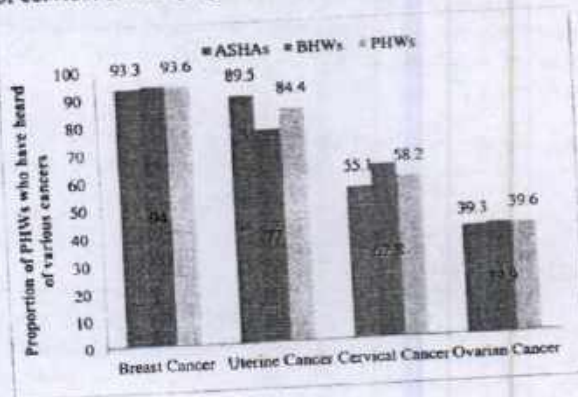

Figure 1: PHWs who have heard about various types of cancers among women (n=450).

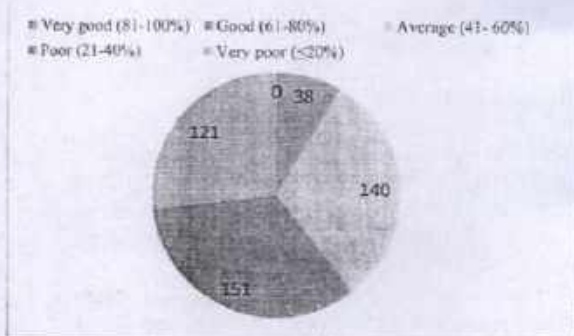found to have had higher chances of getting a 'below median' score (Table 4).

Figure 2: Grading of awareness of cervical cancer among PHWs.

DISCUSSION

Awareness regarding cervical cancer was found to be very low in the present study with only eight per cent of the PHWs having good awareness score. BHWs had statistically significant better mean scores as compared to ASHAs. Good knowledge was reported among nursing staff ranging from 27 percent by Shekhar et al to 70 percent by Swapnajaswanth et al.[9,10] Poor level of awareness was reported by Sreedevi et al among women in a rural population of Kerala.[11] About 58 per cent of the PHWs had heard about cervical cancer in the present study. This was almost similar to the awareness level of 60 to 82 per cent regarding cervical cancer among community women.[12,13]

Training status of the study participants was very low in the district. Only 7.6 per cent of the PHWs had reportedly received training for any type of female cancers in the past. Even Gedam et al reported that only 33 per cent of the nurses had received education on cervical cancer and HPV in the past.[14]

Despite continued training on STI/RTI being provided to healthcare professional, only about two thirds of the ASHAs and BHWs in the present study were aware of 'multiple sexual partners' and only about half of the PHWs knew that 'unprotected sex' as risk factors for cervical cancer. Researchers have reported similar level of awareness among community women of North Bengal and Tripura and HCP of Chennai Corporation about 'multiple sexual partners' as risk factor.[13,16,17] But lower levels of awareness was reported among community women of Tamil Nadu (20.5%) and Kolkata (20%).[12,18] Gedam et al reported 54 per cent awareness about 'unprotected sex' as a risk factor for cervical cancer among healthcare professionals of a tertiary care center in Mumbai.[14] Only about one fourth of the ASHAs (19.5%) and BHWs (37.2%) were aware that 'poor sexual hygiene' can increase the risk of cervical cancers. Still

lower awareness was noted among community women as reported by other researchers.[11,16,19]

Only about 16 percent of the PHWs were aware of all common symptoms of cervical cancer (pain and bleeding during sexual intercourse, vaginal bleeding between periods, bleeding in post-menopausal women, and vaginal bleeding between periods). Raychaudhuri et al reported that 93.7 percent women in rural and urban area of North Bengal were unaware of signs and symptoms of cervical cancer.[13]

Vaginal bleeding between periods, pain and bleeding associated with sexual intercourse and foul smelling vaginal discharge were the symptoms known to only about half of the PHWs. This is almost equal to the awareness among rural community women of Tamil Nadu in the study conducted by Krishnaveni et al.[18]

'Bleeding in post-menopausal women' as a risk factor of cervical cancer was known to only 30 percent of the PHWs. Community women of rural Tamil Nadu had similar awareness (43%) as reported by Krishnaveni et al while nurses and doctors had good (93%) awareness as reported by Anantharaman et al.[17,18]

Many of the PHWs spuriously perceived that 'multiple abortions' (63.8%), 'leucorrhoea' (53.8%), 'home delivery in past pregnancies' (48.2%) and 'prolonged labour' (31.8%), are the risk factors for cervical cancer. About one fourth (28.7%) of the PHWs spuriously perceived that 'increased frequency of micturition' is a symptom of cervical cancer which was also perceived by 6.8 percent nursing staff at a rural tertiary care hospital in central India.[15] 'Genital ulcers' (42.4%) and 'prolapse of uterus' (32.4%) were the perceived symptoms of cervical cancer pointing towards prevailing myths about cervical cancer.

Only about half (58%) of the PHWs perceived that cervical cancer is curable in case of early detection. Similar results were reported among community women and nursing staff by other researchers.[9,12,16,20] About two third (69%) PHWs said that cervical cancer is fatal if not treated timely. However, Jain et al reported that 21 per cent of the nursing staff at a rural tertiary care hospital in Central India thought it was a fatal disease.[15]

Only about two third (65%) of PHWs were aware of the fact that early detection of cervical cancer is possible with the help of investigations. Similar results were demonstrated among community women of Kerala, Kolkata and Tripura.[11,12,16] Higher level of awareness about this fact was shown among women of rural Tamil Nadu; and nursing staff of Chennai and central India.[15,17,18]

Although about two-thirds of the PHWs were aware of the possibility of early detection of cervical cancer, awareness about screening modalities was found to be

very low. Pap test was known to only 14 per cent of the PHWs. Similar findings were reported among women across India showing awareness level ranging from about 6 per cent to 16 per cent while awareness was a way much higher among healthcare professional, ranging from 81 per cent to 95 per cent.[11,13,15-17,19] Awareness of VIA was also found to be low (14%) among PHWs in present study; similar to the awareness reported among nurses and nursing students at TCCs of rural India and Mumbai.[9,14]

Even those who were aware about screening modalities for cervical cancer had not got themselves screened for it. Only 14 percent of PHWs who were aware of Pap test, had undergone the test.

Only 17 per cent of the PHWs were aware of HPV vaccine availability and only 29 per cent from them could name the vaccine. Awareness about vaccine was similar among community women as reported in studies conducted by other researchers.[16,18,19] However, Raychaudhuri et al reported high awareness about HPV vaccine among women (86%) in rural and urban area of North Bengal. Healthcare professionals had pretty good awareness.[9,14,21,22] Awareness regarding Sampoorna clinic providing screening and vaccination facility for cervical cancer was also found to be very low in the present study.[23]

CONCLUSION

The present study concluded that majority of the PHWs had poor awareness about cervical cancer and available screening facility in our health system. They had almost no idea of availability of free vaccination for cervical cancer at the Sampoorna clinics.

Standardized training for STI/ RTI is being provided to the medical and paramedical personnel based on syndromic case management approach. Government of Uttar Pradesh has also launched the 'Sampoorna' project at selected CHCs and district hospitals, under the umbrella of National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) in the year 2015 as initiative dedicated to screening and treating women with emphasis on cervical and breast cancer screening.[23]

This low level of awareness calls for regular training of PHWs on cervical cancer and need for its screening. Training of STI/RTI should be strengthened which should also emphasize on infections like HIV and Human papilloma virus as well as cervical cancer. There is need of continuous sensitization and reorientation of PHWs for cervical cancer, during their monthly meeting at CHCs. ASHAs can also be oriented during cluster meetings on signs and symptoms of cervical cancer. Message should trickle down to PHWs which will ultimately help screening of community for cervical cancer.

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Training status of PHWs

Only 34 (7.6%) PHWs had received any training for cancers of female patients in the past, out of which 31 (6.9%) were trained for breast cancer, 20 (4.4%) for uterine cancer and only three (0.7%) for cervical cancer. Out of 34 PHWs who had received training, 16 (47.1%) of them had received it in the last one year.

Table 1: Socio-demographic profile of PHWs (n=450).

Characteristics	ASHAs (n=267) N (%)	BHWs (n=183) N (%)	Total (n=450) N (%)
Age (in years)			
21-30	64 (24.0)	61 (33.3)	125 (27.8)
31-40	147 (55.1)	70 (38.3)	217 (48.2)
41-50	54 (20.2)	19 (10.4)	73 (16.2)
51-60	2 (0.7)	33 (18.0)	35 (7.8)
Mean age (SD)	36.2 (6.3)	37.1 (10.5)	36.5 (8.3)
Marital Status			
Unmarried	10 (3.7)	24 (13.1)	34 (7.6)
Married	240 (89.9)	148 (80.9)	388 (86.2)
Divorcee/widow	17 (6.3)	11 (6.0)	28 (6.3)
Religion			
Hindu	260 (97.4)	171 (93.4)	431 (95.8)
Muslim	6 (2.2)	7 (3.8)	13 (2.9)
Others	1 (0.4)	5 (2.7)	6 (1.3)
Category			
Other backward class (OBC)	67 (25.1)	63 (34.4)	130 (28.9)
Scheduled caste/scheduled tribe (SC/ST)	70 (26.2)	41 (22.4)	111 (24.7)
General/other	130 (48.7)	79 (43.2)	209 (46.4)
Family history			
Breast cancer	6 (2.2)	6 (3.3)	12 (2.7)
Cervical cancer	8 (3.0)	6 (3.3)	14 (3.1)
Education level			
Primary (class I to V)	8 (3.0)	0 (0.0)	8 (1.8)
Upper primary (class VI to VIII)	69 (25.8)	2 (1.1)	71 (15.8)
Secondary (class IX to X)	83 (31.1)	7 (3.8)	90 (20.0)
Senior secondary (class XI to XII)	52 (19.5)	70 (38.3)	122 (27.1)
Under graduate and above	55 (20.6)	104 (58.8)	159 (35.3)
Place of Work			
Rural	232 (86.9)	93 (50.8)	325 (72.2)
Urban	35 (13.1)	90 (49.2)	125 (27.8)
Duration of Service (years)			
≤5	95 (35.6)	111 (60.7)	206 (45.8)
>5	172 (64.4)	72 (39.3)	244 (54.2)
Mean duration of service (SD)	7.7 (4.6)	6.77 (6.7)	7.3 (5.6)
Median duration of service	11	4	7
Socioeconomic status[1]			
Upper (class I)	6 (2.2)	52 (28.4)	58 (12.9)
Upper middle (class II)	9 (3.4)	31 (16.9)	40 (8.9)
Middle (class III)	17 (6.4)	40 (21.9)	57 (12.7)
Lower middle (class IV)	106 (39.7)	46 (25.1)	152 (33.8)
Lower (class V)	129 (48.3)	14 (7.7)	143 (31.8)

[1]Modified BG Prasad's socio-economic classification.

Majority of the ASHAs were unaware of the probability of increased risk of cervical cancer due to 'multiparity' (181, 68%), 'early child birth' (158, 59%), 'unprotected sex' (147, 55%), 'early marriage' (124, 47%), 'multiple sexual partners' (103, 38.6%) as risk factors for cervical cancer. Many of the ASHAs perceived 'multiple abortions' (159, 59.6%), 'leucorrhoea' (128, 48%), 'home delivery in past' (117, 43.8%) as risk factors for cervical cancer (Table 2).

Table 2: Perception of ASHAs regarding factors affecting the probability of having cervical cancer (n=267).

Factors affecting probability of having cervical cancer in a woman	Don't know N (%)	Increased risk N (%)	Decreased risk N (%)	No effect N (%)
Early marriage (before 18 years of age)	90 (33.7)	143 (53.6)	11 (4.1)	23 (8.6)
Early child birth (before 17 years of age)	115 (43.1)	109 (40.8)	14 (5.2)	29 (10.9)
Long duration of OCP intake (>5 years)	114 (42.7)	87 (32.6)	8 (3.0)	58 (21.7)
Given birth to three or more children	111 (41.6)	86 (32.2)	12 (4.5)	58 (21.7)
Multiple sexual partners	84 (31.5)	164 (61.4)	2 (0.7)	17 (6.4)
Unprotected sex (without condoms)	84 (31.5)	120 (44.9)	8 (3.0)	55 (20.6)
HIV infection	190 (71.2)	61 (22.8)	5 (1.9)	11 (4.1)
Family history of cervical cancer in mother, sister or daughter	109 (40.8)	70 (26.2)	5 (1.9)	83 (31.1)
Low socio-economic status	101 (37.8)	99 (37.1)	7 (2.6)	60 (22.5)
Smoking	86 (32.2)	167 (62.5)	2 (0.7)	12 (4.5)
Alcohol intake	106 (39.7)	145 (54.3)	3 (1.1)	13 (4.9)
Improved sexual hygiene	112 (41.9)	61 (22.8)	52 (19.5)	42 (15.7)
Home delivery in past pregnancies	102 (38.2)	117 (43.8)	5 (1.9)	43 (16.1)
Prolonged labour (>12 hours of duration)	127 (47.6)	90 (33.7)	5 (1.9)	45 (16.9)
Multiple abortions	91 (34.1)	159 (59.6)	7 (2.6)	10 (3.7)
Leucorrhoea	127 (47.6)	128 (47.9)	2 (0.7)	10 (3.7)

Table 3: Perception of BHWs regarding factors affecting the probability of having cervical cancer (n=183).

Factors affecting probability of having cervical cancer in a woman	Don't know N (%)	Increased risk N (%)	Decreased risk N (%)	No effect N (%)
Early marriage (before 18 years of age)	65 (35.5)	89 (48.6)	3 (1.6)	26 (14.2)
Early child birth (before 17 years of age)	70 (38.3)	80 (43.7)	8 (4.4)	25 (13.7)
Long duration of OCP intake (>5 years)	66 (36.1)	69 (37.7)	10 (5.5)	38 (20.8)
Given birth to three or more children	68 (37.2)	46 (25.1)	5 (2.7)	64 (35.0)
Multiple sexual partners	55 (30.1)	121 (66.1)	2 (1.1)	5 (2.7)
Unprotected sex (without condoms)	57 (31.1)	98 (53.6)	5 (2.7)	23 (12.6)
HIV infection	88 (48.1)	88 (48.1)	1 (0.5)	6 (3.3)
Family history of cervical cancer in mother, sister or daughter	62 (33.9)	61 (33.3)	2 (1.1)	58 (31.7)
Low socio-economic status	69 (37.7)	46 (25.1)	4 (2.2)	64 (35.0)
Smoking	49 (26.8)	113 (61.7)	2 (1.1)	19 (10.4)
Alcohol intake	51 (27.9)	108 (59.0)	1 (0.5)	23 (12.6)
Improved sexual hygiene	54 (29.5)	27 (14.8)	68 (37.2)	34 (18.6)
Home delivery in past pregnancies	56 (30.6)	100 (54.6)	2 (1.1)	25 (13.7)
Prolonged labour (>12 hours of duration)	91 (49.7)	53 (29.0)	1 (0.5)	38 (20.8)
Multiple abortions	50 (27.3)	128 (69.9)	1 (0.5)	4 (2.2)
Leucorrhoea	55 (30.1)	114 (62.3)	3 (1.6)	11 (6.0)
Home delivery	56 (30.6)	100 (54.6)	2 (1.1)	25 (13.7)

Majority of the BHWs didn't know about 'multiparity' (137, 75%), 'early child birth' (103, 56%), 'early marriage' (94, 51%), 'unprotected sex' (85, 46%), 'multiple sexual partners' (62, 34%) 'poor sexual hygiene' (115, 62.9%) as risk factors. Many of them perceived 'multiple abortions' (128, 70%), 'leucorrhoea' (114, 62%), 'home delivery in past pregnancies' (100, 55%) and 'prolonged labour' (53, 29%) as the risk factors for cervical cancer (Table 3). Only 52 (11.6%) PHWs knew all the common risk factors of cervical cancer

(multiple sexual partners, unprotected sex, early marriage, poor sexual hygiene).

BHWs had better awareness regarding signs/symptoms of cervical cancer as compared to ASHAs and the difference was found to be statistically significant (Table 3).

Many of the PHWs perceived that 'genital ulcers' (191, 42.4%), 'prolapse of uterus' (146, 32.4%), 'increased frequency of micturition' (129, 28.7%) are symptoms of cervical cancer. About one fifth (96, 21%) of the PHWs

Table 5: Logistic regression analysis for predictors of awareness of cervical cancer.

Variables	Bivariate analysis				Multivariate analysis			
	Odds ratio (OR)	95% CI		P value	Adjusted Odds ratio (OR)	95% CI		P value
		Lower limit	Upper limit			Lower limit	Upper limit	
Age (in years)								
≤35	1.03	0.71	1.49	0.89	-	-	-	-
>35					-Reference-			
Marital status								
Married	1.86	1.08	3.21	0.026	-	-	-	-
Others					-Reference-			
Religion								
Hindu	1.04	0.41	2.61	0.93	-	-	-	-
Others					-Reference-			
Category								
General	1.16	0.80	1.68	0.44	-	-	-	-
OBC SC/ST					-Reference-			
Education level								
Up to upper primary	0.78	0.53	1.15	0.21	-	-	-	-
Secondary and above					-Reference-			
Designation								
ASHAs	0.53	0.36	0.78	0.001	0.54	0.37	0.80	0.002
BHW					-Reference-			
Duration of service								
≤10	1.02	0.70	1.48	0.94	-	-	-	-
>10					-Reference-			
Place of work								
Rural	0.67	0.44	1.02	0.06	-	-	-	-
Urban					-Reference-			
Socioeconomic status								
Class I and II	1.93	1.23	3.04	0.005	-	-	-	-
Class III-V					-Reference-			
Family history of cervical cancer								
No	0.23	0.06	0.83	0.024	0.21	0.06	0.76	0.017
Yes					-Reference-			
Training status for female cancers								
No	0.17	0.06	0.50	0.001	0.17	0.06	0.51	0.002
Yes					-Reference-			

Scoring of awareness

Mean score of cervical cancer awareness was 10.42±5.95 out of 31 and median was 11. Mean score for risk factors and symptoms was 5.82±3.39 and 4.16±3.20 out of 15 and 10 respectively and median scores were 6 and 4 respectively. There was statistically significant difference between mean scores of ASHAs and BHWs.

About two thirds (272, 60%) of the PHWs scored below average (Figure 2) whereas there were only 11 (4%) ASHAs and 27 (15%) BHWs who had an above average score in cervical cancer overall awareness. About 26 per cent (118 PHWs) had above average score in symptoms

and only 6.4 per cent (29 PHWs) had above average score for risk factors.

A logistic regression model was performed to ascertain the effects of socio-demographic variables on the likelihood of getting an above median cervical cancer awareness score. Marital status of the PHWs, their designation, socio-economic status, their family history of cervical cancer and training status for female cancers had significant association with awareness scores of cervical cancer on bivariate analysis. On multivariate logistic regression, ASHAs, PHWs with no family history of cervical cancer and no training for female cancers were

were unaware of any symptom of cervical cancer while only 70 (16%) PHWs were aware of all the common symptoms of cervical cancer (Table 4).

Table 4: Awareness of PHWs regarding signs/symptoms of cervical cancer (n=450).

Signs/symptoms	ASHAs (n=267) N (%)	BHWs (n=183) N (%)	Total (n=450) N (%)	p value*
Pain and bleeding during sexual intercourse	134 (50.2)	114 (62.3)	248 (55.1)	0.011
Foul smelling vaginal discharge	121 (45.3)	105 (57.4)	226 (50.2)	0.012
Pelvic pain	120 (44.9)	95 (51.9)	215 (47.8)	0.15
Painful and burning micturition	118 (44.2)	87 (47.5)	205 (45.6)	0.48
Vaginal bleeding between periods	109 (40.8)	93 (50.8)	202 (44.9)	0.04
Menstrual periods that are longer or heavier (clots) than usual	101 (37.8)	98 (53.6)	199 (44.2)	0.001
Bleeding after sexual intercourse	89 (33.3)	92 (50.3)	181 (40.2)	0.000
Unexplained weight loss	70 (26.2)	85 (46.4)	155 (34.4)	0.000
Bleeding in post - menopausal women	58 (21.7)	76 (41.5)	134 (29.8)	0.000
No symptom appear in early stages	55 (20.6)	53 (29.0)	108 (24.0)	0.04
Genital ulcers	94 (35.2)	97 (53.0)	191 (42.4)	0.00
Prolapse of uterus	70 (26.2)	76 (41.5)	146 (32.4)	0.001
Increased frequency of micturition	64 (24.0)	65 (35.5)	129 (28.7)	0.008
Didn't know about any symptom	57 (21.3)	39 (21.3)	96 (21.3)	
**Awareness of all common symptoms	23 (8.6)	47 (25.7)	70 (15.6)	0.000

*Chi square test;

**Common symptoms: pain and bleeding during sexual intercourse, vaginal bleeding between periods, bleeding in post - menopausal women, vaginal bleeding between periods.

Awareness about causative agent

One fourth (113, 25.1%) of the PHWs knew that causative agent of cervical cancer is a virus and only less than half of them (51, 45.1%) knew that HPV is the causative agent. Only 31 (6.9%) PHWs were aware that women between the late teens and mid-30s are at a greater risk of having cervical cancer.

Awareness of early detection methods

At least two-third (293, 65%) of the PHWs knew that early detection of cervical cancer is possible with the help of investigations while only 21 (8%) ASHAs and 32 (18%) BHWs knew that regular screening for cervical cancer is required in female aged 30 years and above. More than half (260, 58%) of the PHWs perceived that cervical cancer is a curable disease if detected early and 69 per cent (311) said that it is fatal if not treated timely.

Awareness about screening and its availability

Very few PHWs were aware of the Pap test (64, 14%) and visual inspection with acetic acid (54, 12%) as investigations for early detection of cervical cancer. Medical college was recognized by about half (259, 57.6%) of the PHWs as a place where investigations for detection of cervical cancer are available. Only three ASHAs mentioned about the 'Sampoorna clinic' for investigations of cervical cancer. There was a significant difference in the awareness of ASHAs and BHWs for Pap smear test.

Awareness about vaccination and its availability

Less than two fifth (77, 17%) of the PHWs were aware of vaccination against cervical cancer and only 22 (28.6%) could name the vaccine while only eight (10%) PHWs were aware of the correct age of vaccination. About half of the PHWs said vaccine is available in medical college (36, 47%) and district hospital (26, 34%). Three ASHAs were aware that vaccine is also available at Sampoorna clinic. There was a significant difference between ASHAs and BHWs regarding vaccine awareness and its correct age of administration.

Self-screening practices by PHWs and its barriers

Out of 64 PHWs who were aware of Pap test, only 4 ASHAs (15%) and 5 BHWs (14%) had undergone Pap test. Out of 77 PHWs who knew about HPV, only 2 of ASHAs had motivated others to get HPV vaccination.

Most common (21, 38.2%) reason for not getting a pap test done was given as 'not perceiving the need to have a Pap test done'. Other reasons stated were absence of any symptoms (9, 16.4%), lack of awareness and no medical advice (7, 13% each), 11 per cent felt that they were unmarried so they don't need it while 9 per cent said time constraints to get the test done.

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RESEARCH ARTICLE

A STUDY TO ASSESS THE PREVALENCE AND AWARENESS REGARDING EFFECTS OF SMOKING ON HEALTH AMONG THE UNDERGRADUATE AND POSTGRADUATE MALE STUDENTS IN SELECTED AREA OF LUCKNOW

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ARTICLE INFO	ABSTRACT
	Background: Tobacco is the most important preventable cause of death among adults. The world health organization estimates that world wide 5 million deaths are caused prematurely by smoking every year. The number is expected to increase to 10 million by 2010. A total of 100 million lives were lost due to smoking in the 20th centaury and if the current trend continues about a billion deaths would occur due to smoking in 21st centaury **Aim**: To assess the prevalence of smoking habit among the undergraduate and post graduate male students in selected area of Lucknow **Objective**: To assess the level of awareness regarding the effects of smoking among the undergraduate and postgraduate male students of selected area of Lucknow and to assess the factors contributing to prevalence of smoking among the undergraduate and post graduate male students of selected area of Lucknow **Methodology**: A descriptive research design with cross sectional survey approach was used to assess the prevalence of smoking and the awareness level regarding the effects of smoking on health among the undergraduate and post graduate male students of selected area of Lucknow. **Result**: Findings revealed that the prevalence of smoking was about 83.33% among the undergraduate male medical students and the awareness regarding the effects of smoking was found to be about 58.33%, the overall mean score of the awareness level was 3.5±1.08

INTRODUCTION

According to regional institute for treatment and research, New Delhi, Dr.Borooah it has been estimated that average of 14 minutes of life is lost because of cigarette smoking and tobacco effects. In India 1 person die every 40 sec because of tobacco related problems. 1/3rd of all cancers in India are tobacco related as 90% of oral cancer, 50% of cancer in men, 25% cancer in women, 90% lung cancer.

Background of the study

Tobacco smoking has been in vague for hundreds of years. With the spread of tobacco to the parts of world from the sixteenth centaury. Tobacco smoking soon gained popularity In India. Tobacco can be smoked in wide variety of ways-Bidi, Chuttas, Dhumti, Cigarettes, Cigars, Pipes, Hooklis, Chillum, Hookah

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Aim and Objectives

- To assess the prevalence of smoking habit among the undergraduate and postgraduate male students of selected area of Lucknow.
- To assess the level of awareness regarding the effects of smoking among the undergraduate senior male medical students of selected area of Lucknow.
- Also to assess the factors contributing to prevalence of smoking among the undergraduate senior male medical students of selected area of Lucknow.

MATERIALS AND METHODS

The population of the present study was the undergraduate and postgraduate students of Sarswati Appartment (SARWA) in Gomati Nagar Extension of Lucknow. The total students were 30. Convenient sampling technique was used for male undergraduate and postgraduate students to select the sample for present study.

Tool

A structured questionnaire consisting of 30 items was used to collect the data which consists of 5 sections as follows- smoking habit, reasons responsible for smoking habit, reasons responsible for smoking habit, awareness level of the students regarding the effects of smoking on health, efforts taken by the students to stop the smoking habit among the students.

Data Collection

Prior to data collection written permission was obtained from the Secretory of the SARWA. Informed consent was obtained from all individual participants included in the study. The purpose of data collection was explained to the students. All the information about the students were kept confidential. Ethical clearance was taken by society members of SARWA.

RESULTS

Assessment of smoking habit among the students

Smoking habit			
S.No.	Statement	No. of Students	Percentage
1.	Smoking habit	25	83.33%
2.	Chain smoker	9	36%
3.	Started smoking in school life	5	20%
4.	Started smoking in college life	20	80%
5.	Addicted to smoking	12	48%
6.	Smoking is really addictive	21	84%
7.	Smoking in work area	23	92%
8.	Follow rules and regulations and refrain from smoking in prohibited area	24	96%
9.	Feel panicky on not getting a cigarette	13	52%
10.	Feel uncomfortable of being a smoker	11	44%

Distribution of students according to the smoking shows that majorities (83.33%) of them were smokers and the rest of them (16.67 %) were found to be non-smokers. It seems that more than half of the students had the habit of smoking. Out of the 25 smokers 9 (36%) were chain smokers and the remaining 16(64%) smoked occasionally. It seems that among the 25 smokers less than half were chain smokers. Among the 25 smokers 5 (20%) of students had started smoking in the school life whereas 20 (80%) had started smoking in their college life. It seems that among the smokers majority of the students had started smoking in their college life.

Out of the 25 students who smoked 12 (48%) students believed that they are addicted to the smoking habit and remaining 13 (52%) were not addicted to smoking. It seems that among the smokers around half of them believed that they are addicted to smoking. Out of the total surveyed sample 21 (84%) students believed that smoking habit is really addictive. It seems that majority of the students believed that smoking habit is really addictive. Out of the total 25 smokers, 23(92%) smoked in their work area. It seems that majority of the students smoked in their work place. Also, among the smokers 24 (96%). Followed rules and regulations and refrained from smoking in the prohibited area. It seems that majority of the students followed rules and regulations regarding prohibited areas for smoking. 13 (52%) students felt panicky on not getting a cigarette. It seems that almost half of the students felt panicky on not getting a cigarette. Among the smokers, 11 (44%) of the felt discomfort of being a smoker.

C.Smokers
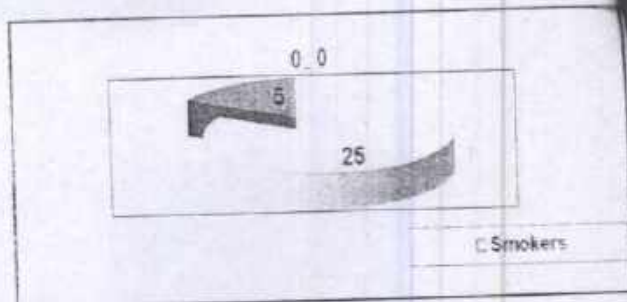
Prevalence of smoking among the undergraduate male undergraduate students

Mean Standard Deviation And Mean Percentage Of Prevalence And Awareness Regarding Smoking Habit

Area	Maximum score	Mean	Standard deviation	Mean Percentage
Prevalence	1	0.833	0.37	83.33%
Awareness	6	3.5	1.087	58.33%

The overall observation shows that the prevalence of smoking is high among the undergraduate and postgraduate male students and the level of awareness is less among the students.

Area Wise Mean, Standard Deviation And Mean Percentage Of The Smoking Habit, Factors And Efforts To Stop

Area	Maximum score	mean	Standard deviation	Mean percentage
Smoking habit	10	7.04	1.399	70.4%
Influenced by some factors	5	3.12	1.176	62.4%
Stress factor	3	2.52	0.899	84%
Efforts to stop	6	4.92	0.975	82%

The overall observation shows that most of the undergraduate and postgraduate students smoke due to the stress factors and majority of the students have tried to stop the smoking habit but have failed in their attempt to stop.

DISCUSSION

SMOKING HABIT OF THE STUDENTS

Among the 30 surveyed undergraduate and postgraduate male students 25(83.33 %) were smoking cigarette, and the remaining 5(16.66 %) were non smokers. Out of the 25 smokers 9 (36%) were chain smokers and the remaining 16(64%) smoked occasionally. Among the 25 smokers 18 (72 %) of the students had not started smoking in the school age and 5 (20%) of students had started smoking in the school life whereas 20 (80%) had started smoking in their college life. Out of the 25 students who smoked 12 (48%) students believed that they are addicted to the smoking habit and remaining 13 (52%) were not addicted to smoking. Out of the total surveyed sample 24 (80%) students believed that smoking habit is really addictive.

Factors responsible for smoking habit

The overall mean score of factors responsible for smoking was 4.7 (18.8%) of the total score it revealed that the smoking habit

among smokers was influenced by certain factors. Item wise analysis of factors responsible for smoking revealed that 15 (60%) of the students' smoking habit was influenced by some factors and others it was not influenced. Among the overall sample 10(33.3%) of the students' family members smoked and 26(86.6%) students' friends smoked. Among the smokers 13(52%) of the students smoking habit was influenced by the advertisements of cigarette.

Awareness regarding effects of smoking

The overall mean of the awareness score was 3.5±1.087 which is 58.33%. It revealed that the students were aware of the health hazards of smoking. Item wise analysis of the awareness regarding hazards of smoking revealed that out of the total sample surveyed, 18(60%) of the students were aware of the toxic chemicals present in the cigarette and remaining 12(40%) students were not aware about the toxic chemicals in the cigarette. Out of the total students surveyed all (100%) students were aware of the health hazards of smoking and all (100%) of the students believed that the risk of cancer increases with smoking habit. Among the total sample surveyed 6(20%) of the students think that there is no difference between filters and non-filters cigarette smoking and the others 80% think that there is difference in filters and non-filters cigarette smoking. Among the total students surveyed 19(63.33) students believe that there is danger even if you smoke but don't inhale. And 23(76.67%) students believe that the menthol cigarettes are not safer than other brands.

Summary

A descriptive research design with cross sectional survey approach was used to assess the prevalence of smoking and the level of awareness regarding the effects of smoking on health among the undergraduate male medical students of from 11-7-2016 to 10-9-2017, where data was collected from 30 students. The collected data was analyzed by using descriptive statistics. The findings are summarized as follows:- a. Majority of the students (83.33%) were smokers. b. The awareness level of the students was less (53.33%). c. More than half of the students (60%) had the habit of smoking due to some particular influence.d.Less than half of the students (33.33%) had smokers among their family members. e. Majority of the students (86.67%) had friends who smoked. f. Majority of the students (84%) smoked to reduce stress. g. Majority of the students (92%) smoked more due to increased tension of studies during examinations.h.Majority of the students (88%) tried to stop smoking before and they failed.

Recommendation

Comprehensive antismoking campaigns were urgently needed to control cigarette smoking among University undergraduates. All possible efforts and strategies should be considered to control smoking among undergraduate students in India and elsewhere. To equip future health professionals with the knowledge and skills they need to intervene with smoking effectively medical and other health colleges should provide educational programs and teach specific courses on tobacco control.

Conclusion

From the findings it can be concluded that the prevalence of smoking is high among the undergraduate and postgraduate

male students and the level of awareness was less among the students. The factors responsible for the students to smoke was found to be more due to peer influence and majority of the students smoked due to stress factors and the increased tension of studies during examinations and settlement of life and jobs.

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RESEARCH ARTICLE

TO STUDY THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING CERVICAL CANCER AMONG WOMEN IN SANGANER DISTRICT, JAIPUR.

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Manuscript Info	Abstract
Manuscript History Received: xxxxxxxxxxxxxxxx Final Accepted: xxxxxxxxxxxxx Published: xxxxxxxxxxxxxxxx **Key words:-** Effectiveness, Structured teaching programme (STP), Knowledge, Women, Cervical cancer.	**Background:** Most of the women keep struggling with cervical cancer because of barriers such as early detection and timely treatment which can be changed by adequate knowledge about the disease. **Aim:** To asses effectiveness of Structured teaching programme (STP) on knowledge regarding cervical cancer among women in Sanganer district, Jaipur. **Objective:** To assess pre-test and post-test knowledge regarding cervical cancer among women and find out association between knowledge regarding cervical cancer with their selected demographic variables. **Methodology:** The design explains one group pre test post test design. quasi experimental design to measure the effectiveness of the structured teaching programme on knowledge regarding cervical cancer among rural women in selected area of Jaipur. **Result:** Findings of study reveals that mean pre test knowledge score about cervical cancer is 9.65 and post test mean knowledge score is 17.87, structured teaching programme was found to be effective in increasing the knowledge regarding cervical cancer. No significant relationship was found between knowledge regarding cervical cancer and selected demographic variables in Pre test but in post test significant association between education and knowledge score were found. So more educated people had more knowledge score in post test.

Introduction:-

Approximately 132,000 new cases are diagnosed and 74,000 die annually in **India**, accounting to nearly $1/3^{rd}$ of the global **cervical cancer deaths**. Cervical cancer, mainly caused by Human Papillomavirus infection, is the leading cancer in Indian women and the second most common cancer in women worldwide. Though there are several methods of prevention of cervical cancer, prevention by vaccination is emerging as the most effective option. Early detection and timely treatment can reduce the burden of cervical cancer in India cancer

Background of the study:-

Cervical cancer is the major and devastating death for cause to young girls and their mothers, mortality and morbidity worldwide with an estimated take control of their health and help them protect themselves against cervical cancer. But most of them keep struggling with the disease because of lack of knowledge about the disease.

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Need of the study:-

70% or more cases found are of stage 3 or higher at diagnosis. Establishment of baseline indicators to monitor and evaluate cancer control programs, require data on incidence, clinical stage at presentation, and survival rate which concluded that all programs will be effective if they are able to persuade women with abnormal screening tests to attend for diagnosis and treatment, and facilities for treatment. Women, living in rural community need knowledge about the cervical cancer for early detection, screening and treatment about cervical cancer. A teaching programme for the women living in rural area will help them to know about etiological risk factor, signs symptoms, diagnosis and treatment aspects of cervical cancer which will help in early diagnosis and prompt treatment.

Aim and objective:-

* To assess pretest knowledge regarding cervical cancer among women.
* To find association between knowledge regarding cervical cancer with their selected demographic variables.
* To assess post test knowledge regarding cervical cancer among women.

Material and Methods:-

One group pre test post test was used on a sample of 60 women aged between 25 to 45, who were resident of Mangyawas of Sanganer . Subjects were enrolled by convenient sampling and data was collected by self reporting .

Tools:-

The questionnaire consisted of two sections. SectionA consists of the questionnaire on demographic information of the respondent. Section B consists of 30 questions on   knowledge of women regarding cervical cancer. The reliability coefficient(Pearson's co-efficient) was r=0.739. Each correct item was given a score of one and incorrect response a score of zero. The maximum scoring possible was 30 and minimum was zero. The scoring was categorised as

0—10 --- Poor
11—20 --- Satisfactory
21 – 30 — Good

Data Collection:-

Data was collected from the women aged between 25 to 45 years and residing in locality, Mangyawas of community health center of Sanganer. The study was conducted from 13 June 2015 to 26 June 2015. Prior permission was obtained through letter from Medical Officer of C.H.C of Mangyawas. Ethical permission was granted by committee in B.M.C.H.R.C, Jaipur

Result:-

Finding of study reveals that more than half of the women had poor knowledge regarding cervical cancer in pre test but of them none had in post test, i.e. score ranging from 01-10. Data revealed that 36.66% have satisfactory knowledge regarding cervical cancer in pre test were as in post test it raised to 85%, had scoring range from 11-20. None had scoring range from 21-30 in pre test and it reached to 9 in post test.

Table 1:- Pre test Post test scoring of knowledge regarding cervical cancer N=60

Sl. No	Scores	Pre test		Post test	
		Frequency	Percentage	Frequency	Percentage
1	01-10	38	63.33	0	0
2	11-20	22	36.66	51	85
3	21-30	0	0	9	15

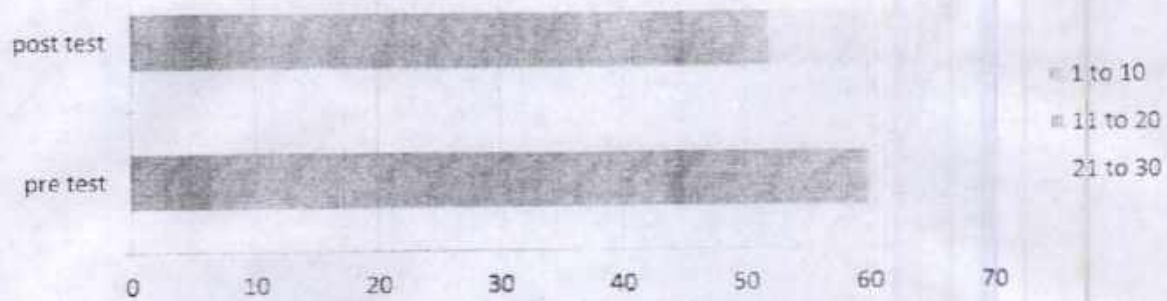Comparision of Pre test and Post test Knowledge score of samples

Figure 1:- Bar diagram showing comparison of pre test and post test knowledge s

Table Iii:- Effect of structured teaching programme N=60

Knowledge score	Mean score	Mean difference	Standard deviation Of difference	t value
Pre test	9.63	8.21	2.53	3.239
Post test	17.85			

t = 3.239, p =5.52628E-31

p =5.52628E-31 << 0.05(level of significance) thus, shows that structured teaching programme is effective in increasing the knowledge regarding cervical cancer.

Table Iv:- Association between post test knowledge score and demographic variable N=60

S.No	ITEMS		11-20	21-30	Chi square	Table value	Result
1	Age in years	a)25-30	14	4	χ^2=0.990008	7.81	No association
		b)31-35	12	2			
		c)36-40	19	2			
		d)41-45	6	1			
2	Educational Status	a)Secondary	39	2	χ^2=6.3725	5.99	Significant association
		b)Senior secondary	10	6			
		c)Graduate	2	1			
		d)Post Graduate	0	0			

Discussion:-

The finding on the existing knowledge regarding cervical cancer among women shows that more than half of the women have poor knowledge score none of them have good. Mean knowledge score of pre test is 9.633 + 1.99. The finding is comparable to study by Nwankwo. K in 2010 where Nigerian women from urban and rural area were included in the study. Only 15.5% of the respondents were aware of availability of cervical cancer screening services. Only 4.2% had ever done Pap smear test. Hindrance in the use of available cervical cancer screening services were lack of knowledge (49.8%) and the feeling that they had no medical problems (32.0%).

The study shows that there is no significant relation between knowledge regarding cervical cancer and Age groups, Educational Status, Occupational status, Marital Status, Age of first intercourse, Number of children. Use of contraceptive pills, Pattern of Menstruation and Family history of Cervical Cancer. This also supports the finding of the study by Lee EE on Korean American women. It was founded that women never undergone Pap smear in the preceding 3 years irrespective of the variables as age, marital status, income, knowledge of early detection method for cervical cancer, and perceived beliefs about benefits of and barriers to receiving Pap tests. Components were suggested for the groups of Korean American women who never undergone Pap smear and for those who have not had one in the preceding 3 years. The common intervention strategies that aim to increase knowledge and perceived benefit and to decrease perceived barriers to receiving Pap tests.

Conclusion:-

From the researcher point of view screening is the first step for fighting against this deadly disease and until and unless this knowledge is propagated in women no program will be effective in control of cervical cancer. The structured teaching programme on cervical cancer is effective tool as demographic variables show little role in post test knowledge score. Women were ignorant about their health and have less knowledge regarding cervical cancer, so awerness camp should be organised to promote screening test. Cervical cancer is curable, if detected early and in terminal stages it is the quality and not the quantity of life that really matters and is possible only by education and knowledge enhancement by awareness camps

RESEARCH ARTICLE

EFFECTIVENESS OF EARLY AMBULATION ON POST-OPERATIVE RECOVERY AMONG CAESAREAN MOTHERS

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ABSTRACT

Background: Cesarean section is a major abdominal surgery and may entail more discomfort, longer recovery and difficulty returning to normal activity than vaginal delivery. Early mobilization was the most significant nursing intervention for improving post-operative outcomes including enhancing pain relief, promoting wound healing, prevention of deep vein thrombosis, reducing hospital stay, and expediting recovery and return to normal activity. *Objective:* The current study was undertaken to assess the effectiveness of early ambulation on post-operative recovery among caesarean mothers. *Materials and Methods:* The research design was quasi-experimental post-test only control group design. Total 80 caesarean mothers were enrolled by convenient sampling technique. 40 in each study and control group. The intervention early ambulation at 6 hours after caesarean section was given for 3 consecutive days to study group whereas control group was ambulated as per routine care. Data were collected one time everyday for 4 consecutive days after given intervention. Post-operative recovery was assessed in both groups by using observation Schedule including wound healing, fundal height and activity of daily living. Pain score was assessed with numeric pain rating scale. *Results:* The results revealed that there was significant difference between the mean post-operative pain score from POD 0 to POD 3 after ambulation among study and control group as shown by p-value (p=0.001 to p<0.001). On wound healing parameters there was significant difference seen in discharge, redness, swelling at p-value 0.002, 0.038 0.017 respectively except separation as p-value was 0.317. Similarly fundal height had been significantly decreased from POD 1 to POD 3 at p-value (p=0.010 to p<0.001). In activity of daily living highly significant difference were seen from POD 0 to POD 3 at p-value (p<0.001). Statistically no significant association was found of post-operative recovery among caesarean mothers with selected demographic variables and obstetrics characteristics at (p<0.05) level. *Conclusions:* Therefore the study concluded that early ambulation was effective in postoperative recovery among caesarean mothers.

INTRODUCTION

Caesarean section is a surgical procedure whereby the foetuses after the end of 28 weeks are delivered through an incision made on abdominal and uterine walls. This is the exclusion of delivery through an abdominal incision of a foetus lying free in the abdominal cavity following uterine rupture. Often it is performed when there is a chance of complication through vaginal delivery and risk of mother's or baby's life or health but in recently it has been also performed upon request of maternal for childbirths that would otherwise have been natural (Finger, 2003). Use of caesarean section by the doctors to deliver babies, has nearly doubled in 15 years to reach "alarming" proportion in some countries. A study says, rates of birth from about 16 million (12%) in 2000 to an estimated 29.7 million (21%) in 2015. The nation with the highest rate for using the surgery to assist childbirth is the Dominican Republic with 58.1% cases (http://www. newindian express.com/world/2018/oct/12/c- section- births- surge- to -ala rming-rates-worldwide-study-1884651.html). In US, rate was 22.7% in 1990 which increased to 27.5% in 2003 and it was 32.8% in 2014 (Saint Hedwige, 2016). These high levels are also reported in Latin America & Caribbean; it ranged from 32.3% in 2000 & 44.3% in 2015. The estimate for Caesarean Section rates in East.

Asia also shows that it is well above 28.8% (Howard, 2018). In some countries, CS rates are up to 50%, mainly in the private sector, including Brazil (55.5% in 2015), Iran, and Mexico, resulting in millions of women undergoing un necessary surgery. The rate of caesarean section in Egypt increased from 4.6% in 1990 to 51.8% in 2014 (Betran et al., 2016). The main cause of increasing CS rates was fear of pain (57.8%). In primipara, the main cause for requesting CS is fear of pain that caused an increase to 62.5%, on the other hand, in multipara, the main cause for CS was bad history of previous experience (60%) cases followed by fear of pain in 50% cases and also fear of pelvic floor injuries 50% cases in multipara vs. 20% in primipara (Zakherah et al., 2019). The WHO considers that the best caesarean section rate is between 10-15%. Health personnel have to do responsibility to maintain this number, currently, when in the most of countries the rate is higher (WHO, 2015). The caesarean rates have increased dramatically in the developed countries. In India data collected from the National Family Health Survey (NFHS).Caesarean section deliveries analyzed from 1992-1993 to '2015-2016. In 1992-93 Caesarean section rate has increased approximately 2.9% and 7.1 percent in 1998-99 and again rise to 8.5% in 2005-06 and a steady rise to 17.2% in 2015-16. The rate of CS in Telangana is higher than Brazil (Radhakrishnan et al., 2017). The factors

associated with caesarean section are age, parity, multiple pregnancy, maternal weight gain, birth weight and elderly primigravida. Except these demographic and medical reasons the patient request and the physician factor are also playing a major role to increase caesarean section rates (Pai, 2000). The woman who has undergone caesarean section has to undergo through more problems minor or major, than a woman with vaginal delivery. Some problems are like longer time of hospital stay, postoperative pain, late ambulation, increased time required to return to normal activity of daily living, breast engorgement, problems in bladder and bowel lactation failure, and less mother & newborn bonding. The patients recovering after caesarean section may limit their activities due to pain, fatigue or discomfort who is interfering with their ability to regain their previous level of functioning (Ghosh and James, 2010). Immobility after caesarean section can effect the women physically and mentally. the physical effect may include urinary tract infection, deep venous thrombosis, bowel obstruction, increased pain intensity and pressure ulcer. Mental effect appears in the presence of different levels of depression. In spite of early ambulation have major benefits like to increase functional activity, muscle tone strengthens, reducing pain intensity, involution of the uterus, lochial discharge, gastrointestinal and urinary tract function, re-establishment and improvement of wound healing (Kaur et al., 2015)

In the immediate postoperative period, the woman is monitored for uterine atony, excessive vaginal or incision bleeding, and oliguria. Early ambulation first practiced in 1946, which is important for the post caesarean mother to prevent so many complications after surgery (Van Stralin and Terveer, 2007). Early ambulation in post operative period is the key to get rapid and maximum muscle function and restoration of mother's health. Early ambulation is the most significant general nursing measure to prevent postoperative complications by ensuring better blood circulation, promoting gastric motility, enhancing respiration, decreasing chances of thrombophlebitis, preventing orthostatic hypotension, improving the physical strength, coordination and independence etc. (Brunner and Suddarth's, 2008). Thromboembolism is one of the common and major complication during puerperium. Consequently women should be encouraged to wake up from the bed as early as possible in order to prevent thrombosis. However, many patients can not be fully ambulatory soon after surgery (Sharma and Monga, 2008). Rana et al. (2019) Conducted a quasi experimental study to assess the effectiveness of early ambulation in post operative recovery among cesarean section mothers. Total 60 samples were selected for this study. Pain was assessed by numerical pain rating scale and checklist for maternal outcome was used to collect the data. Result revealed that the pretest mean maternal outcome and pain level in experimental group was 2.50 and 8.40 whereas in control group it was 2.47 and 8.53 respectively. On all the 4 days the tabulated t value was more than the calculated t value. There is a significant difference in the maternal outcome and pain level between both the groups. There was no association between post operative recovery and socio demographic variables. Thus, the study concluded that early ambulation has a significant impact on post operative recovery among women with CS delivery (Rana Banita et al., 2019). Each day the particular patient is encouraged to increase physical activity and to be as independent as possible. This is personal hygiene, getting in and out of bed without assistance and walking. Early ambulation aids in the restoration of normal bowel functions allows patients to move easily pass flatus and stool and resume normal bowel habits. The investigator through her experience has observed that the time of maternal ambulation after caesarean section differ in every hospital. It has not been practiced in many hospitals in India. No much research is done in this particular area also. Addressing the specific needs of the post caesarean woman, facilitating early ambulation may help her to overcome the challenges and barriers that she has to face post caesarean women. The research studies created an insight in the investigator that there is lack of practice regarding early ambulation among mothers after caesarean section. So, the researcher interested to study the effect of early ambulation among post caesarean mothers.

Scope of the study

- It is necessary to encourage early ambulation, which facilitate rapid tissue recovery as well as returning of normal day to day functions
- This study can have great implications in nursing education which can guide nurses and nursing students in providing teaching to patients which can aid in providing care independently.
- It promotes wound healing process in post operative recovery by early ambulation and its prevent from thromboembolism.
- It helps in better circulation, promoting gastric motility, enhancing respiration, improving physical strength and independence etc.
- If it is practiced regular and effectively then many post-operative complication can be reduced and motherhood can be made more acceptable
- This will also reduced the cost of hospital stay which is very effective in developing country like India.
- By practicing caesarean mother are encouraged to take care of young one which is good for self care and baby also.
- It reduces overall burden of family
- This can stimulate further research in the field

OBJECTIVES

- To compare the post-operative recovery among caesarean mothers in study group & control group
- To know the association of post test level of post-operative recovery among caesarean mothers with selected demographic variable & obstetrics characteristics in study group & control group

HYPOTHESIS

- H_0 - There is no significant difference between the post test of post-operative recovery among caesarean mothers in study & control group
- H_1 - There is a significant difference between the post test of post-operative recovery among caesarean mothers in study & control group
- H_2 - There is a significant association between post test of post-operative recovery among caesarean mothers with the selected demographic variables & obstetrics characteristics in study & control group.

MATERIAL AND METHODS

Research Design: Quasi experimental post-test only control group design.

Research setting: Post natal ward at Queen Mary's KGMU Lucknow.

Population: Post caesarean section mothers of Queen Mary's hospital Lucknow.

Sample size and Sampling technique: 80 Post caesarean mothers and Simple Random sampling.

Sample criteria
Inclusion criteria

- Mothers who are admitted in Queen Mary's K.G.M.U. Lucknow.
- Mothers who have undergone elective caesarean section.
- Mothers who have undergone spinal anaesthesia.
- Mothers who are able & willing to participate in study.
- Mothers who are able to follow instructions.
- Both primi and multi mothers after caesarean section.

Exclusion criteria

- Mothers who are having other medical problems like (cardiac problem, respiratory problem, Eclampsia etc) & gynaecological problems (PPH, Pueperial sepsis, Hysterectomy etc)
- Patients who have doctors order for strict bed rest.
- Unconscious & disoriented patient.

VARIABLES

Independent variable: Early ambulation
Dependent variable: Post operative recovery

Tool and method of data collection

Section 1. Demographic Variables and obstetrics characteristics
Section 2. Numerical pain rating scale and Observation Schedule for post caesarean section recovery parameter

Selection and Development of tool: Post-operative recovery tool is a structured tool. The tool was developed after extensive review of literature, internet search, and expert advice helped the investigator to select the suitable scale to assess post-operative recovery among post caesarean mothers. Numerical pain rating scale and Observation Schedule related to post-operative recovery was prepared for collection of data.

Description of the Tool: The tool consists of following parts.

Section 1. Demographic Variables and Obstetrics Characteristics: The Demographic Variables and Obstetrics Characteristics was self structured tool. It contains 4 items such as age, education, occupation, types of family in demographic variables and 5 items such as parity, previous delivery of mother, number of prior caesarean section, time period between 2 pregnancy, period of gestation(week), in obstetrics characteristics with their most suitable responses. It is structured tool in which the most appropriate response has to tick and some open ended questions was also has to be completed by investigator.

Section 2. Numerical pain rating scale and Observation Schedule for post caesarean section recovery parameter: It consists of 4 parameter such as pain, wound healing, fundal height and activity of daily living.

Section 2A: Pain: It's a straight line defining 11-point numeric scale ranges from '0' representing no pain to '10' representing extreme pain. This scale is used to assessed the level of pain. The numeric pain rating scale is modified by me. The researcher write appropriate score based on patient's response. This section consists 3 main components such as mild, moderate and severe pain. These 3 components are divided into 11 parts. No pain scores 0. Mild pain includes score between 1-3. Moderate pain includes score 4-6 and severe pain includes score of 7-10. Maximum score was 10 and minimum score was 0.

Criterion measures to assess pain level

S. No	Level of Pain Score	Percentage
1.	No pain 0	0
2.	Mild pain 1-3	10-30%
3.	Moderate pain 4-6	40-60%
4.	Severe pain 7-10	70-100%

Maximum score: 10, Minimum score: 00

Section 2B: Wound healing: On the 1st removal of dressing, the characteristics of wound healing will be assessed. It include 4 parameter such as redness, swelling, discharge and Separation dehiscence. The wound scale is modified by me. Researcher write appropriate score based on assessment. The minimum score is "0" and maximum score is "12".

Section 2C: Fundal height: The fundal height is assessed by noting the height of the fundus of the uterus in relation to the symphysis pubis. Bladder should be emptied and the womens positioned flat on her back (supine). The researcher places one hand on the abdomen and presses to find out the hard mass, after finding out the fundus of uterus researcher use measuring tape and measurement taken from the top of the uterus to above the symphysis pubis and scored Normal- decreases 1 cm daily & Abnormal- not decreases 1 cm daily

Section 2D: Activities of daily living: Consisted of items on activities of daily living among the post-caesarean mothers such as oral hygiene, bathing, toileting, changing the dress, combing the hair, eating, walking, Getting into out of bed or a chair, Holding the baby & care of the baby, Breast feeding. By observing the patients undergone caesarean section, every 24 hours after the surgery.

Pilot study: The pilot study was conducted in the month of November for the period of two week (05.11.2018 to 19.11.2018) from 8 am to 1 pm at Queen Mary's hospital (Department of Obstetrics and Gynaecology) KGMU, Lucknow. The sample size was 10 and they were selected by using simple random sampling technique, in that 5 of them were allotted to experimental and 5 of them to control group.

Reliability of the Tool: It is the degree of consistency or dependability with which an instrument measures the attributes. Reliability was established by the Cronbach's Alpha method

1. **Numeric pain Rating Scale (NRS)** is standardized tool, the reliability of the scale was based on the assessment of test-retest reliability & it has been 0.95 and 0.96 which show highly significant for measurement of post-operative pain.
2. **Wound healing** is modified tool, the reliability of the wound healing is 0.839
3. **Fundal height** is modified tool, the reliability of the fundal height is 0.804
4. **Activities of daily living** is modified tool, the reliability of the activity of daily living is 0.774.

Acceptable cutt off value of coefficients was between 0.7 and 0.8. This indicate that the tool which was used in the study was reliable.

Data Collection Procedure: First of all ethical permission was obtained from the ethics committee of KGMU, Lucknow & a formal permission was obtained from the departmental head (HOD of Obstetrics and Gynaecology) KGMU, Lucknow for conducting main study. During the data collection procedure the investigator established rapport with post Caesarean section mothers. They were assured that no physical or emotional harm would be done in the course of study. Written consent was taken from all the samples and procedure was explained to them. The study group

were given early ambulation in 6 hours after caesarean section for twice a day for 3 consecutive post-operative day (0 POD, 1POD and 2POD) whereas in control group followed hospital routine care. The Early ambulation procedure had many steps such as mild deep breathing exercise, movement of upper & lower extremity, side turn, propped up position, upright sitting position, dangling of legs, slow walking. Data pertaining to the demographic variables & obstetrics characteristics were collected by interview method. Post test data were collected from both groups for 4 POD i.e. (POD, 1POD, 2POD and 3POD). The investigator assessed the post-operative recovery such as pain, wound healing, fundal height, activity of daily living. Data collected was analyzed by using both descriptive and inferential statistics.

Ethical consideration

- A formal written permission obtained from the institutional research ethical committee of King George's Medical University.
- Written formal permission was obtained from the departmental HOD's of Obstetrics & Gynaecology to conduct the study.
- Informed consent was taken from all samples to be a part of the study. The subjects were informed that the participation was voluntary. They were also informed that they can withdraw from the study at any time. Confidentiality and anonymity of information was maintained.

Plan of Data Analysis

- Analysis of data were based on the basis of objectives, hypotheses, and by using descriptive and inferential statistics and the following plan for analysis should be worked out.
- Data of the demographic variables & obstetrics characteristics will be analyzed by frequency distribution and percentage distribution to describe sample characteristics.
- Calculation average score of mean, SD, and Mann whitney test, t-test, for post-operative recovery parameter.
- Comparing the chi-square method to establish the correlation between selected demographic and obstetrics characteristics.

RESULTS

Table (1) described about the frequency, percentage distribution of demographic variables of caesarean mothers with respect to age, education status, occupation, type of family. Out of the 80 caesarean section mothers the finding suggested of the study with selected demographic variables that the majority of the samples were belong to age group 24-29 years of age with 25(62.5%) and 1(2.5%) were >35years of age , studied in graduate and above education with 21(52.5%) , maximum women were housewives(not working) with 38(95.0%), majority were belong to the Joint family with 30(75.0%) whereas in the control groups, majority of samples were similar in age group 24-29 years of age with 20(50.0%) and none of them in the age group of >35years, studied in graduate and above education with 21(52.5%), maximum women were housewives(not working) with 37(92.5%), majority were belong to the Joint family with 31(77.5%). Table (2) Describes about the frequency, percentage

distribution of Obstetric Characteristics of caesarean mothers with respect to parity, previous delivery of mother, number of prior caesarean section , time period between 2 pregnancy and period of gestation. With regards to the parity in the study group 19(47.5%) were primiparous and 21(52.5%) were multiparous while in Control group 22(55.0%) were primiparous and 18(45.0%) were multiparous. With regards to the previous delivery of mother in the study group 6(28.6%) deliveries were normal vaginal while 15(71.4%) were lower segment caesarean section whereas in the Control group 3(17.6%) deliveries were normal vaginal and 14(82.4%) were lower segment caesarean section. Majority of caesarean deliveries had one previous caesarean section in study group 11(73.3%) and in control group 13(92.9%). Majority of the samples time period between 2 pregnancy were 1-3 years in both study group 9(42.9) and control group 8(47.1). Majority 28(70.0%) had period of gestation in study group in >36 weeks, while in the Control group majority 29(72.5%) had period of gestation in >36 weeks.

Comparison of post-operative recovery among caesarean mothers in study & control groups

Table (3) revealed that the mean pain scores of study group at POD 0, POD 1, POD 2 and POD 3 were 5.08±0.73, 3.95±0.78, 2.60±0.50 and 1.30±0.46 respectively while mean pain scores of control group at POD 0, POD 1, POD 2 and POD 3 were 5.63±0.59, 4.55±0.68, 3.20±0.61 and 2.10±0.55 respectively. The result showed that there was a significant changes in the post-test pain level scores between the study and control group in relation to early ambulation were observed at POD 0 (p=0.001), POD 1 (p=0.001) and highly significant changes were found at POD 2 (p<0.001) and POD 3 (p<0.001). It was inferred that the post-test mean score of pain score were least in the study group than control group. Also the early ambulation made significant difference in pain. Table (4) revealed that mean discharge score of the control group was 0.50(1.01) and none in study group. The mean redness score of the study group was 0.13(0.33) and of the control group was 0.38 (0.59). The mean swelling score of the study group was 0.08(0.27) and of the control group was 0.33(0.57). The mean separation score of the study group was none and of the control group was 0.03(0.16).

Significant difference was found between study and control groups in mean Discharge score (p=0.002), in mean redness score (p=0.029), in mean swelling score (p=0.017) and no significant difference in mean swelling score was found between study and control group (p=0.317). The result showed that there was a significant difference in the post-test wound healing status between the study and control group in relation to early ambulation were observed for discharge, redness, swelling & over all as well p<0.05 except separation. Also the early ambulation made significant difference in wound healing. Table (5) depicted that the mean fundal height scores of study group at POD 0, POD 1, POD 2 and POD 3 were 17.15±1.42, 16.29±1.43, 15.44±1.46 and 14.46±1.47 respectively, while mean fundal height scores of control group at POD 0, POD 1, POD 2 and POD 3 were 17.53±1.01, 17.04±1.07, 16.40±1.10 and 15.48±1.11 respectively. The result showed that the post-test mean scores of fundal height reported in the study group at POD 0 to POD 3 were decrease than control group in aspect of early ambulation and significant difference in the post-test fundal height scores between the study and control group in relation to early ambulation were observed at POD 1 (p=0.010), POD 2 (p=0.001) and POD 3 (p=0.001). Table (6) reveals that the mean activity of daily life scores of study group at POD 0, POD 1, POD 2 and POD 3 were 12.00±1.88, 20.13±3.11, 27.63±2.53.

Table 1. Distribution of sample based on demographic variables in study and control groups.

n=80

S.N	Demographic Variables	Categories	Study Group (n=40) f(%)	Control Group (n=40) f(%)
1	Age	18-23	7(17.5%)	12/30.0%)
		24-29	25(62.5%)	20(50.0%)
		30-35	7(17.5%)	8(20.0%)
		>35	1(2.5%)	0(40.0%)
2	Education	Illiterate	0(0.0%)	0(0.0%)
		Primary	7(17.5%)	6(15.0%)
		Secondary	5(12.5%)	6(15.0%)
		Higher-secondary	7(17.5%)	7(17.5%)
		Graduation & Above	21(52.5%)	21(52.5%)
3	Occupation	Working	2(5.0%)	3(7.5%)
		Not working - House wife	38(95.0%)	37(92.5%)
4	Types of family	Joint	10(25.0%)	9(22.5%)
			30(75.0%)	31(77.5%)

Table 2. Distribution of the Subject as per Obstetric Characteristics in study and control groups.

n=80

S.No	Demographic Variables	Categories	Study Group (n=40) f(%)	Control Group (n=40) f(%)
1	Parity	Primiparous	19(47.5)	22(55.0)
		Multiparous (if yes)	21(52.5)	18(45.0)
1.1	Previous delivery of mother	Normal vaginal delivery	6(28.6)	3(17.6)
		Lower segment caesarean section (if yes)	15(71.4)	14(82.4)
1.2	Number of prior caesarean section	Previous 1	11(73.3)	13(92.9)
		Previous 2 or more	4(26.7)	1(7.1)
2	Time period between 2 pregnancy	1-3 years	9(42.9)	8(47.1)
		4-6 year	4(2)	7(41.2)
		>6 years	3(14.3)	2(11.8)
3	Period of gestation (weeks)	32-34	2(5.0)	4(10.0)
		34-36	10(25.0)	7(17.5)
		>36	28(70.0)	29(72.5)

Table 3: Comparison of Mean and Standard Deviation of the post-operative pain scores among caesarean mothers in study & control group

PAIN SCORES (Numeric pain rating scale)	Study group Mean	SD	Control group Mean	SD	U-value	p-value
POD 0	3.08	0.73	3.63	0.59	491.50	0.001
POD 1	3.05	0.78	2.44	0.68	481.00	0.003
POD 2	2.80	0.5	3.2	0.61	450.0	<0.001
POD3	1.30	0.46	3.10	0.55	272.00	<0.001

Mann Whitney*p<0.05

Table 4: Comparison of Mean and Standard Deviation of the Post-test level of Wound Healing Status among post-caesarean mothers in study & control group

WOUND HEALING	study group Mean	SD	Control group Mean	SD	U-value	p-value
DISCHARGE	0.00	0.00	0.50	1.01	620.00	**0.002**
REDNESS	0.13	0.33	0.38	0.59	635.00	**0.029**
SWELLING	0.08	0.27	0.33	0.57	637.00	**0.017**
SEPARATION	0.00	0.00	0.03	0.16	780.00	0.317
Overall	0.20	0.56	1.23	2.04	616.00	**0.015**

Mann Whitney*p<0.05

Table 5: Comparison of Mean and Standard Deviation of the Post-test level of Fundal Height among caesarean mothers in Study and Control Groups

FUNDAL HEIGHT	Study group Mean	SD	Control group Mean	SD	t-value	p-value
POD 0	17.15	1.42	17.53	1.01	-1.36	0.179
POD 1	16.29	1.43	17.04	1.07	-2.66	**0.010**
POD 2	15.44	1.46	16.40	1.10	-3.33	**0.001**
POD 3	14.46	1.47	15.48	1.11	-3.47	**0.001**

Unpaired 't' test *p<0.05

Table 6: Comparison of Mean and Standard Deviation of the Post-test level of Activity of Daily Living among caesarean mothers in Study and Control Groups

Activity of daily living	Study group Mean	SD	Control group Mean	SD	U-value	p-value
POD 0	12.00	1.88	10.03	0.16	248.50	<0.001
POD 1	20.13	3.11	16.85	2.54	318.50	<0.001
POD 2	27.63	2.53	24.25	2.82	289.00	<0.001
POD 3	29.88	0.40	28.55	1.54	369.50	<0.001

Mann Whitney*p<0.05

Table 7: Comparison of Overall Post-operative recovery based on Final post-operative recovery score in study and control group

Group	Above Median (>52.08) No.	%	Below Median (<52.08) No.	%	chi sq	p-value
Study	26	65.0%	14	35.0%	7.20	0.007
Control	14	35.0%	26	65.0%		

Chi square*p<.05

Table 8: Association of Post-operative recovery with Demographic Variables in study and control combined groups

Variable	Category	Above Median (>52.08) No.	%	Below Median (<52.08) No.	%	chi sq	p-value
Age in year	18-23 years	7	17.9%	12	30.0%	5.78	0.123
	24-29 years	2	52.9%	24	60.1%		
	30-35 years	11	27.4%	4	10.1%		
	>35 years		2.5%		0.0%		
						1.07	0.785
Education	Primary	8	20.0%	5	12.5%		
	Secondary	5	12.5%	6	15.0%		
	Higher secondary	6	15.0%	8	20.0%		
	Graduate & above	21	52.5%	21	52.5%		
Occupation	Working	2	5.0%	3	7.5%	0.21	644
	Not working	38	95.0%	37	92.5%	0.62	0.431
Type of Family	Nuclear	8	20.0%	11	27.5%		
	Joint	32	80.0%	29	72.5%		

Chi square*p<0.05

Table 9: Association of Overall Post-operative recovery with Obstetrics Characteristics in study and control combined groups

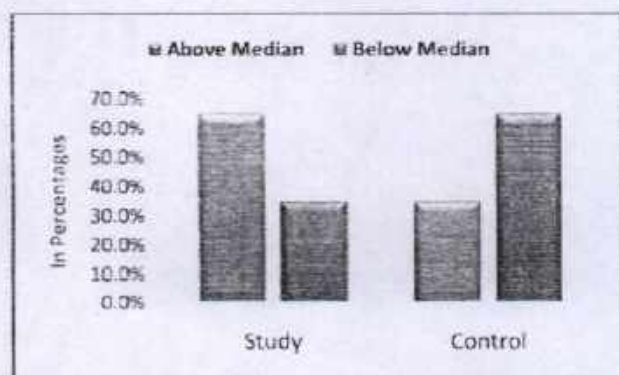| Variable	Category	Above Median (>52.08) No.	%	Below Median (<52.08) No.	%	chi sq	p-value
Parity	Primiparous	21	52.5%	20	50.0%	0.05	0.823
	Multiparous	19	47.5%	20	50.0%		
Previous delivery	Normal vaginal delivery	3	15.8%	6	31.6%	1.31	0.252
	Lower segment caesarean section	16	84.2%	13	68.4%		
Number of prior caesarean section						1.51	0.220
	Previous 1	12	75.0%	12	42.3%		
	Previous 2 or more	4	25.0%	1	7.7%		
Time period between 2 pregnancy						0.26	0.87
	1-3 years	9	47.4%	8	42.1%		
	4-6 years	8	42.1%	8	42.1%		
	>6 years	2	10.5%	3	15.8%		
Period of gestation (week)						1.64	0.442
	32-34 wk	2	5.0%	4	10.0%		
	34-36 wk	7	17.5%	10	25.0%		
	>36	31	77.5%	26	65.0%		

Chi square*p<0.05

Fig 1: Comparison of Overall Post-operative recovery based on the Final Post-operative recovery Score in study and control groups.

and 29.88±0.40 respectively, while mean activity of daily life scores of control group at POD 0, POD 1, POD 2 and POD 3 were 10.03±0.16, 16.85±2.54, 24.25±2.82 and 28.55±1.54 respectively. The result showed that there was a highly significant difference in the post-test activities of daily living scores between the study and control group in relation to early ambulation were observed at POD 0 (p<0.001), POD 1 (p<0.001), POD 2 (p<0.001) and POD 3 (p<0.001). It was inferred that, the post-test mean score of activities of daily living were higher in the study group than control group. Table (7) depicted that on comparing the overall post-operative recovery based on the final post-operative recovery score it was found that in study groups 65.0% cases got post-operative recovery score above the median score while in the control group only 35.0% cases got post-operative recovery score above the median score. The study group showed significantly more post-operative recovery than the control group in aspect of early ambulation (p=0.007). Therefore the research hypothesis H1 was accepted that there is a significant difference between the post test level of post-operative recovery among caesarean mothers in study and control group.

Association of post test level of post-operative recovery among caesarean mothers with selected demographic variables and obstetrics characteristics in study & control groups

Table (8) and (9) depicted that on studying the association of overall post-operative recovery with demographic variables and obstetrics characteristics, none of the demographic variables and

obstetrics characteristics showed significant association with the overall post-operative recovery (p>0.05) in relation to early ambulation. Therefore the research hypothesis H₂ was rejected. It was inferred that the selected demographic variables and obstetrics characteristics of caesarean mothers undergone LSCS did not influence the post-test of post-operative recovery in study and control group.

DISCUSSION

The research study had been discussed based on the objectives and the following supported studies.

The first objective was to compare the post-operative recovery among caesarean mothers in study group & control group: The obtained p value between experimental and control group posttest Pain scores were POD 0 (p=0.001), POD 1 (p=0.001), POD 2 (p=0.001) and POD 3 (p<0.001). Hence the research hypothesis states that there was significant in the post-test of pain score among study and control group was accepted at p<0.05 level. The finding of the present study revealed that the mean post-operative pain score after ambulation was reduced significantly in study group as compared to mean pain score in control group. These findings were accordance to the study conducted by Chaudhary (2012) Conducted a quasi experimental study on effectiveness of structured teaching programme about the knowledge of mothers on early ambulation and its impact on the recovery after caesarean section. Total 60 caesarean mothers were selected by purposive sampling technique. which concluded that the mean suture pain score of caesarean section mothers in control group was higher than experimental group which indicated that early ambulation has a positive effect on reduction of post-operative pain (Chaudhary, 2012).

The second objective was to know the association of post test level of post-operative recovery among caesarean mothers with selected demographic variables & obstetrics characteristics in study & control group: Data findings revealed that there was no statistically significant association of post-test level of post-operative recovery among study group and control group of caesarean section mothers with their selected demographic variables & obstetrics characteristics at p>0.05 level of significance. Similar study were reported by Andrade Reema J. (2017) Conducted a study on a study to assess the impact of early and late ambulation on maternal outcome of mothers with caesarean birth. An evaluatory approach with a quasi experimental time series design was adopted for the study. Sample consisted of 50 mothers with caesarean birth. Finding revealed that There was no significant association between the maternal outcome of mothers with caesarean birth and selected variables such as parity, education, income, type of operation and time of ambulation after surgery in group I (p=2.04, p=0.21, p=2.12, p=0.15, p=0.65; p>0.05) and group II (p=6.05, p=0.12, p=0.08, p=8.48, p<0.05) (Andrade et al., 2017).

Conclusion

The present study assessed the effectiveness of early ambulation on post-operative recovery among caesarean mothers. Based on the present study finding it was concluded that early ambulation was effective in post-operative recovery after caesarean section. Early ambulation at 6 hours can be initiated after caesarean section for speedy post-operative recovery and to prevent post-operative complications. Hence it s recommended that early ambulation can be incorporated into nursing practice in post natal ward as it can enhance the postoperative recovery and reduce the postoperative complications and for the benefit of patient and health care.

Limitations of the study

- Only limited literatures and studies were obtained from the Indian context.
- Generalization will be better if large sample included.
- The intervention, assessment and implementation of effectiveness of early ambulation was done by the same person.

Recommendations

- The study can be replicated on a large number of samples for better generalization.
- The study can be done to find the effect of early ambulation on different aspects.
- A similar study can be conducted in other surgical postoperative patients such as abdominal surgery, cardiac, thoracic surgery, orthopedic surgery and gynecological surgeries.
- The study can be done to assess the knowledge and practice of caesarean section mothers and also their attitude towards early ambulation.
- A similar study can be conducted with more variables like preoperative education, psychological prenaredness regarding early ambulation.

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RESEARCH ARTICLE

EFFECTIVENESS OF EARLY AMBULATION ON POST-OPERATIVE RECOVERY AMONG CAESAREAN MOTHERS

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ABSTRACT

Background: Cesarean section is a major abdominal surgery and may entail more discomfort, longer recovery and difficulty returning to normal activity than vaginal delivery. Early mobilization was the most significant nursing intervention for improving post-operative outcomes including enhancing pain relief, promoting wound healing, prevention of deep vein thrombosis, reducing hospital stay, and expediting recovery and return to normal activity. *Objective:* The current study was undertaken to assess the effectiveness of early ambulation on post-operative recovery among caesarean mothers. *Materials and Methods:* The research design was quasi-experimental post-test only control group design. Total 80 caesarean mothers were enrolled by simple random sampling technique, 40 in each study and control group. The intervention early ambulation at 6 hours after caesarean section was given for 3 consecutive days to study group whereas control group was ambulated as per routine care. Data were collected one time everyday for 4 consecutive days after given intervention. Post-operative recovery was assessed in both groups by using observation Schedule including wound healing, fundal height and activity of daily living. Pain score was assessed with numeric pain rating scale. *Results:* The results revealed that there was significant difference between the mean post-operative pain score from POD 0 to POD 3 after ambulation among study and control group as shown by p-value (p=0.001 to p<0.001). On wound healing parameter there was significant difference seen in discharge, redness, swelling at p-value 0.002, 0.029,0.017 respectively except separation as p-value was 0.317. Similarly fundal height had been significantly decreased from POD 1 to POD 3 at p-value (p=0.010 to p=0.001). In activity of daily living highly significant difference were seen from POD 0 to POD 3 at p-value (p<0.001). Statistically no significant association was found of post-operative recovery among caesarean mothers with selected demographic variables and obstetrics characteristics at (p>0.05) level. *Conclusions:* Therefore the study concluded that early ambulation was effective in postoperative recovery among caesarean mothers.

INTRODUCTION

Caesarean section is a surgical procedure whereby the foetuses after the end of 28 weeks are delivered through an incision made on abdominal and uterine walls. This is the exclusion of delivery through an abdominal incision of a foetus lying free in the abdominal cavity following uterine rupture. Often it is performed when there is a chance of complication through vaginal delivery and risk of mother's or baby's life or health but in recently it has been also performed upon request of maternal for childbirths that would otherwise have been natural (Finger, 2003). Use of caesarean section by the doctors to deliver babies, has nearly doubled in 15 years to reach "alarming" proportion in some countries. A study says, rates of birth from about 16 million (12%) in 2000 to an estimated 29.7 million (21%) in 2015. The nation with the highest rate for using the surgery to assist childbirth is the Dominican Republic with 58.1% cases (http://www. newindian express.com/world/2018/oct/12/c- section- births- surge- to -ala rming-rates-worldwide-study-1884651.html). In US, rate was 22.7% in 1990 which increased to 27.5% in 2003 and it was 32.8% in 2014 (Saint Hedwige, 2016). These high levels are also reported in Latin America & Caribbean; it ranged from 32.3% in 2000 & 44.3% in 2015. The estimate for Caesarean Section rates in East.

Asia also shows that it is well above 28.8% (Howard, 2018). In some countries, CS rates are up to 50%, mainly in the private sector, including Brazil (55.5% in 2015), Iran, and Mexico, resulting in millions of women undergoing un necessary surgery. The rate of caesarean section in Egypt increased from 4.6% in 1990 to 51.8% in 2014 (Betran *et al.,* 2016). The main cause of increasing CS rates was fear of pain (57.8%). In primipara, the main cause for requesting CS is fear of pain that caused an increase to 62.5%, on the other hand, in multipara, the main cause for CS was bad history of previous experience (60%) cases followed by fear of pain in 50% cases and also fear of pelvic floor injuries 50% cases in multipara vs. 20% in primipara (Zakherah *et al.,* 2019). The WHO considers that the best caesarean section rate is between 10-15%. Health personnel have to do responsibility to maintain this number, currently, when in the most of countries the rate is higher (WHO, 2015). The caesarean rates have increased dramatically in the developed countries. In India data collected from the National Family Health Survey (NFHS).Caesarean section deliveries analyzed from 1992-1993 to 2015-2016, In 1992-93 Caesarean section rate has increased approximately 2.9% and 7.1 percent in 1998-99 and again rise to 8.5% in 2005-06 and a steady rise to 17.2% in 2015-16. The rate of CS in Telangana is higher than Brazil (Radhakrishnan *et al.,* 2017). The factors

associated with caesarean section are age, parity, multiple pregnancy, maternal weight gain, birth weight and elderly primigravida. Except these demographic and medical reasons the patient request and the physician factor are also playing a major role to increase caesarean section rates (Pai, 2000). The woman who has undergone caesarean section has to undergo through more problems, minor or major, than a woman with vaginal delivery. Some problems are like longer time of hospital stay, postoperative pain, late ambulation, increased time required to return to normal activity of daily living, breast engorgement, problems in bladder and bowel, lactation failure, and less mother & newborn bonding. The patients recovering after caesarean section may limit their activities due to pain, fatigue or discomfort who is interfering with their ability to regain their previous level of functioning (Ghosh and James, 2010). Immobility after caesarean section can effect the women physically and mentally, the physical effect may include urinary tract infection, deep venous thrombosis, bowel obstruction, increased pain intensity and pressure ulcer. Mental effect appears in the presence of different levels of depression. In spite of, early ambulation have major benefits like to increase functional activity, muscle tone strengthens, reducing pain intensity, involution of the uterus, lochial discharge, gastrointestinal and urinary tract function, re-establishment and improvement of wound healing (Kaur *et al.,* 2015).

In the immediate postoperative period, the woman is monitored for uterine atony, excessive vaginal or incision bleeding, and oliguria. Early ambulation first practiced in 1946, which is important for the post caesarean mother to prevent so many complications after surgery (Van Stralin and Terveer, 2007). Early ambulation in post operative period is the key to get rapid and maximum muscle function and restoration of mother's health. Early ambulation is the most significant general nursing measure to prevent postoperative complications by ensuring better blood circulation, promoting gastric motility, enhancing respiration, decreasing chances of thrombophlebitis, preventing orthostatic hypotension, improving the physical strength, coordination and independence etc. (Brunner and Suddarth's, 2008). Thromboembolism is one of the common and major complication during puerperium. Consequently women should be encouraged to wake up from the bed as early as possible in order to prevent thrombosis. However, many patients can not be fully ambulatory soon after surgery (Sharma and Monga, 2008). Rana *et al.* (2019) Conducted a quasi experimental study to assess the effectiveness of early ambulation in post operative recovery among cesarean section mothers. Total 60 samples were selected for this study. Pain was assessed by numerical pain rating scale and checklist for maternal outcome was used to collect the data. Result revealed that the pretest mean maternal outcome and pain level in experimental group was 2.50 and 8.40 whereas in control group it was 2.47 and 8.53 respectively. On all the 4 days the tabulated t value was more than the calculated t value. There is a significant difference in the maternal outcome and pain level between both the groups. There was no association between post operative recovery and socio demographic variables. Thus, the study concluded that early ambulation has a significant impact on post operative recovery among women with CS delivery (Rana Banita *et al.*, 2019). Each day the particular patient is encouraged to increase physical activity and to be as independent as possible. This is personal hygiene, getting in and out of bed without assistance and walking. Early ambulation aids in the restoration of normal bowel functions allows patients to move easily pass flatus and stool and resume normal bowel habits. The investigator through her experience has observed that the time of maternal ambulation after caesarean section differ in every hospital. It has not been practiced in many hospitals in India. No much research is done in this particular area also. Addressing the specific needs of the post caesarean woman, facilitating early ambulation may help her to overcome the challenges and barriers that she has to face post caesarean women. The research studies created an insight in the investigator that there is lack of practice regarding early ambulation among mothers after caesarean section. So, the researcher interested to study the effect of early ambulation among post caesarean mothers.

Scope of the study

- It is necessary to encourage early ambulation, which facilitate rapid tissue recovery as well as returning of normal day to day functions.
- This study can have great implications in nursing education which can guide nurses and nursing students in providing teaching to patients which can aid in providing care independently.
- It promotes wound healing process in post operative recovery by early ambulation and its prevent from thromboembolism.
- It helps in better circulation, promoting gastric motility, enhancing respiration, improving physical strength and independence etc.
- If it is practiced regular and effectively then many post-operative complication can be reduced and motherhood can be made more acceptable.
- This will also reduced the cost of hospital stay which is very effective in developing country like India.
- By practicing caesarean mother are encouraged to take care of young one which is good for self care and baby also.
- It reduces overall burden of family.
- This can stimulate further research in the field.

OBJECTIVES

- To compare the post-operative recovery among caesarean mothers in study group & control group.
- To know the association of post test level of post-operative recovery among caesarean mothers with selected demographic variables & obstetrics characteristics in study group & control group.

HYPOTHESIS

H_0- There is no significant difference between the post test of post-operative recovery among caesarean mothers in study & control group.

H_1- There is a significant difference between the post test of post-operative recovery among caesarean mothers in study & control group.

H_2- There is a significant association between post test of post-operative recovery among caesarean mothers with the selected demographic variables & obstetrics characteristics in study & control group.

MATERIAL AND METHODS

Research Design: Quasi experimental post-test only control group design.

Research setting: Post natal ward at Queen Mary's KGMU Lucknow.

Population: Post caesarean section mothers of Queen Mary's hospital Lucknow.

Sample size and Sampling technique: 80 Post caesarean mothers and Simple Random sampling.

Sample criteria
Inclusion criteria

- Mothers who are admitted in Queen Mary's K.G.M.U. Lucknow.
- Mothers who have undergone elective caesarean section.
- Mothers who have undergone spinal anaesthesia.
- Mothers who are able & willing to participate in study.
- Mothers who are able to follow instructions.
- Both primi and multi mothers after caesarean section.

Exclusion criteria

- Mothers who are having other medical problems like (cardiac problem, respiratory problem, Eclampsia etc) & gynaecological problems (PPH, Pueperial sepsis , Hysterectomy etc)
- Patients who have doctors order for strict bed rest.
- Unconscious & disoriented patient.

VARIABLES

Independent variable: Early ambulation
Dependent variable: Post operative recovery

Tool and method of data collection

Section 1. Demographic Variables and obstetrics characteristics.
Section 2. Numerical pain rating scale and Observation Schedule for post caesarean section recovery parameter.

Selection and Development of tool: Post-operative recovery tool is a structured tool. The tool was developed after extensive review of literature, internet search, and expert advice helped the investigator to select the suitable scale to assess post-operative recovery among post caesarean mothers. Numerical pain rating scale and Observation Schedule related to post-operative recovery was prepared for collection of data.

Description of the Tool: The tool consists of following parts.

Section1. Demographic Variables and Obstetrics Characteristics: The Demographic Variables and Obstetrics Characteristics was self structured tool. It contains 4 items such as age, education, occupation, types of family in demographic variables and 5 items such as parity, previous delivery of mother, number of prior caesarean section, time period between 2 pregnancy, period of gestation(week) in obstetrics characteristics with their most suitable responses. It is structured tool in which the most appropriate response has to tick and some open ended questions was also has to be completed by investigator.

Section 2. Numerical pain rating scale and Observation Schedule for post caesarean section recovery parameter: It consists of 4 parameter such as pain, wound healing, fundal height and activity of daily living.

Section 2A: Pain: It's a straight line defining 11-point numeric scale ranges from '0' representing no pain to '10' representing extreme pain. This scale is used to assessed the level of pain. The numeric pain rating scale is modified by me. The researcher write appropriate score based on patient's response. This section consists 3 main components such as mild, moderate and severe pain. These 3 components are divided into 11 parts. No pain scores 0. Mild pain includes score between 1-3. Moderate pain includes score 4-6 and severe pain includes score of 7-10. Maximum score was 10 and minimum score was 0.

Criterion measures to assess pain level

S. No	Level of Pain Score	Percentage
1.	No pain 0	0
2.	Mild pain 1-3	10-30%
3.	Moderate pain 4-6	40-60%
4.	Severe pain 7-10	70-100%

Maximum score: 10; Minimum score: 00

Section 2B: Wound healing: On the 1st removal of dressing, the characteristics of wound healing will be assessed. It include 4 parameter such as redness, swelling, discharge and Separation/dehiscence. The wound scale is modified by me. Researcher write appropriate score based on assessment. The minimum score is '0' and maximum score is '12'.

Section 2C: Fundal height: The fundal height is assessed by noting the height of the fundus of the uterus in relation to the symphysis pubis. Bladder should be emptied and the womens positioned flat on her back (supine). The researcher places one hand on the abdomen and presses to find out the hard mass, after finding out the fundus of uterus researcher use measuring tape and measurement taken from the top of the uterus to above the symphysis pubis and scored. Normal- decreases 1 cm daily & Abnormal- not decreases 1 cm daily

Section 2D: Activities of daily living: Consisted of items on activities of daily living among the post-caesarean mothers such as oral hygiene, bathing, toileting, changing the dress, combing the hair, eating, walking, Getting into/out of bed or a chair, Holding the baby & care of the baby, Breast feeding. By observing the patients undergone caesarean section, every 24 hours after the surgery.

Pilot study: The pilot study was conducted in the month of November for the period of two week (05.11.2018 to 19.11.2018) from 8 am to 1 pm at Queen Mary's hospital (Department of Obstetrics and Gynaecology) KGMU, Lucknow. The sample size was 10 and they were selected by using simple random sampling technique, in that 5 of them were allotted to experimental and 5 of them to control group.

Reliability of the Tool: It is the degree of consistency or dependability with which an instrument measures the attributes. Reliability was established by the Cronbach's Alpha method.

1. **Numeric pain Rating Scale (NRS)** Is standardized tool, the reliability of the scale was based on the assessment of test-retest reliability & it has been 0.95 and 0.96 which show highly significant for measurement of post-operative pain.
2. **Wound healing** is modified tool, the reliability of the wound healing is 0.839
3. **Fundal height** is modified tool, the reliability of the fundal height is 0.804
4. **Activities of daily living** is modified tool, the reliability of the activity of daily living is 0.774.

Acceptable cutt off value of coefficients was between 0.7 and 0.8. This indicate that the tool which was used in the study was reliable.

Data Collection Procedure: First of all ethical permission was obtained from the ethics committee of KGMU, Lucknow & a formal permission was obtained from the departmental head (HOD of Obstetrics and Gynaecology) KGMU, Lucknow for conducting main study. During the data collection procedure the investigator established rapport with post Caesarean section mothers. They were assured that no physical or emotional harm would be done in the course of study. Written consent was taken from all the samples and procedure was explained to them. The study group

were given early ambulation at 6 hours after caesarean section for twice a day for 3 consecutive post-operative day (0 POD, 1POD and 2POD) whereas in control group followed hospital routine care. The Early ambulation procedure had many steps such as mild deep breathing exercise, movement of upper & lower extremity, side turn, propped up position, upright sitting position, dangling of legs, stand /walking. Data pertaining to the demographic variables & obstetrics characteristics were collected by interview method. Post test data were collected from both groups for 4 POD (0 POD, 1POD, 2POD and 3POD). The investigator assessed the post-operative recovery such as pain, wound healing, fundal height, activity of daily living. Data collected was analyzed by using both descriptive and inferential statistics.

Ethical consideration

➢ A formal written permission obtained from the institutional research ethical committee of King George's Medical University.
➢ Written formal permission was obtained from the departmental HOD's of Obstetrics & Gynaecology to conduct the study.
➢ Informed consent was taken from all samples to be a part of the study. The subjects were informed that the participation was voluntary. They were also informed that they can withdrawn from the study at any time. Confidentiality and anonymity of information was maintained.

Plan of Data Analysis

• Analysis of data were based on the basis of objectives, hypotheses, and by using descriptive and inferential statistics and the following plan for analysis should be worked out.
• Data of the demographic variables & obstetrics characteristics will be analyzed by frequency distribution and percentage distribution to describe sample characteristics.
• Calculation average score of mean, SD, and Mann whitney test, t-test por post-operative recovery parameter.
• Computing the chi-square method to establish the correlation between selected demographic and obstetrics characteristics.

RESULTS

Table (1) described about the frequency, percentage distribution of demographic variables of caesarean mothers with respect to age, education status, occupation, type of family. Out of the 80 caesarean section mothers the finding suggested of the study with selected demographic variables that the majority of the samples were belong to age group 24-29 years of age with 25(62.5%) and 1(2.5%) were >35years of age , studied in graduate and above education with 21(52.5%) , maximum women were housewives(not working) with 38(95.0%), majority were belong to the Joint family with 30(75.0%) whereas in the control groups, majority of samples were similar in age group 24-29 years of age with 20(50.0%) and none of them in the age group of >35years, studied in graduate and above education with 21(52.5%), maximum women were housewives(not working) with 37(92.5%), majority were belong to the Joint family with 31(77.5%). Table (2) Describes about the frequency, percentage

distribution of Obstetric Characteristics of caesarean mothers with respect to parity, previous delivery of mother, number of prior caesarean section , time period between 2 pregnancy and period of gestation. With regards to the parity in the study group 19(47.5%) were primiparous and 21(52.5%) were multiparous while in Control group 22(55.0%) were primiparous and 18(45.0%) were multiparous. With regards to the previous delivery of mother in the study group 6(28.6%) deliveries were normal vaginal while 15(71.4%) were lower segment caesarean section whereas in the Control group 3(17.6%) deliveries were normal vaginal and 14(82.4%) were lower segment caesarean section. Majority of caesarean deliveries had one previous caesarean section in study group 11(73.3%) and in control group 13(92.9%). Majority of the samples time period between 2 pregnancy were 1-3 years in both study group 9(42.9) and control group 8(47.1). Majority 28(70.0%) had period of gestation in study group in >36 weeks, while in the Control group majority 29(72.5%) had period of gestation in >36 weeks.

Comparison of post-operative recovery among caesarean mothers in study & control groups

Table (3) revealed that the mean pain scores of study group at POD 0, POD 1, POD 2 and POD 3 were 5.08±0.73, 3.95±0.78, 2.60±0.50 and 1.30±0.46 respectively, while mean pain scores of control group at POD 0, POD 1, POD 2 and POD 3 were 5.63±0.59, 4.55±0.68, 3.20±0.61 and 2.10±0.55 respectively. The result showed that there was a significant changes in the post-test pain level scores between the study and control group in relation to early ambulation were observed at POD 0 (p=0.001), POD 1 (p=0.001) and highly significant changes were found at POD 2 (p<0.001) and POD 3 (p<0.001). It was inferred that, the post-test mean score of pain score were least in the study group than control group. Also the early ambulation made significant difference in pain. Table (4) revealed that mean discharge score of the control group was 0.50(1.01) and none in study group. The mean redness score of the study group was 0.13(0.33) and of the control group was 0.38 (0.59). The mean swelling score of the study group was 0.08(0.27) and of the control group was 0.33(0.57). The mean separation score of the study group was none and of the control group was 0.03(0.16).

Significant difference was found between study and control groups in mean Discharge score (p=0.002), in mean redness score (p=0.029), in mean swelling score (p=0.017) and no significant difference in mean swelling score was found between study and control group (p=0.317). The result showed that there was a significant difference in the post-test wound healing status between the study and control group in relation to early ambulation were observed for discharge, redness, swelling & over all as well p<0.05 except separation. Also the early ambulation made significant difference in wound healing. Table (5) depicted that the mean fundal height scores of study group at POD 0, POD 1, POD 2 and POD 3 were 17.15±1.42, 16.29±1.43, 15.44±1.46 and 14.46±1.47 respectively, while mean fundal height scores of control group at POD 0, POD 1, POD 2 and POD 3 were 17.53±1.01, 17.04±1.07, 16.40±1.10 and 15.48±1.11 respectively. The result showed that the post-test mean scores of fundal height reported in the study group at POD 0 to POD 3 were decrease than control group in aspect of early ambulation and significant difference in the post-test fundal height scores between the study and control group in relation to early ambulation were observed at POD 1 (p=0.010), POD 2 (p=0.001) and POD 3 (p=0.001). Table (6) reveals that the mean activity of daily life scores of study group at POD 0, POD 1, POD 2 and POD 3 were 12.00±1.88, 20.13±3.11, 27.63±2.53.

Table 1. Distribution of sample based on demographic variables in study and control groups.

n=80

S.No.	Demographic Variables	Categories	Study Group (n₁=40) f(%)	Control Group (n₂=40) f(%)
1	Age	18-23	7(17.5%)	12(30.0%)
		24-29	25(62.5%)	20(50.0%)
		30-35	7(17.5%)	8(20.0%)
		>35	1(2.5%)	0 (0.0%)
2	Education	Illiterate	0(0.0%)	0(0.0%)
		Primary	7(17.5%)	6(15.0%)
		Secondary	5(12.5%)	6(15.0%)
		Higher -secondary	7(17.5%)	7(17.5%)
		Graduation & Above	21(52.5%)	21(52.5%)
3	Occupation	Working	2(5.0%)	3(7.5%)
		Not working (Housewife)	38(95.0%)	37(92.5%)
4	Types of –family	Joint	10(25.0%)	9(22.5%)
			30(75.0%)	31(77.5%)

Table 2. Distribution of the Subject as per Obstetric Characteristics in study and control groups.

n=80

S. No.	Demographic Variables	Categories	Study Group (n₁=40) f(%)	Control Group (n₂=40) f(%)
1.	Parity	Primiparous	19(47.5)	22(55.0)
		Multiparous (if yes)	21(52.5)	18(45.0)
1.1.	Previous delivery of mother	Normal vaginal delivery	6(28.6)	3(17.6)
		Lower segment caesarean section(if yes)	15(71.4)	14(82.4)
1.2	Number of prior caesarean section	Previous 1	11(73.3)	13(92.9)
		Previous 2 or more	4(26.7)	1(7.1)
1.3	Time period between 2 pregnancy	1-3 years	9(42.9)	8(47.1)
		4-6 years	9(42.9)	7(41.2)
		>6 years	3(14.3)	2(11.8)
2.	Period of gestation (week)	32-34	2(5.0)	4(10.0)
		34-36	10(25.0)	7(17.5)
		>36	28(70.0)	29(72.5)

Table 3: Comparison of Mean and Standard Deviation of the post-operative pain scores among caesarean mothers in study & control group

PAIN SCORES (Numeric pain rating scale)	Study group Mean	SD	Control group Mean	SD	U-value	p-value
POD 0	5.08	0.73	5.63	0.59	491.50	0.001
POD 1	3.95	0.78	4.55	0.68	481.00	0.001
POD 2	2.60	0.50	3.20	0.61	420.00	<0.001
POD3	1.30	0.46	2.10	0.55	272.00	<0.001

Mann Whitney*p<0.05

Table 4: Comparison of Mean and Standard Deviation of the Post-test level of Wound Healing Status among post-caesarean mothers in study & control group

WOUND HEALING	group Mean	SD	Control group Mean	SD	U-value	p-value
DISCHARGE	0.00	0.00	0.50	1.01	620.00	**0.002**
REDNESS	0.13	0.33	0.38	0.59	635.00	**0.029**
SWELLING	0.08	0.27	0.33	0.57	637.00	**0.017**
SEPARATION	0.00	0.00	0.03	0.16	780.00	0.317
Overall	0.20	0.56	1.23	2.04	616.00	**0.015**

Mann Whitney*p<0.05

Table 5: Comparison of Mean and Standard Deviation of the Post-test level of Fundal Height among caesarean mothers in Study and Control Groups

FUNDAL HEIGHT	Study group Mean	SD	Control group Mean	SD	t-value	p-value
POD 0	17.15	1.42	17.53	1.01	-1.36	0.179
POD 1	16.29	1.43	17.04	1.07	-2.66	**0.010**
POD 2	15.44	1.46	16.40	1.10	-3.33	**0.001**
POD 3	14.46	1.47	15.48	1.11	-3.47	**0.001**

Unpaired 't' test *p<0.05

Table 6: Comparison of Mean and Standard Deviation of the Post-test level of Activity of Daily Living among caesarean mothers in Study and Control Groups

Activity of daily living	Study group Mean	SD	Control group Mean	SD	U-value	p-value
POD 0	12.00	1.88	10.03	0.16	248.50	<0.001
POD 1	20.13	3.11	16.85	2.54	318.50	<0.001
POD 2	27.63	2.53	24.25	2.82	289.00	<0.001
POD 3	29.88	0.40	28.55	1.54	369.50	<0.001

Mann Whitney*p<0.05

Table 7: Comparison of Overall Post-operative recovery based on Final post-operative recovery score in study and control group

Group	Above Median(>52.08)		Below Median (<52.08)		chi sq	p-value
	No.	%	No.	%		
Study	26	65.0%	14	35.0%	7.20	**0.007**
Control	14	35.0%	26	65.0%		

Chi square*p<0.05

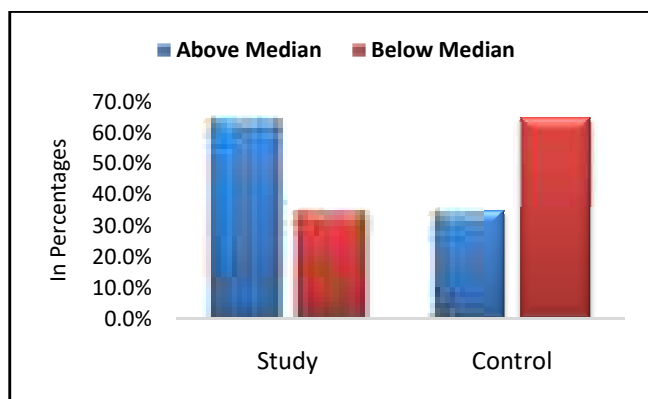**Table 8: Association of Post-operative recovery with Demographic Variables in study and control combined groups**

Variable	Category	Above Median (>52.08)		Below Median (<52.08)		chi sq	p-value
		No.	%	No.	%		
Age Group	18-23 years	7	17.5%	12	30.0%	5.78	0.123
	24-29 years	21	52.5%	24	60.0%		
	30-35 years	11	27.5%	4	10.0%		
	> 35 years	1	2.5%	0	0.0%		
Education	Primary	8	20.0%	5	12.5%	1.07	0.785
	Secondary	5	12.5%	6	15.0%		
	Higher secondary	6	15.0%	8	20.0%		
	Graduate & above	21	52.5%	21	52.5%		
Occupation	Working	2	5.0%	3	7.5%	0.21	.644
	Not working	38	95.0%	37	92.5%		
Type of Family	Nuclear	8	20.0%	11	27.5%	0.62	0.431
	Joint	32	80.0%	29	72.5%		

Chi square*p<0.05

Table 9: Association of Overall Post-operative recovery with Obstetrics Characteristics in study and control combined groups

Variable	Category	Above Median (>52.08)		Below Median (<52.08)		chi sq	p-value
		No.	%	No.	%		
Parity	Primiparous	21	52.5%	20	50.0%	0.05	0.823
	Multiparous	19	47.5%	20	50.0%		
Previous delivery	Normal vaginal delivery	3	15.8%	6	31.6%	1.31	0.252
	Lower segment caesarean section	16	84.2%	13	68.4%		
Number of prior caesarean section	Previous 1	12	75.0%	12	92.3%	1.51	0.220
	Previous 2 or more	4	25.0%	1	7.7%		
Time period between 2 pregnancy	1-3 years	9	47.4%	8	42.1%	0.26	0.879
	4-6 years	8	42.1%	8	42.1%		
	>6 years	2	10.5%	3	15.8%		
Period of gestation (week)	32-34 wk	2	5.0%	4	10.0%	1.64	0.442
	34-36 wk	7	17.5%	10	25.0%		
	>36	31	77.5%	26	65.0%		

Chi square*p<0.05

Fig 1: Comparison of Overall Post-operative recovery based on the Final Post-operative recovery Score in study and control groups.

and 29.88±0.40 respectively, while mean activity of daily life scores of control group at POD 0, POD 1, POD 2 and POD 3 were 10.03±0.16, 16.85±2.54, 24.25±2.82 and 28.55±1.54 respectively. The result showed that there was a highly significant difference in the post-test activities of daily living scores between the study and control group in relation to early ambulation were observed at POD 0 (p<0.001), POD 1 (p<0.001), POD 2 (p<0.001) and POD 3 (p<0.001) . It was inferred that, the post-test mean score of activities of daily living were higher in the study group than control group. Table (7) depicted that on comparing the overall post-operative recovery based on the final post-operative recovery score it was found that in study groups 65.0% cases got post-operative recovery score above the median score while in the control group only 35.0% cases got post-operative recovery score above the median score. The study group showed significantly more post-operative recovery than the control group in aspect of early ambulation (p=0.007). Therefore the research hypothesis H_1 was accepted that there is a significant difference between the post test level of post-operative recovery among caesarean mothers in study and control group.

Association of post test level of post-operative recovery among caesarean mothers with selected demographic variables and obstetrics characteristics in study & control groups

Table (8) and (9) depicted that on studying the association of overall post-operative recovery with demographic variables and obstetrics characteristics, none of the demographic variables and

obstetrics characteristics showed significant association with the overall post-operative recovery (p>0.05) in relation to early ambulation. Therefore the research hypothesis H_2 was rejected. It was inferred that the selected demographic variables and obstetrics characteristics of caesarean mothers undergone LSCS did not influence the post-test of post-operative recovery in study and control group.

DISCUSSION

The research study had been discussed based on the objectives and the following supported studies

The first objective was to compare the post-operative recovery among caesarean mothers in study group & control group: The obtained p value between experimental and control group posttest Pain scores were POD 0 (p=0.001), POD 1 (p=0.001), POD 2 (p<0.001) and POD 3 (p<0.001). Hence the research hypothesis states that there was significant in the post-test of pain score among study and control group was accepted at p<0.05 level. The finding of the present study revealed that the mean post-operative pain score after ambulation was reduced significantly in study group as compared to mean pain score in control group. These findings were accordance to the study conducted by Chaudhary (2012) Conducted a quasi experimental study on effectiveness of structured teaching programme about the knowledge of mothers on early ambulation and its impact on the recovery after caesarean section. Total 60 caesarean mothers were selected by purposive sampling technique, which concluded that the mean suture pain score of caesarean section mothers in control group was higher than experimental group which indicated that early ambulation has a positive effect on reduction of post-operative pain (Chaudhary, 2012).

The second objective was to know the association of post test level of post-operative recovery among caesarean mothers with selected demographic variables & obstetrics characteristics in study & control group: Data findings revealed that there was no statistically significant association of post-test level of post-operative recovery among study group and control group of caesarean section mothers with their selected demographic variables & obstetrics characteristics at p>0.05 level of significance. Similar study were reported by Andrade Reema J. (2017) Conducted a study on a study to assess the impact of early and late ambulation on maternal outcome of mothers with caesarean birth. An evaluatory approach with a quasi experimental time series design was adopted for the study. Sample consisted of 50 mothers with caesarean birth. Finding revealed that There was no significant association between the maternal outcome of mothers with caesarean birth and selected variables such as parity, education, income, type of operation and time of ambulation after surgery in group I (p=2.04, p=0.21, p=2.12, p=0.15, p=0.65; p<0.05) and group II (p=0.051, p=0.12, p=0.08, p=8.48; p<0.05) (Andrade *et al.,* 2017).

Conclusion

The present study assessed the effectiveness of early ambulation on post-operative recovery among caesarean mothers. Based on the present study finding it was concluded that early ambulation was effective in post-operative recovery after caesarean section. Early ambulation at 6 hours can be initiated after caesarean section for speedy post-operative recovery and to prevent post-operative complications. Hence it s recommended that early ambulation can be incorporated into nursing practice in post natal ward as it can enhance the postoperative recovery and reduce the postoperative complications and for the benefit of patient and health care.

Limitations of the study

- Only limited literatures and studies were obtained from the Indian context.
- Generalization will be better if large sample included.
- The intervention, assessment and implementation of effectiveness of early ambulation was done by the same person.

Recommendations

- The study can be replicated on a large number of samples for better generalization.
- The study can be done to find the effect of early ambulation on different aspects.
- A similar study can be conducted in other surgical postoperative patients such as abdominal surgery, cardiac, thoracic surgery, orthopedic surgery and gynecological surgeries.
- The study can be done to assess the knowledge and practice of caesarean section mothers and also their attitude towards early ambulation.
- A similar study can be conducted with more variables like preoperative education, psychological preparedness regarding early ambulation.

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