

**A STUDY TO EVALUATE THE EFFECTIVENESS OF
STRUCTURED TEACHING PROGRAMME REGARDING
PREVENTION OF SELECTED COMPLICATIONS
AMONG IMMOBILIZED ORTHOPAEDIC PATIENTS
IN GOVERNMENT RAJAJI HOSPITAL, MADURAI**

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CERTIFICATE BY THE GUIDE

This is certify that the dissertation titled , “**A Study to Evaluate the Effectiveness of Structured Teaching Programme regarding prevention of Selected Complications among immobilized orthopaedic patients in Government Rajaji Hospital, Madurai**” is bonafide work done by **Mrs. K. Saroja** college of Nursing, Madurai Medical College, Madurai – 20., submitted to the Tamilnadu Dr. M. G. R. Medical University, Chennai in Partial Fulfillment of the University rules and regulations towards the award of the degree of Master of Science in Nursing, Branch I, Medical Surgical Nursing Under our guidance and supervision during the academic period from 2009-2011.

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ABSTRACT

BACKGROUND AND OBJECTIVES:

“FOCUS ON THE ABILITY AND NOT ON THE DISABILITY”

Lengthy periods of immobilization are emotionally stressful for patients. Immobility related problems include pressure ulcers, pneumonia, constipation, loss of appetite, urinary stasis, urinary track infections and venous stasis or deep vein thrombosis. When the complications due to immobilization are prevented it helps an individual to be physically, emotionally and psychologically sound. These complications can be prevented through simple basic patient care like skincare, active-passive exercises, changing position and deep breathing exercises. Nurses have a key role in prevention of these complications by educating the patients. Hence the study was conducted “To evaluate the effectiveness of structured teaching programme regarding prevention of selected complications among immobilized orthopaedic patients in Government Rajaji Hospital, Madurai.

Methods:

The study involved one group pre-test and post-test without a control group using pre-experimental design, with non-probability sampling technique in which purposive sampling method was used. Information was collected from 50 immobilized orthopaedic patients using the structured interview schedule. STP was implemented and post-test was conducted after 8 days using the same structured interview schedule to find out the effectiveness.

Results:

Majority of respondents (40%) are from the age group of 21-30 years, were male respondents, 64% were married, 30% were illiterate, and 60% of the respondents were laborers. Equal percentage (36% & 46%) of the respondents had a monthly family income of Rs. 3001 to 4000 and Rs. 4001-5000, 90% of the respondents were Hindus. 86% of respondents were taking mixed diet. 60% had compound fracture. The main cause for the fracture was road traffic accident (46 %). Regarding

effectiveness of STP, the overall mean percentage knowledge score in the pre-test was 34.71% and 80.91% in the post-test. The statistical paired 't' test indicates that enhancement in the mean percentage knowledge score was found to be significant at $P \leq 0.05$ percent level for all the aspects under study. There was significant association between the gain in knowledge scores and selected demographic variables with age, gender, education status, monthly income, religion and type of diet at $P \leq 0.05$. The study did indicate non-significant association between knowledge scores and marital status, occupation, type of fractures and causes of fracture.

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CHAPTER I

INTRODUCTION

“An ounce of prevention is better than a pound of cure.”

Immobilization is commonly used practice in the orthopedic department as a method of treatment. The physiological and psychological alterations which result from recumbency can have a drastic effect on the patients. Some authors consider that immobilization may be responsible for many undesirable complications that affect many organs. It increases heart rate, reduces stroke volume and cardiac output and ultimately reduces maximal oxygen uptake by the body. In addition to cardiovascular and pulmonary complications, bed rest and immobility cause loss of bone mass, hypercalcemia and atrophy of skeletal muscle. An immobilized patient may lose 10-15% of muscle strength per week. Besides these adverse physical effects of immobility, patients may experience psychological effects such as restlessness, anxiety, insomnia, depression, decreased concentration and tolerance to pain. Immobility can also be devastating to lung function. Weakened respiratory muscle can hamper chest wall expansion and impede adequate tidal volume for air exchange. Most of these complications can be prevented through meticulous nursing care and continuous observation for signs and symptoms of chest infections and other complications.

Diseases of the musculoskeletal system most often involve motion deficits or functional disorders. A mobile person generally turns approximately once every 1-12 minutes while sleeping. This action provides for healthy blood circulation, stimulation of body organs and movement of body fluids. When a person becomes temporarily or permanently immobilized, however, the blood supply to that part of the body that is under pressure is restricted.

The degree of impairment depends on the specific problem and its severity. Any disease or disability that requires complete bed rest or extremely limits your activity is considered immobility. When someone is immobile, the cells that make bone (osteoblasts) are not able to work as well. In addition, there is more activity of

the cells that breakdown bone (osteoclasts). Studies in people on bed rest have shown drastic bone loss, as great as 10% in the spine and hip in 1 year. During bed rest there is an increased loss of calcium and phosphorus in the urine and often, higher blood calcium levels. If the person regains mobility, many of these blood and urine tests will return to normal and bone loss will stop.

Individuals who are immobile are limited or unable to participate in weight bearing activities. However, the inability to perform weight – bearing activity due to immobility can lead to bone loss. Trauma represents a major public health problem with high morbidity and mortality Motor vehicles crashed are the leading cause of death for 16 to 20 olds. Despite significant overall progress in many other fields, trauma systems in India continue to remain at a formative stage for various reasons. Orthopedic trauma results in significant disability and substantial financial cost.

NEED FOR THE STUDY

“Focus on the Ability and not on the Disability”

Health is a blessing. Physically and mentally a healthy person can be more productive and enjoy all aspects of life. In order to promote health body needs to function optimally. For this, the musculoskeletal system plays an important role.

Problems with the musculoskeletal system are generally not life threatening, but they have a significant effect on the patient’s normal activities and productivity. Mobility refers to a person’s ability to move about freely and immobility refers to the inability to move about freely. There are various complications due to immobility. Include pressure ulcers, pneumonia, constipation, loss of appetite, urinary stasis, urinary tract infection and venous stasis or deep vein thrombosis. An estimated 1.5 to 3 million patients develop pressure ulcer annually (Mayo Clinic Rochester 2001).

Pressure ulcer remains as one of the neglected aspects of health care provision in India. Treating a pressure ulcer incurs considerable cost to the patient and hospital, especially if the pressure ulcer has advanced beyond stage one.

Pneumonia is the most leading cause of death: it is the seventh leading cause of death in the United State resulting in almost 70,000 deaths per year. Preventive measures and timely recognition of signs and symptoms help avert the pulmonary complications. Turning frequently, taking deep breaths every 2 hourly and coughing helps to dislodge mucus plugs. A Dutch study (2005) found that cost associated with care of pressure ulcers were the 3rd highest after those of cancer and cardiovascular diseases.

During the immobilization phase, simple basic patient care is extremely important like skin care, active-passive exercises, changing position, etc. These cares not only contribute to the patient's physical but also psychological well being. Lengthy periods of immobilization are emotionally stressful for patients. Hence when the complications due to immobilization are prevented it helps an individual to be physically, emotionally and psychologically sound.

Pressure ulcers adversely affect the quality of life of many patients and cause anxiety and distress for their families. A study was conducted by Moore. Z. (2004) (Adelaide and Meath Hospital Incorporating the National Children's Hospital, Tallaght, Dublin) regarding effective pressure ulcer management, and it was found that there was improvement in pressure ulcer prevention through education. Therefore this article stresses the need of educating patients in order to prevent complications due to immobility.

Lapsley. M. Helen and Vogel St. Rosina (1992), in their study the average length of stay for all patients was calculated and compared with the average length of stay for all patients who suffered a pressure ulcer. Results indicate that incidence rate reduced when the pressure level was detected earlier. Incidence of complications not only has an adverse outcome result in the patient experiencing pain and discomfort, but also incurs considerable cost both to the patient and the hospital.

The investigator happened to see of 60% patients in the orthopaedic wards were long term immobilized and they developed complications like pressure sores, food drop, constipation and pneumonia. Based on these facts the investigator felt that she was in need to administer a structured teaching programme in order to prevent

complications. The selected complications for the study purpose were pressure sore, pneumonia and constipation.

Statement of the Problem

“A study to evaluate the effectiveness of structured teaching programme regarding prevention of selected complications among immobilized orthopedic patients in Government Rajaji Hospital Madurai.”

Objective of the Study

1. To assess the knowledge regarding prevention of selected Complications among immobilized orthopedic patients.
2. To develop and conduct structured teaching programme regarding prevention of selected complications among immobilized orthopaedic patients.
3. To evaluate the effectiveness of the structured teaching programme regarding prevention of selected complications among immobilized orthopedic patients.
4. To associate between knowledge scores with selected demographic variables.

Operational Definitions

- (a) **Knowledge:** It refers to the correct response given by patients regarding prevention of complication
- (b) **Assess:** It refers to the knowledge of orthopaedic patients regarding prevention of complications.
- (c) **Effectiveness:** It refers to gain in knowledge on prevention of complications among immobilized orthopaedic patients determined by significant difference between pre and post test knowledge.
- (d) **Structured teaching programme:** It refers to the systematically developed instructional method designed for patients to provide information regarding prevention of complication.

- (e) **Selected complications:** It refers to some of the complications among immobilized orthopaedic patients eg. Pressure sores, pneumonia and constipation.
- (f) **Immobilised orthopaedic patients:** It refers to patients affected by injury and unable to move about freely.

Hypotheses

Research Hypotheses

- H₁:** There will be significant association between pre test and post test knowledge scores on prevention of selected complications among immobilized orthopaedic patients.
- H₂:** There will be significant association between post test knowledge scores and selected demographic variables.

Research Variables

1. **Independent variable:** structured teaching programme regarding prevention of selected complications among immobilized orthopaedic patient.
2. **Dependent variable:** Knowledge regarding prevention of selected complications among immobilized orthopaedic patients

Assumptions:

1. The pressure sores pneumonia constipation are common among immobilized client
2. Structure teaching may help to gain knowledge in the prevention of complications.
3. Structured teaching programme has no time limitation and doesn't have any adverse effects.

Limitations of the study

- The study is limited to only immobilized orthopaedic patients
- Patients who are willing to participate in the study.
- Patients who were available at the time of data collection.
- Evaluation of the effectiveness of STP is in terms of knowledge scores.

CHAPTER II

REVIEW OF LITERATURE

Review of literature is a key step in the research process. Review of literature refers to an extensive, exhaustive and systemic examination of publications relevant to the research question to identify what is known and not known about a topic, to identify a conceptual a theoretical tradition within the bodies of literature, and to describe methods of enquiry used in earlier work including their success and short comings.

Review of literature for the study has been organized under the following headings.

1. Literature related to incidence and prevalence of orthopaedic trauma.
2. Literature related to complications of immobility
3. Literature related to prevention of complications of immobilized orthopaedic patients.
4. Literature related to effectiveness of structured teaching programme.

1. Literature related to incident and prevalence of orthopaedic trauma.

Mark R, Daniel , O'Connor. (2004) conducted a study to determine the annual incident rates of non work related traumatic fractures and dislocations. A total of 3440 fractures and 422 dislocations were referred for orthopaedic services during the three year study period. The incident rate of fracture referred for orthopaedic services was 8.47 per 1000 member years, with a significant ($p < 0.0001$) higher rate among males, between the ages of ten and fourteen years had the highest rate of fractures referred for orthopaedic services (21.52 per 1000 members years). The incidence rate of dislocations referred for orthopaedic services was 1.04 per 1000 member – years, which did not differ significantly ($p = 0.75$) between genders. Members between the ages of fifteen and nineteen years had the highest rate of dislocation referred for orthopaedic services (2.75 per 1000 member years)

Nilambar Jha, Chandra Sekhar Agarwal. (2004) Conducted one year study in two hospitals of Eastern Nepal. A total of 870 road traffic accidents (RTAs) victims were reported during the one year study period. The highest (28.6%) percentage of

these cases was in the age group of 20-29 years. The laborers constituted the largest group (27.6%) involved in RTAs, followed by students (24.1%). The highest number (126, 14.5%) of RTA victims was reported in the month of July followed by January. The highest number of accidents occurred on Sundays (30.5%) and Fridays (20.0%) respectively. In the present study, 16.9% drivers were found to have consumed alcohol 2-3 hours prior to the accident. Buses (31.4%) trucks (12.3%) and bicycles (11.3%) were the common vehicles involved in RTAs.

Bruce F.C. Gomberg, Gary S. Gruen, Wade R.Smith, Mary Ann Spot. (2009) did a retrospective review of level I and II trauma admissions with acute orthopaedic injuries over 10 years (1985-1995). Aggregate data were analyzed among five age group. Descriptive analysis were conducted for mechanism of injury, mortality, time of death, injury type, injury severity score (ISS), Glasgow Coma Scale (GCS) in presentation, length of stay (LOS), Discharge destination and hospital charges. Forty six percent of the patients were in the 18-35 year old age group. However 21% of all patients were older than 65 years o age at the time of injury. Injury types were similar across all age groups mostly extremity fractures. Younger patients were more likely to be injured in a motor vehicle accident (MVA) whereas older patients were injured in a fall. Hospital charges per hospitalization increased with age, although the total charges to the youngest age group were higher due to the group's high volume.

Srinivasan D.K. Gautam Roy, S.Jagdish (2004) conducted study on epidemiological factors related to road traffic accident. 726 road traffic victims reported in one year period: study variables were demographic characteristics of the victims, time, day, month of accidents, type of accident and vehicle involved in accidents. The result reveal that there were 83% male and 17% female accident victims. Laborers were the highest (29.9%) among the victims. The highest number of accidents took place in the month of January (12.9%) and on Sundays (17.1%). The occupants of the various vehicles constituted the large (45%) group of the victims. Among the motorized vehicles, two wheeler drivers were more (31.1%) involved in accidents.

2. Literature Related to Complications of Immobility

William Bart on (2010) conducted a study to observe the effect of nursing intervention on constipation of the sickbed patients in department of orthopedics N=80. Shown that Result 5 patients had constipation in observation group after nursing intervention while 27 patients in control group after routine nursing; the nursing effect of observation group was much superior to that of control group ($P < 0.01$). The results showed that nursing intervention can reduce the incidence of constipation.

Joost. J. etal (2010) conducted a prospective cohort study N: 239. Data from all patients undergoing halo-vest immobilization were collected prospectively, and every complication was recorded. The primary outcome was the presence or absence of complications. Univariate regression analysis and regression modeling were used to analyze the results.

The author suggested that there are relatively low rates of mortality and pneumonia during halo-vest immobilization, and elderly patients do not have an increased risk of pneumonia or death related to halo-vest immobilization.

Xias etal (2008) conducted a qualitative review to compare various criteria of diagnosing VAP in the intensive care unit (ICU) with a special emphasis on the value of clinical diagnosis, microbiological culture techniques, and biomarkers of host response N= 25.

A MEDLINE search was performed using the keyword 'Ventilator associated pneumonia 'AND' diagnosis'. Predefined variables were collected, including year of publication, study design (prospective / retrospective), number of patients included, and disease group. 159 articles were chosen for detailed review of the full text. A total of 64 articles fulfilled the inclusion criteria and were included in our review. Clinical criteria, used in combination, may be helpful in diagnosing VAP, however, the considerable inter-observer variability and the moderate performances should be taken in account. Bacteriologic data do not increase the accuracy of diagnosis as compared to clinical diagnosis. Quantitative cultures obtained by different methods seem to be rather equivalent in diagnosing VAP. Blood cultures are relatively insensitive to diagnose pneumonia.

Baumgarten M, Margolis DJ, Orwig DL, Shardell MD, Hawkes WG, Lengenber P et.al (2009) conducted prospective study indicating that the elderly with hip fracture have greater risk for pressure sores N = 658. In 658 study participants, the APU cumulative incident at 32 days after initial hospital admission was 36.1% (standard error 2.5%). The adjusted APU incident rate was highest during the initial acute hospital stay (relative risk (RR)=2.2, 95% CI=1-4.2%).the relative risks in rehabilitation and nursing home settings were 1.4 (95% CI=0.8 – 2.3) and 1.3 (95% CI=2.1) respectively. Approximately one third of hip fracture patients developed an APU during the study period. Hip fracture patients constitute an important group to target for pressure ulcer prevention in hospitals.

Morad N, Nelson NP, Merrick.J, Davidson PW, Carmeli. E (2007) did a study to examine the prevalence and risk factors for constipation in a large sample of 2400 persons with intellectual disability (ID) aged 40 years and older living in residential care centers in Israel. Constipation was found in 8% of the total sample with no significant increase in the prevalence of constipation with age. Neurological disease, cerebral palsy, immobility and physical inactivity were risk factors associated with constipation. Mobility and physical activity is recommended in order to lower the prevalence of constipation in this population.

Chauhan VS, Goel S, Kumar P, Srivastava S, Shukla VK (2005) conducted a cross sectional study in a university hospital in Varanasi, India to estimate the prevalence of pressure ulcers in hospitalized patients and any underlying or predisposing factors to ulceration N=445. The results showed that the prevalence of pressure ulcers was high (4.94%). Anaemia, malnutrition and diabetes were important risk factors, while morbidity due to pressure ulcers in long-stay wards, such as neurology was exceptionally high (40.9%) Therefore pressure ulcers remain one of the most neglected aspects of health – care provision in India and identifying their associated risk factors at an early stage may go a long way in preventing their occurrence.

Pecina M. Smoljanovic T, Cievara – Pecina T, Tomak – Roksandic S. (2005) conducted a study osteoporosis in the elderly at Croatia. Epidemiologically consequences of injury, their complications, from reduced mobility, pressure sores,

contractures, infections and hypostatic pneumonia are strongly emphasized in the elderly. 17% of Croatian populations were over 60 years. 5489 hip fracture cases were registered and 382 of them died from fracture complications.

Lindgren M, Unosson M, Fredrikson M, Ek AC (2004) conducted a study to identify risk factors associated with pressure ulcer development N=530. The risk assessment scale used was the Risk assessment pressure Sore (RAPS) scale, including the following variables; general physical condition. Activity, mobility, moisture, food intake, fluid intake, sensory perception, friction and shear, body temperature and serum albumin.

In the multiple logistic regression analyses – immobility emerged as a strong risk factor. When adding the remaining significant variables in the analyses, mobility, time of hospitalization, age, surgical treatment and weight were found to be risk factors for pressure ulcer development. It is confirmed that immobility is a risk factor of major importance for pressure ulcer development among adult hospitalized patients.

3. Literature related to prevention of complications of immobilized among Orthopaedic patients

Ami Hommel, Karin B Bjorkelund, Karl-Goran Thorngren M, Kerstin Ulander (2007) conducted a study on patients with hip fractures N=478. The results from the first 210 patients in the control group and the last 210 patients in the intervention group are presented in this article. In the intervention group, hospital acquired pressure ulcers decreased by 50% ($p < 0.007$). It is possible to reduce the development of hospital acquired pressure ulcers among elderly patients with a hip fracture even though it is not possible to eliminate the effect of factors such as increased age and the patient's medical status which are often the two main risk factors.

Carina Baath, Marie-Louise Hall –Lord, Inger Johansson and Bodil Wilde Larsson. (2007) conducted a study in Sweden to describe and compare documented nursing assessment and care of skin in hip fracture patients in two settings. A retrospective review was made of 170 inpatient records from one country

hospital (hospital A) and two hospitals (hospital B) all in one country council in Sweden.

This study highlights the need for continuous audit of patient records with feedback to registered nurses (RNs) in order to follow the quality indicators and national principle for pressure ulcer prevention.

Rosemary Masterson. (2006) conducted a study on the women with fractures of the hi or wrist each year as a result of osteoporosis. This study investigates the knowledge levels of females aged 55 and over about the effects, risk factors and prevention of osteoporosis. A descriptive survey design and a convenience sample of 60 female orthopaedic patients were used. Data was collected with a questionnaire and analyzed using descriptive statistics. Findings indicated that the women displayed a low level of knowledge with regard to the subject matter. If women are made aware of the effects, the risk factors and preventative behaviors associated with osteoporosis, they may engage in self-care behaviors that will help prevent osteoporosis and thus prevent the complications.

Madhuri Reddy, Sudeep S. Gill, paula A. Rochon.(2006) conducted a study on prevention of pressure ulcers. Fifty –nine RCTs (randomized controlled trails) were selected. Interventions assessed in these studies were grouped into 3 categories, ie, those addressing impairments in mobility, nutrition, or skin health. Methodological quality for the RCTs was variable and generally suboptimal. Effective strategies that addressed impaired mobility included the use of support surfaces, mattress overlays on operating tables, and specialized foam and specialized sheepskin overlays. While repositioning is a mainstay in most pressure ulcer prevention protocols. In patients with nutritional impairments, dietary supplements way is beneficial.

The study reveals that repositioning the patient, optimizing nutritional status, and moisturizing sacral skin were appropriate strategies to prevent pressure ulcers. Although a number of RTCs have evaluated strategies for pressure ulcers, many of them had important methodological limitations.

Kerstin Ulander, Larl-Goren Thorngren, Aml Hollel. (2004) conducted quasi experimental study on a sample of 480 patients with hip fracture.

The results showed that the male/female ratio was in the control group 30/70% and in the intervention group 35/65%. Mean age was in the control group 81.5 years (SD 10.5) and 80.1 years (SD 10.4) in the intervention group. There were no patients with pressure ulcer on other places in the control group; while it was 0.5% in the intervention group. At discharge 15% versus 7.5% of the patients had a pressure ulcer at buttock. Six percent versus 3% of the patients had a pressure ulcer at heels of 3% versus 2.5% suffered from a pressure ulcer at other places. None of the patients in the intervention group had a pressure ulcer after four months. The results indicate the importance of the intervention since the development of pressure ulcer was reduced by 50% at discharge and at follow up after four months.

Kamel HK, Iqbal MA, Mogallapu R, Mass D. Hoffmann RG (2005) conducted a study on time to ambulation after hip surgery: relation to hospitalization outcomes. The main aim was to test how the time to ambulation (walking) after hip fracture surgery impacts the frequency of postoperative complications and length of hospital stay. A retrospective observational study was done. A total of 131 participants were identified (68% were aged 65 years or older). The results showed that time to ambulation after surgery was an independent predictor for the development of pneumonia (1.5 OR [odd ratio]/day. P.001), new onset delirium (1.7 OR/day, p.001) and to prolonged length of hospital stay (B [slope coefficient] = 1.36, .001). To conclude that delayed ambulation after hip fracture surgery is related to the development of new onset delirium and pneumonia postoperatively as well as increased length of hospital stay. Early ambulation after hip fracture should be encouraged.

Kerry Houghton Peregrina, Donna Gillies B (2005) conducted a small study on patients with Thomas splint which was used to immobilize the fractures femur. Results suggest that the duration between pressure cares may be reduced from 2 to 6 h (possibly 4 h). Thus reducing the risks associated with movement of the fractured leg.

DeSouza Sheila Melba. (2007) study was to assess the effectiveness of nursing interventions in alleviating the problem as perceived by 50 hospitalised orthopaedic patient selected through convenience sampling. A descriptive exploratory

approach was adopted. NS9 Intention interview schedule with 90 items and a checklist with a three-point rating was designed. Findings of the study were: the most perceived problem was urinary retention (46%) and the least was diarrhea (8%). Pain was the most frequent complaint of the patients (92%), 14% had foot drop, 8% had no family support, 30% of the patient had financial problems, 20% of the patient were unhappy with nurses' attitude and lack of information about their condition. The most effective nursing measure in relieving anorexia was ensuring food was provided in a clean and pleasant environment (50%). Administration of stool softeners or enema was the most effective measure in relieving constipation (100%). Most effective nursing care in alleviation retention was offering urinal and privacy during urination (100%). There was no association between the perceived problems and the variables, age, duration of stay, and the type of immobility of the patient. There was no association between the perceived problems and sex. There was no significant relationship between the perceived biophysical and psychosocial problems.

Ouellet LL, Turner TR, Pond S, McLaughlin H, Knorr S. (2006) conducted quasi experimental study on orthopedic patients. The addition of wheat fiber in the diet of post-surgical orthopedic patient as a means of preventing constipation was studied using a quasi-experimental design. It was hypothesized that a 20 gm supplement of all bran and natural bran would promote spontaneous bowel movements, reduce the incidence of constipation, and thus decrease the need for elimination interventions. The results show that the study group had more spontaneous bowel movements and required fewer elimination interventions than did the control group.

Ross DG (2006) did an exploratory study compared a group of 154 elderly with 149 middle – aged subject from two northern New England hospitals. Analysis included descriptive statistics, t-tests, and multiple regressions. Multiple regression analysis was used to examine controlling for effects of gender, severity of illness, functional status, and cognitive status; producing a significant coefficient for only the elderly ($R^2 = 0.13, .01$) Therefore, these results support the supposition that activity and diet play a greater role in changes in bowel elimination pattern for elderly patients than middle aged admitted to an acute care hospital.

3. Literature related to effectiveness of structured teaching programme

Thomas, Karen, M, Sethares, Kristen A. (2008) evaluated the effect of a preoperative interdisciplinary educational intervention on understanding postoperative expectations following a total joint arthroplasty N=156. The study demonstrated that the preoperative interdisciplinary educational program for patients scheduled for total joint replacement surgery had a positive effect on the understanding of postoperative expectations. The educational sessions have continued providing an option that will enhance preoperative education.

Rankinen S, Salanterä S, Heikkinen K, Johansson K, Kaljones A, Vietanen H et.al (2007) conducted a study on the surgical patients to assess their knowledge. The aim was to compare surgical patients' knowledge expectations at admission with knowledge they received during their hospital stay. The study used a descriptive and comparative design N=237. The result showed that surgical patients felt they received less knowledge than they felt expected on the bio-psychosocial, functional, experimental, ethical dimensions of knowledge . in conclusion the results highlighted the need for improved patient education and the need to receive knowledge.

Skalska A, Grodzicki T. (2005) carried out a study on the prevention pressure ulcer and evaluation of awareness in the families of patients at risk. 62 caregivers (78% family member and 22% non-related) filled out the questionnaire related to the prevention and treatment of pressure sores. The result showed that only 11% knew about the pressure ulcer, 42% of care givers were not aware of the possible pressure ulcers causes, and 54.8% were not able to mention any pressure ulcer risk factors. They concluded that the families and care givers bedridden patients have insufficient knowledge of pressure ulcer prevention, indicating the need of providing knowledge regarding pressure ulcer prevention.

Indumathi R. (2005) carried out a study to assess the effectiveness of structured teaching programme on prevention of deep vein thrombosis among orthopaedic patients with injury of the lower extremities in selected hospitals in Bangalore N=50. The findings of the study revealed that the mean post test score of

25.20 of the subjects was higher than the mean pre test knowledge score of 19.68 and was significant ($t=17.999, P<0.001$), the mean post test knowledge score of 24.96 of the subjects was higher than the mean pre test knowledge scores of 10.66 and was significant ($t=21.384, P<1.001$)

Roopa Lakshmi MR. (2005) conducted a study on the effectiveness of planned nursing intervention on early detection of selected malignancies of females among female high school teachers of selected high schools of Bangalore. From the findings it is clear that the mean test knowledge score 77.7% of experimental group was significantly higher than that of pre test knowledge score 37.8%. This indicates that planned teaching programme is effective in increasing the knowledge among the patients.

Kirsi Johansson, Sanna Salanterä, Joukko Katajisto, Helena Leino-Kilpi (2007) conducted a study to assess patient knowledge regarding orthopaedic patients (response rate 81%) and 56 nurses (response rate 67%) on three orthopaedic wards in a Finnish university hospital in 2001. Data were collected using two parallel, purpose – designed, mainly structured questionnaires. Personal discussions, written material and demonstration/ knowledge, were the most commonly used educational methods, while videos and PCs were seldom used. Patients knowledge about their care was quite sufficient, but in matters concerning unwanted effects of treatment and potential problems it was inadequate. According to nurses self assessments, their educational skills were best in the area of mastering the content and poorest in that of using different educational methods. The result indicated that both the content and methods of orthopaedic patient education should be developed.

Lewis Cindy, Kathy, Wong Dianne. (2007) compared the outcomes of preoperative education provided in a non interactive versus an interactive DVD program $N=58$. Convenience sample of 58 elective joint replacement patients were selected. Subjects were randomly assigned to the video or DVD group. Measurements included post education test of knowledge, patient satisfaction questionnaire, and post discharge collection of data on physical therapy participation, complication, pain behavior and length of stay.

The result showed that the participants in the DVD group had satisfactory higher knowledge scores and significantly more physical therapy visits. No satisfaction significant differences were noted in pain behaviors, rate of complications, patients satisfaction or length of stay.

Conceptual Framework

The conceptual framework represents a less formal attempt at organizing a phenomenon. Conceptual model deals with concepts that are used as building blocks and provide a conceptual perspective regarding interrelated phenomena which are closely structured.

The purpose of conceptual framework is to provide a logical and coherent basis through which phenomenon of concern can be understood and discussed.

The conceptual frame work for this study was developed by the investigator adopted from Pender's (1996) health promotion model. It was designed to be a complementary counterpart to models of health protection: health promotion is directed at increasing client levels of well being.

Pender's health promotion model seeks to increase individual health promotion activities. The model focuses on cognitive, perceptual and modifying factors and participation in health promotion behavior. The model also identifies factors that influence the health promotion activities.

This model focus on three functions

1. It identifies the factors e.g. (demographic data) that enhance or decrease participation in health promotion.
2. Cues to action (explains the likelihood of a client participating in STP which includes general information about complications of immobility and prevention of these complications)
3. Participation in health promotion behavior explains, gains knowledge related to prevention of selected complications among immobilized orthopaedic patients.

In the present study, the concepts from Pender's health promotion model is utilized where the immobilized orthopaedic patients act as an agent with their knowledge regarding prevention of complications.

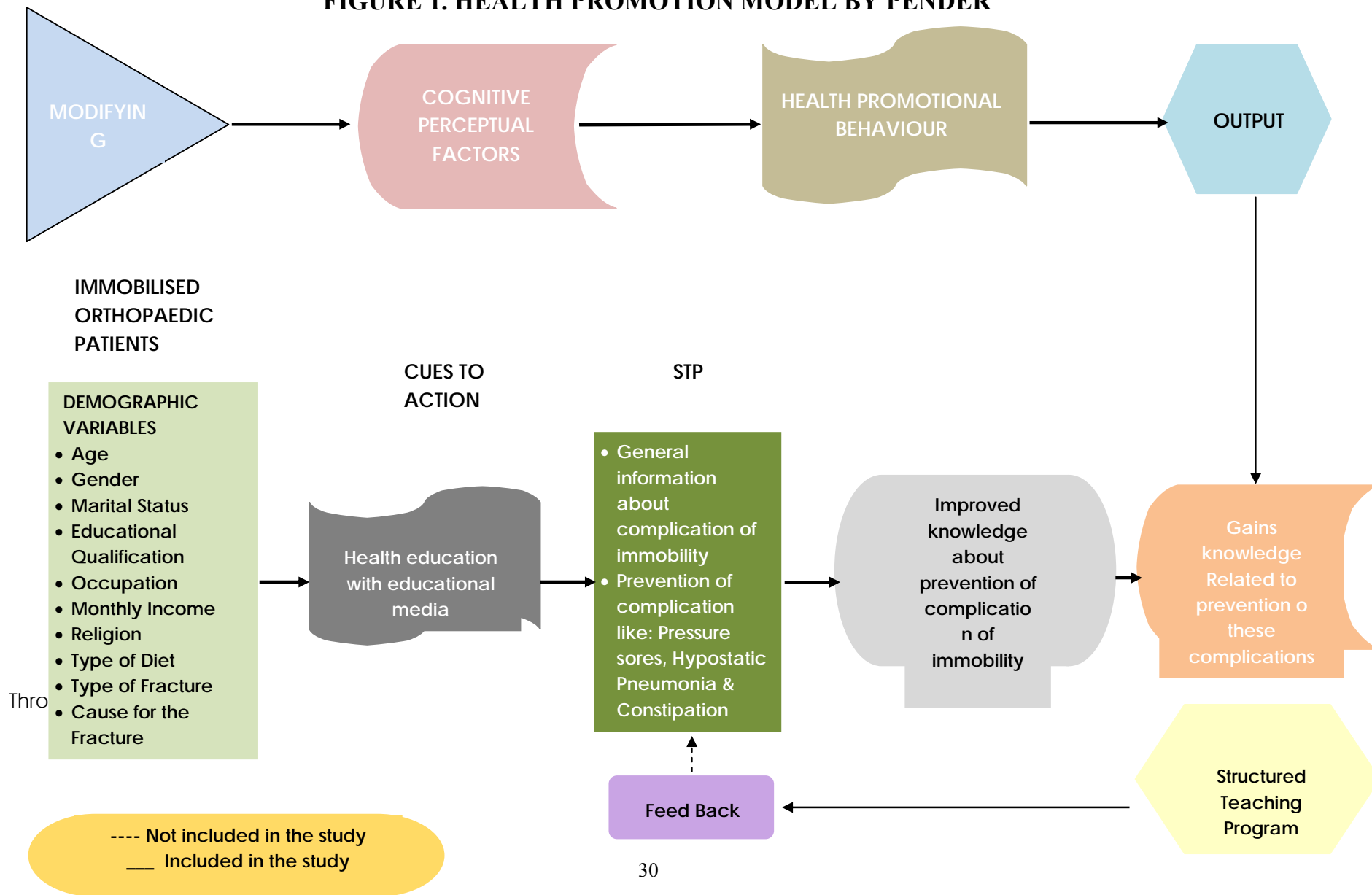
The focus of the model is to explain the factors that influence the knowledge of immobilized orthopaedic patients regarding prevention of complications.

Health promotion behavior of the patient in prevention of these complications are influenced by many factors such as age, gender, family income per month, religion, education, marital status, occupation, type of fracture and causes of fracture.

If the immobilized orthopaedic patient has adequate knowledge regarding prevention of complications (cognitive perceptual factors), she/he is likely to engage in health promotional activity. If the knowledge of the patients regarding prevention of complications due to immobility are inadequate, the health promotion behavior is interrupted which leads to increase in severity of the disease.

The findings of this study would assist in identification of the immobilized orthopaedic patient's knowledge regarding prevention of complication and preparation of structured teaching programme intervention for effective identification of deviation from normal.

FIGURE 1. HEALTH PROMOTION MODEL BY PENDER



CHAPTER III

METHODOLOGY

This chapter deals with the description of research methodology adopted by the investigator. Methodology is a systematic way to solve research problems. It helps the researcher to project a blue print of the research undertaken. Research methodology involves the systematic procedure by the researcher, which starts from initial identification of the problem to its final conclusion. The methodology of research indicates the general pattern of organizing the procedure for gathering valid and reliable data for the purpose of investigation. The study conducted was to evaluate the effectiveness of STP regarding prevention of complication among immobilized orthopaedic patients.

The steps undertaken for gathering and organizing the data collected were; research approach, research design, setting, population, sample and sampling techniques, criteria for selection of samples development and description of tools, pilot study, data collection and plan for data analysis.

1. Research Approach

Evaluative Approach was used in this study.

2. Research Design

Quasi experimental one group pre-test and post-test design was selected in order to evaluate the effectiveness of selected specific intervention.

3. Variables

Independent variables (IV) : Knowledge, attitude about he complication
of Immobilization clients.

Dependent variables (DV) : Structured teaching programme

Attribute variables (AV) : Personal characteristics which include age, gender, religion, marital status, diet, educational qualification, occupation, income, type of fracture and cause for the fracture.

Setting of the study

The study was conducted in the Orthopaedic wards of Govt Rajaji Hospital, Madurai. The ward consist of 500 beds. Among them male, female ratio would be 2:1. The average study of the patient will be 30 days and more. Familiarly with the setting and availability of the required sample were also considered while selecting the study group.

a) Population

Target Population:

Immobilized patients admitted at orthopaedic ward of Govt. Rajaji Hospital Madurai.

Accessible Population

Immobilised orthopaedic clients who have complication such as constipation, pneumonia, Bedsore

Net to Population

Sample

Samples was the immobilized orthopaedic patients with complication of bedsore, constipation and pneumonia

Sample Size

The sample size was 50

Sampling Technique

Purposive sampling

b) Criteria for Selection of the Sample

Inclusion criteria

- Immobilized orthopaedic patients who are willing to participate in the study and who consented to participate in the study
- Immobilized orthopaedic patients who can communicate in Tamil or English

Exclusion criteria:

- Orthopaedic patients who are critically ill
- Patients who are immobilized due to multiple system problem

4. Selection and Development of Tool

A structural interview schedule was selected for the study. It was considered to be the most appropriate instrument to elicit the response from subjects who are not able to read Tamil/ English

A. Development of Tool

A structured interview schedule was prepared to assess knowledge regarding prevention of complications among immobilized orthopedic patients. The steps carried out preparing the tools are:

- Literature review
- Preparation of blue print
- Establishment of validity and reliability

a. Review of Literature

Review of literature from books, journals, published and unpublished research studies were reviewed and used to develop the tool.

b. Description of the Tool

Part –I: consists of 10 items related to socio demographic data of the subjects such as age, gender, family income per month, religion, marital status, type of family, occupation, education, type of fracture and cause of the fracture.

Part –II: structured schedule consists of 34 items on knowledge about fracture and prevention of its complications. Each item of the schedule has one correct answer, every correct answer would fetch one mark, and the score of the knowledge schedule is 34.

Section –A: Consists of 9 (26.5%) items regarding general information about fracture and its complications.

Section-B: Consists of 8(23.5%) items regarding pressure sores and its prevention.

Section –C: Consists of 9 (26.5%) items regarding hypostatic pneumonia and its prevention

Section-D: Consists of 8(23.5%) items regarding constipation and its prevention.

Scoring of the Items

Each correct answer was given a score of ‘one’ mark and wrong answers ‘zero’ score.

$$\text{Percentage} = \frac{\text{obtained score}}{\text{Total Score}} \times 100$$

To find out the association with the selected variables, the knowledge aspect was categorized into three groups.

- Below 50% = Inadequate knowledge
- 51-75% = Moderate knowledge
- Above 75% = Adequate knowledge

c. Content Validity of the Tool

The prepared blue print of the tool along with objectives of the study was submitted to the experts for content validity. Six experts from the Nursing faculty and one doctor and statistician validated the tool content. The suggestions given by them were incorporated and the tool was modified.

d. Reliability of the Tool

The tool after validation was subjected to test for its reliability. The structure interview schedule was administered to 5 samples. The reliability of the tool is compound by using split half Karl Pearson’s correlation formula (raw score method) The reliability of Split Half test was found using Karl Pearson correlation by deviation method.

$$R = \frac{2r}{1 + r}$$

R – reliability co efficient of correlation of whole test

R – reliability co efficient of correlation of half test

The reliability co efficient on knowledge found to be 0.93 and validity co efficient worked to be 0.98 revealing the tool is feasible for administration for the main study. Since the knowledge reliability co efficient for scale $r > \underline{0.70}$. The tool was found to be reliable and feasible.

B. Development of Structured Teaching Programme (STP)

The structured teaching programme was developed based on the review of the related research/non-research literature and the objectives stated in the blue print.

The following steps were adopted to develop the STP

- Development of content blue print
- Development of STP
- Establishment of content validity of STP
- Pre – testing of STP

Content Blue Print

A blue print of objectives and content items pertaining to knowledge regarding prevention of complications among immobilized orthopaedic patients was prepared for the construction of structured interview schedule. Objectives were distributed under the following learning areas.

- Complications among immobilized orthopaedic patients
- Prevention of complications like pressure sores, hypostatic pneumonia and constipation. The same print was considered for the construction of STP

Preparation of Selected Specific Nursing Intervention

i) **Preparation of first draft of STP:** a first draft of STP was developed, keeping in mind the objectives, criteria checklist, literature reviewed and the opinion of experts. The main factors that were kept in mind while preparing STP were: literacy level of the sample, method of teaching to be adopted, simplicity of language, relevance of teaching aids and attention span of orthopaedic patients.

ii) **Description of Structured Teaching Programme:** The STP was titled “concept of fracture, complications due to immobilization and its prevention.” The STP was structured for one session, which was prepared to enhance knowledge of orthopaedic regarding prevention of complications. It consists of the following content area:

- Concept of fracture
- Complications due to immobilization
- Prevention of pressure sores
- Prevention of Hypostatic pneumonia
- Prevention of constipation

Pilot study

A pilot study was conducted from 22.10.10 to 29.10.10 at Rajaji Hospital, Madurai. Administrative approval was obtained from the Medical Superintendent to conduct the pilot study and the main study. The purpose of the pilot study was to:

- Evaluate the effectiveness of STP
- Find out the feasibility of conducting the final study and
- Determine the method of statistical analysis

Five immobilized orthopaedic patients were selected conveniently for 2 days that is two patients on day 1 and three patients on day 2, on day 1, the two patients were interviewed with a structured schedule and pre test was conducted. On the same day, STP was administered for 45 min. On day 2, three patients were interviewed, pre-test was conducted and on the same days STP was administered by using the same structured questionnaire to evaluate the effectiveness of STP on the knowledge regarding prevention of complications among immobilized orthopaedic patients.

The mean percentage knowledge score in post test (82.35%) was higher than the mean percentage knowledge score in pre test (42.9%). The enhancement mean percentage knowledge scores (37.6%) were found to be significant at 5% ($P < 0.05$) level. The findings of the Pilot study revealed that the study is feasible.

5. Procedure for Data Collection

The data was collected from 15.11.10 to 15.12.10

Plan of Data Analysis

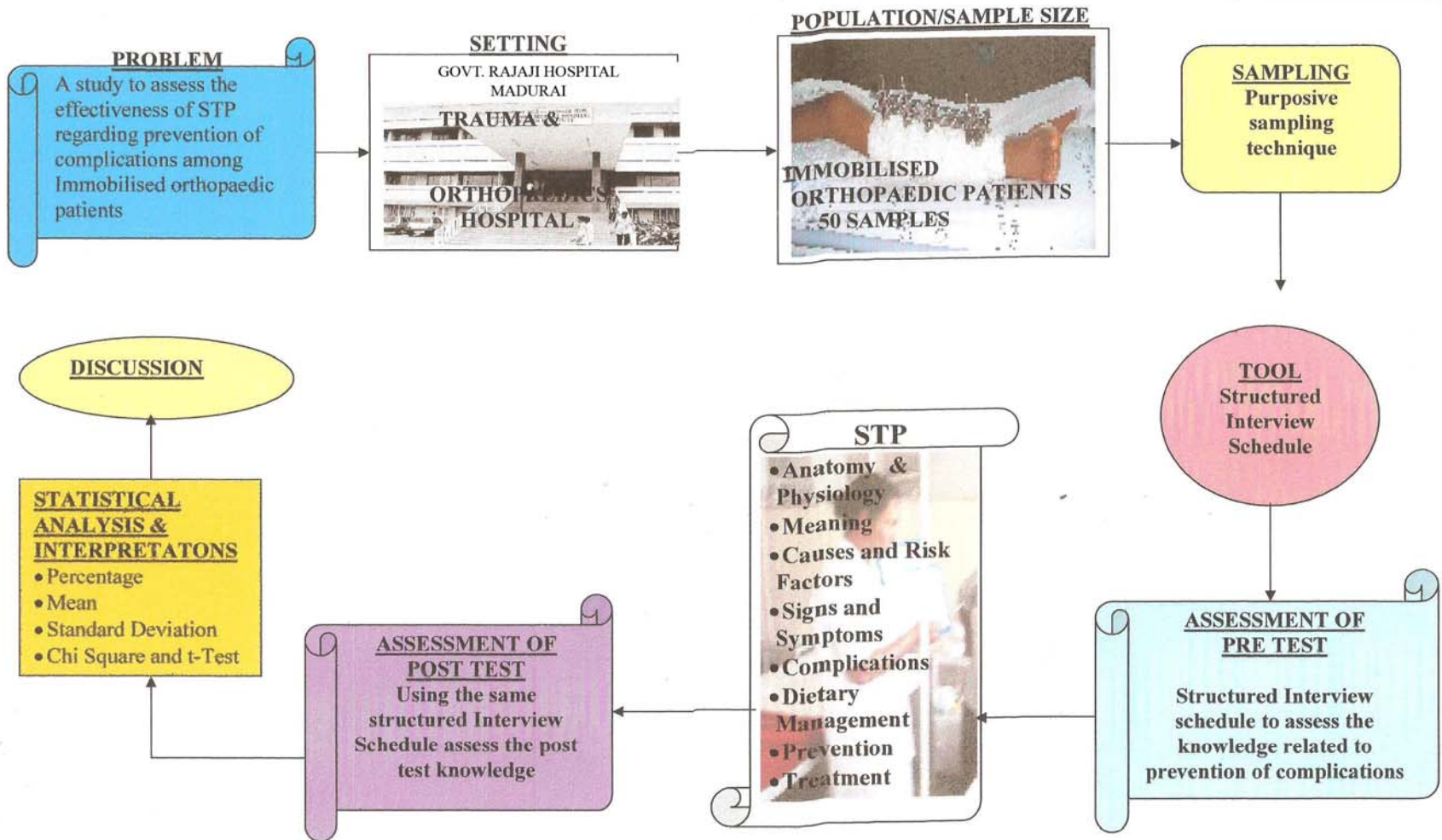
The data obtained was analysed in terms of achieving the objections of the study using descriptive and inferential statistics. Statistical Analysis of Data includes:

- Organization of data in master sheet
- Frequencies and percentage to be used for analysis of demographic characteristics.
- Calculation of mean, standard deviation of pre test and post test scores
- Application of paired't test to ascertain whether there is significant difference in the mean knowledge score or pre test and post test values.
- Application of chi-square to find the association between demographic variables with knowledge scores.

Protection of Human Subjects

The proposed study was conducted after the approval of dissertation committee of the college of nursing permission was obtained from the principal of the college of nursing. Due consent was obtained from the head of the medical surgical nursing department for the pilot study and main study oral consent of each subject was obtained before starting the data collections and assurance was given to them that the anonymity of each individual would be maintained.

FIGURE 2 - SCHEMATIC REPRESENTATION



CHAPTER IV

DATA ANALYSIS AND INTERVENTION

This chapter deals with analysis and interpretation of the study in order to evaluate the effectiveness of the structured teaching programme regarding prevention of complications among immobilized orthopedic patients. The analyzed data were tabulated and presented according to the objectives.

Objectives of the study

1. To assess the knowledge regarding prevention of selected complications among immobilized orthopedic patients.
2. To develop and conduct structured teaching programme regarding prevention of selected complications among immobilized orthopedic patients.
3. To evaluate the effectiveness of the structured teaching programme regarding prevention of selected complications.
4. To associate between knowledge scores with selected demographic variables.

Presentation of Data

To begin with, data were entered in a master sheet, for tabulation and statistical processing. The findings were in a master sheet for tabulation and statistical processing. The findings were presented under the following headings.

Section –I:

Distribution of respondents according to demographic variables.

Section-II:

- A. Aspect wise distribution of scores during pre - test and post – test.
- B. Association between pre – test and post – test knowledge scores.
- C. Association between knowledge levels with demographic Variables.
- D. Item wise distribution of knowledge scores in pre–test and post–test.

SECTION - I

n=50

Table I: Classification of Respondents by Age, Gender, Marital Status, Educational Status and Occupation			
CHARACTERISTICS	CATEGORY	RESPONDENTS	
		NUMBER	PERCENT
AGE GROUP (YEARS)	21-30	20	40
	31-50	19	38
	51-65	11	22
GENDER	MALE	32	64
	FEMALE	18	36
MARITAL STATUS	MARRIED	30	60
	UN MARRIED	20	40
EDUCATIONAL STATUS	ILLITERATE	15	30
	PRIMARY	14	28
	SECONDARY	12	24
	PUC	9	18
OCCUPATION	HOUSEWIFE	4	8
	LABOURER	30	60
	BUSINESS	10	20
	GOVERNMENT	6	12
MONTHLY INCOME	Rs2001-3000	9	18
	Rs3001-4000	18	36
	Rs4001-500	23	46
RELIGION	HINDU	45	90
	MUSLIM	5	10
TYPE OF DIET	VEGETARION	7	14
	MIXED	43	86
TYPE OF FRACTURE	SIMPLE	20	40
	COMPOUND	30	60
CAUSE OF FRACTURE	ROAD TRAFFIC ACCIDENT	23	46
	FRACTURE DUE TO FALL	15	30
	PATHAOLOGICAL FRACTURE	12	24
TOTAL		50	100

Table I reveals that distribution of respondents by age, gender, marital status, education status and occupation.

The result indicate that 40% of respondents were in the age group of 21 – 30 years followed by 38% in the age group of 31-50 years and 22% in the age group of 51-60 years.

In relation to gender, majority (64%) of respondents were males as compared to females (36%) in the study group.

Regarding marital status, 60% of respondents were married 40% of the respondents were unmarried. With respect to educational status, 30% of the respondents were illiterate. 28% had primary education, 24% of respondents has completed secondary education and 18% of respondents has PUC qualification.

The study indicates that 82% of respondents Rs. 3001- 4000 have monthly income of and 18% had monthly income of 2001-3000.

Regarding type of religion 90% of respondents were followed Hinduism and only 10% were Muslims.

With respect to the type of diet, majority of the respondents 86% were consuming mixed diet and 14% of the respondents were vegetarian.

In relation to the type of fracture, 60% of respondents have compound fracture, and 40% of the respondents had simple fracture.

With regard to the cause of the fracture, majority 46% of the respondents has road traffic accidents, followed by 30% of the respondents had fracture due to fall and 24% of the respondents have fracture due to pathological causes.

Fig: 3 Distribution of respondents based on the age group in years

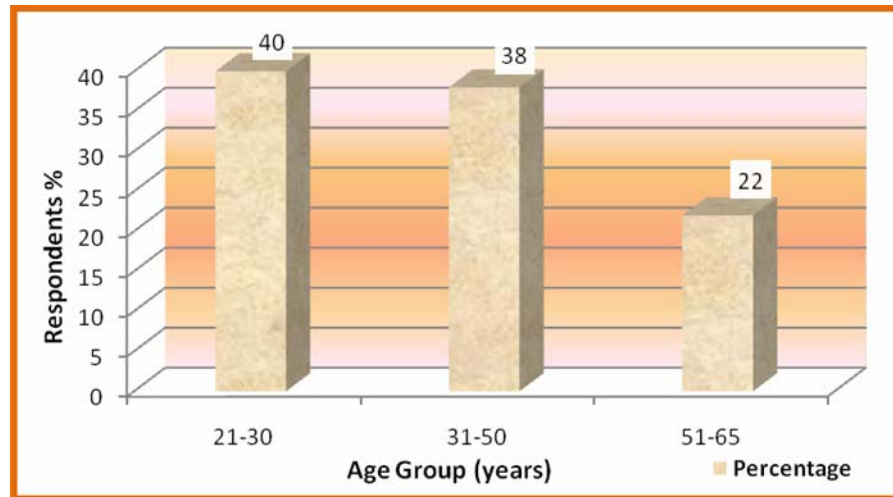


Figure 3 shows 40% respondents were in the age group of 21 – 30 Years.

Fig: 4 Distribution of respondents based on the gender

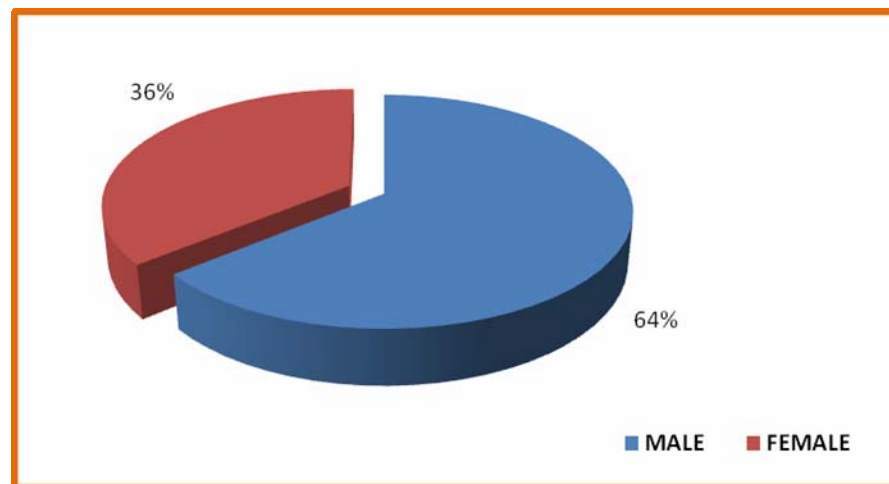


Figure 4 shows Majority of 64% of respondent were males as compared to females 36% in the study group.

Fig 5: Distribution of respondents based on the Marital Status

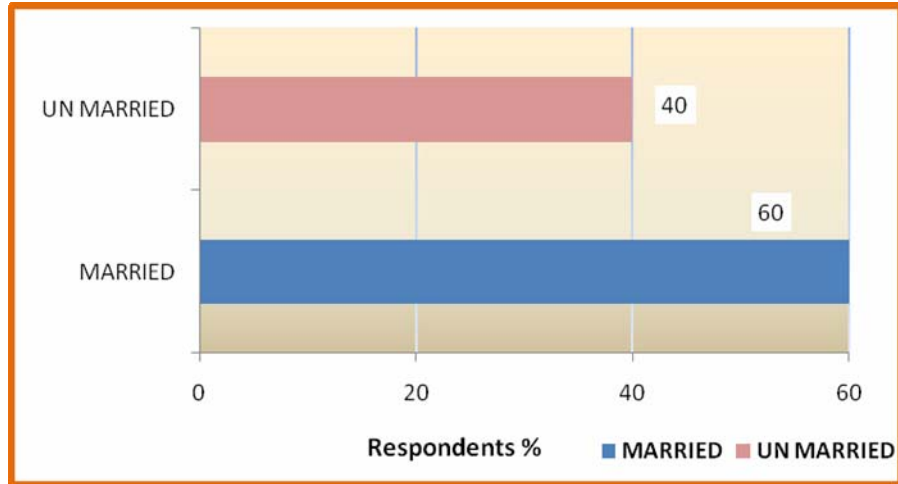


Figure 5 shows that high in married 60% and in low unmarried 40%

Fig:6 Distribution of respondents based on the Educational status

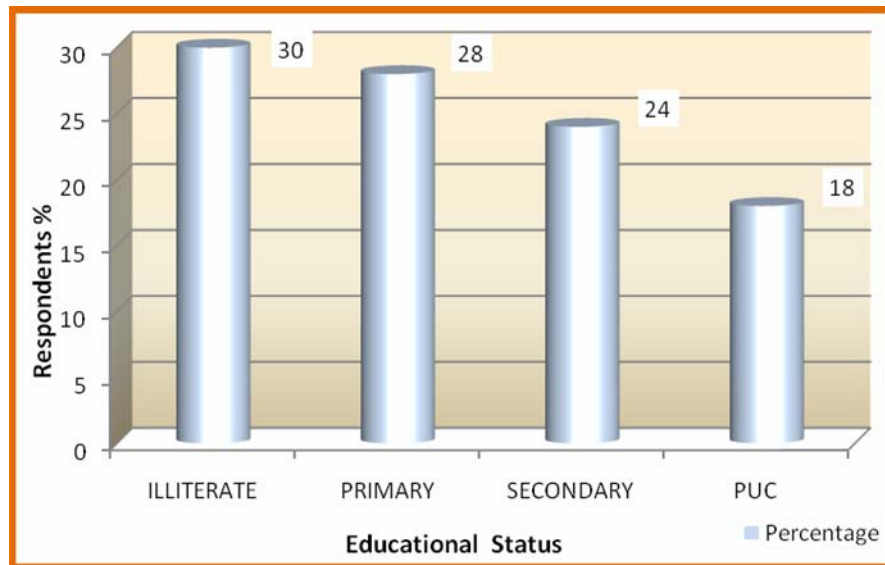


Figure 6 shows that high Illiterate 30% primary 28% Secondary 24% and low in PUC 18%

Fig: 7 Distribution of respondents based on the Occupation

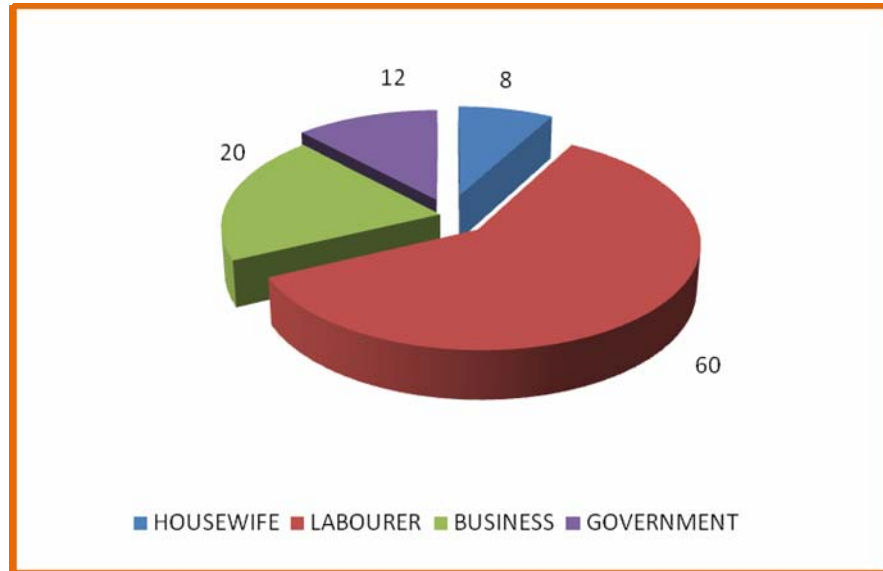


Figure 7 shows that majority of respondents or house wife 60%, labour 20%, business 12% and least respondents are Government employee 8%

Fig:8 Distribution of respondents based on the Monthly Income

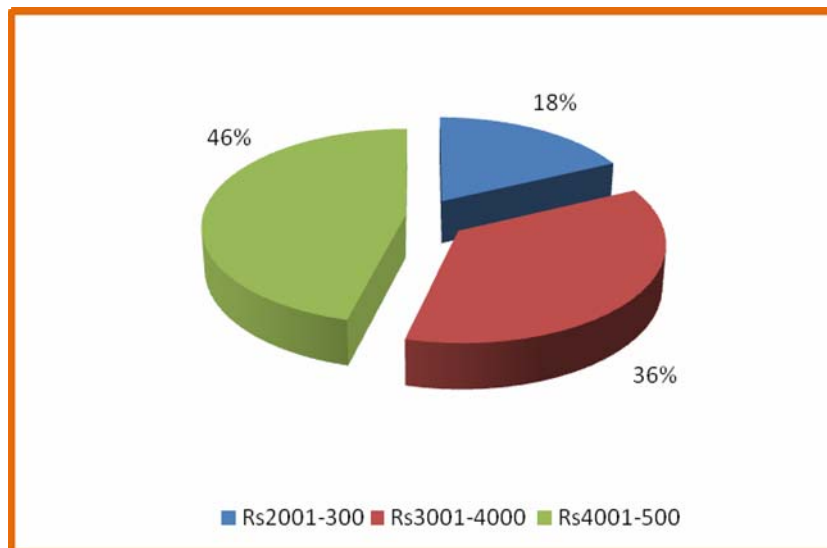


Figure 8 shows that majority of the respondents are having monthly income in high in the range of Rs. 2001-3000 46%, 3001-4000 in moderate 36% and low in the range of Rs. 4001-5000 is 18%

Fig: 9 Distribution of respondents based on the Religion and Diet

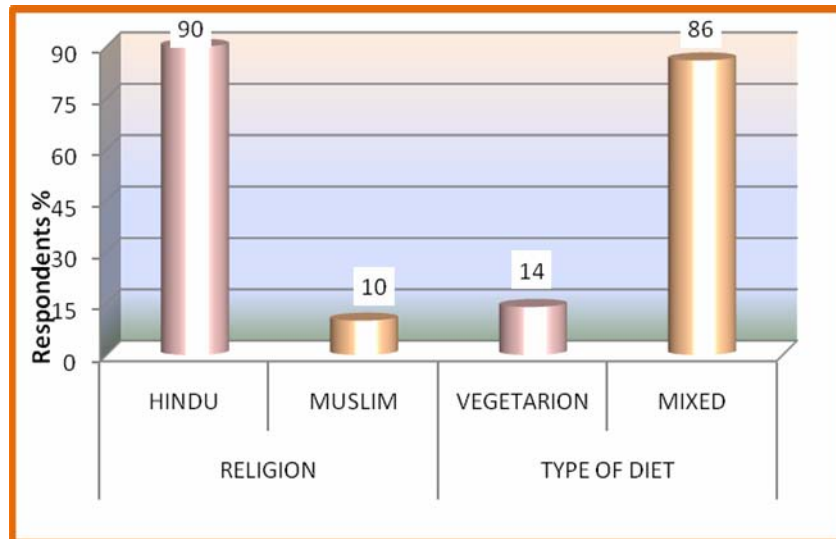


Figure 9 shows that are high in Hindu in 90% and low 10% in muslim concerning with religion. It is concerned with type of diet high in mixed 86% and low in vegetarian 14%

Fig: 10 Distribution of respondents based on the type of fracture

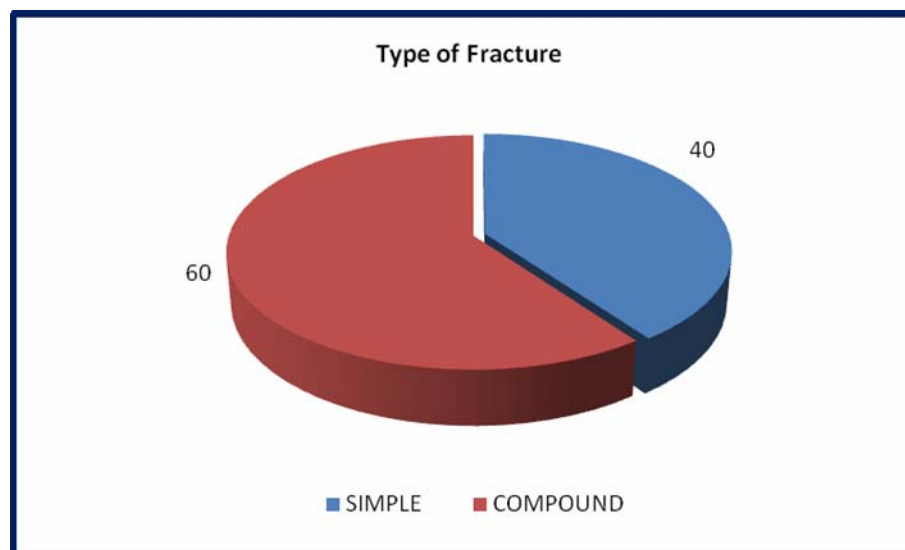


Figure 10 shows that is concern high in simple 60% and low in compound 40%

Fig: 11 Distribution of respondents based on the causes of the fracture

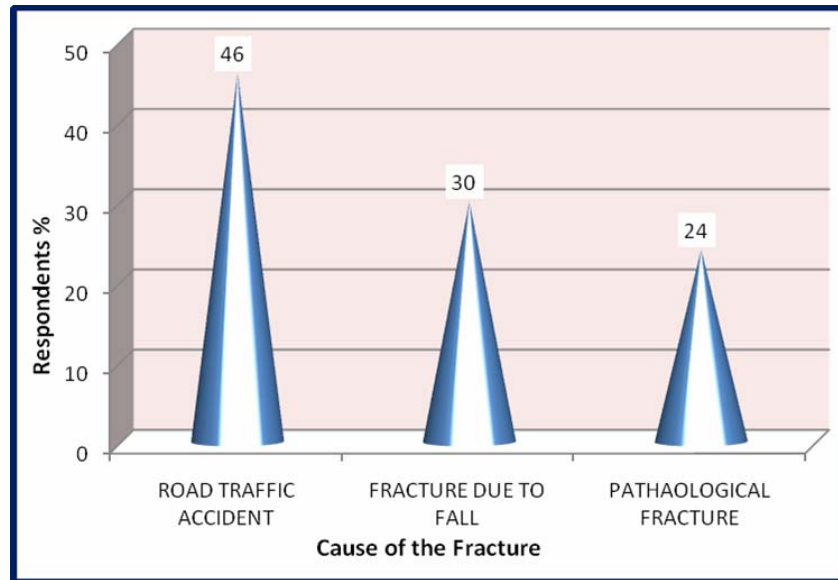


Figure 11 shows that is concern high in RTA 46%, moderate in Fracture due to fall 30% and low in pathological fracture 24%

**Table – 2: PRETEST AND POSTEST MEAN KNOWLEDGE SCORES ON
SELECTED COMPLICATIONS AMONG IMMOBILIZED
ORTHOPAEDIC PATIENTS**

Pretest and Posttest

NO	KNOWLEDGE ASPECTS	STATEMENTS	MAX SCORE	KNOWLEDGE SCORES		
				MEAN	MEAN (%)	SD (%)
1	GENERAL INFORMATION	8	8	2.5	31.3	28.9
2	PRESSURE SCORE AND ITS PREVENTNS	8	8	2.9	36.3	27.5
3	ITS PREVENTIONS	10	10	3.4	34	24.4
4	CONSTIPATION AND ITS PREVENTION	9	9	3.35	37.2	24.4
5	COMBINED	35	35	12.15	34.71	26.2
6	GENERAL INFORMATION	8	8	5.75	71.88	14.13
7	PRESSURE SCORE AND ITS PREVENTIONS	8	8	6.9	86.25	9.38
8	HYPOTSTATIC PNEUMONIA AND ITS PREVENTIONS	10	10	8.05	80.5	11.4
9	CONSTIPATION AND ITS REVENTIONS	9	9	7.62	84.67	8.11
10	COMBINED	35	35	28.32	80.91	11.3

Table 2– reveals aspect wise pre-test mean percentage knowledge score on selected complications among immobilized orthopaedic patients.

Aspect wise mean percentage knowledge score on selected complications of immobilized orthopaedic patients from the respondents. The highest mean, 34% knowledge score was obtained regarding the component on prevention of Hypostatic Pneumonia, followed by 37.2 mean percentage knowledge score on constipation and its prevention.

The mean percentage knowledge score on prevention of pressure scores was found to be 36.3% and 31.3% mean percentage on the general information.

However, the overall pre-test mean percentage knowledge score was found to be 34.71% 26.2 percentages among the respondents.

The results of aspect wise post-test Mean percentage knowledge scores on complications due to immobilization of orthopaedic patients are depicted in table 4.

The highest 85.8 mean percentage knowledge score was found in prevention of constipation followed by 81.7 percentage mean knowledge score in general in formations related to prevention of complications due to immobilization 83.5 mean percentage knowledge score was found in prevention of pressure scores and 80.6 mean percentage on prevention of hypostatic pneumonia.

However, the overall post-mean percentage knowledge score was found to be 82.9 percentage 9.1 percentage among the respondents.

B. ASSOCIATION BETWEEN PRETEST AND POST TEST KNOWLEDGE SCORES

N=50

Table – 3: Over all Pre test and Post test Mean knowledge on selected complications among Immobilized orthopaedic patient

ASPECTS	MAX SCORE	RESPONDENTS KNOWLEDGW SCORES			PAIRED 't' TEST
		MEAN	MEAN(%)	SD(%)	
PRE TEST	36	12.15	34.71	26.2	13.64*
POST TEST	35	28.32	80.91	11.3	
ENHANCEMENT	35	16.17	46.2	14.9	

*** SIGNIFICANT AT P ≤ 0.05 LEVEL.**

t(0.05,49df)=1.96

Table 3 indicates the overall mean percentage knowledge scores of pre-test and post-test on ill effect of smoking.

The findings in the Table 5 and Figure 12 reveals that the post-test mean percentage knowledge score was found higher (mean percentage = 80.91 and SD percentage = 11.3) when compared with pre-test mean percentage knowledge score value which was 34.71 percentage with SD of 26.2 percentage (mean knowledge enhancement score was 46.2%).

The statistical paired 't' test implies that the difference in pre-test and post-test value was found statistically significant at 5% level (p<0.05) with a paired 't' test value of 13.64 there exists a statistical significant in the enhancement of knowledge score indicating the positive impact of intervention programme.

Fig: 12 Overall Pretest and Posttest mean knowledge on selected complications among immobilized orthopaedic patients

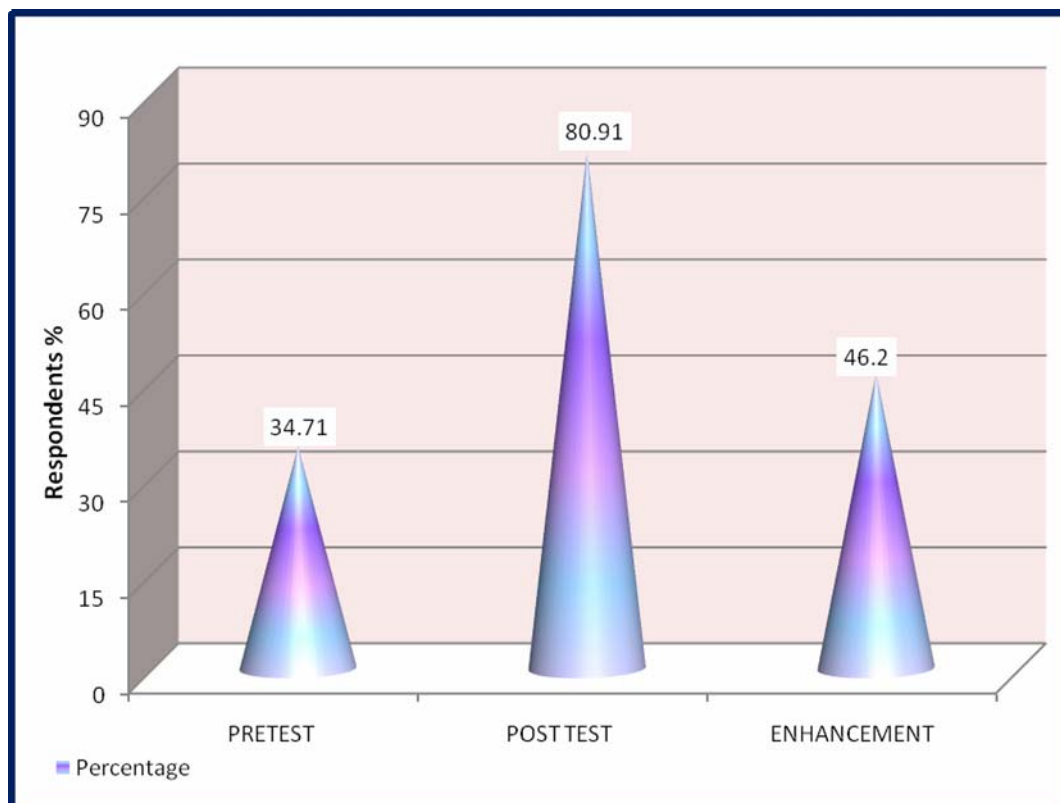


Figure 12 shows that are in pretest 34.71% and posttest 80.91 and there is an enhancement of 46.2%

Table – 4: Aspect wise Enhancement of mean percentage knowledge scores on selected complications among immobilized orthopaedic patients								
NO	KNOWLEDGE ASPECTS	STATEMENTS	MAX SCORE	KNOWLEDGE SCORES				Paired "t" Test
		PRE TEST		POST TEST		ENHANCEMENT		
		MEAN (%)	SD (%)	MEAN (%)	SD (%)	MEAN (%)	SD %	
I	GENERAL INFORMATION	31.3	28.9	71.88	14.13	40.58	14.77	19.12*
II	PRESSURE SORE AND ITS PREVENTIONS	36.3	27.5	86.25	9.38	49.95	18.32	16.94*
III	HYPOSTATIC PNEUMONIA AND ITS PREVENTIONS	34	24.4	80.5	11.4	46.5	13	23.98*
IV	CONSTIPATION AND ITS PREVENTION	37.2	24.4	84.67	8.11	47.47	16.29	23.04*
	COMBINED	34.71	26.2	80.93	11.3	46.22	14.9	13.64*

*Significant at $P \leq 0.05$ level.

$t(0.05, 49df) = 1.96$

Table 4 depicts the aspect wise pre-test, post-test and enhancement of knowledge scores on selected complications among immobilized orthopaedic patients.

The findings in the Table 6 and Figure 13 reveal that in the aspect of general information related to complications of immobilized orthopaedic patients pre-test mean percentage knowledge score was 31.3 percentage. Whereas, in the aspect of pressure scores the pre-test mean percentage knowledge score was 36.3 percentage in post-test with 47.5 with an enhancement knowledge by 40.56 percentage of enhancement in the knowledge.

Further in the aspect of prevention of hypostatic pneumonia, the pre-test mean percentage knowledge score was 34percentage and 80.5 percentage in post-test with an enhancement in the knowledge by 46.5 percentage. With regard to the prevention of constipation the pre-test mean percentage knowledge score was 37.2 and 84.67 percentage in post – test with an enhancement in the knowledge by 47.47 percentage.

The overall mean percentage knowledge score in pre-test was 34.71 percentage and 80.93 percentage in post-test with an enhancement of 46.22 percentage. The statistical paired ‘t’ test indicates the enhancement in the mean

percentage knowledge scores found to be significant at $P \leq 0.05$ level for all the aspects under the study.

Fig: 13 Aspect wise enhancement of mean percentage knowledge scores on selected complications among immobilized orthopaedic patients

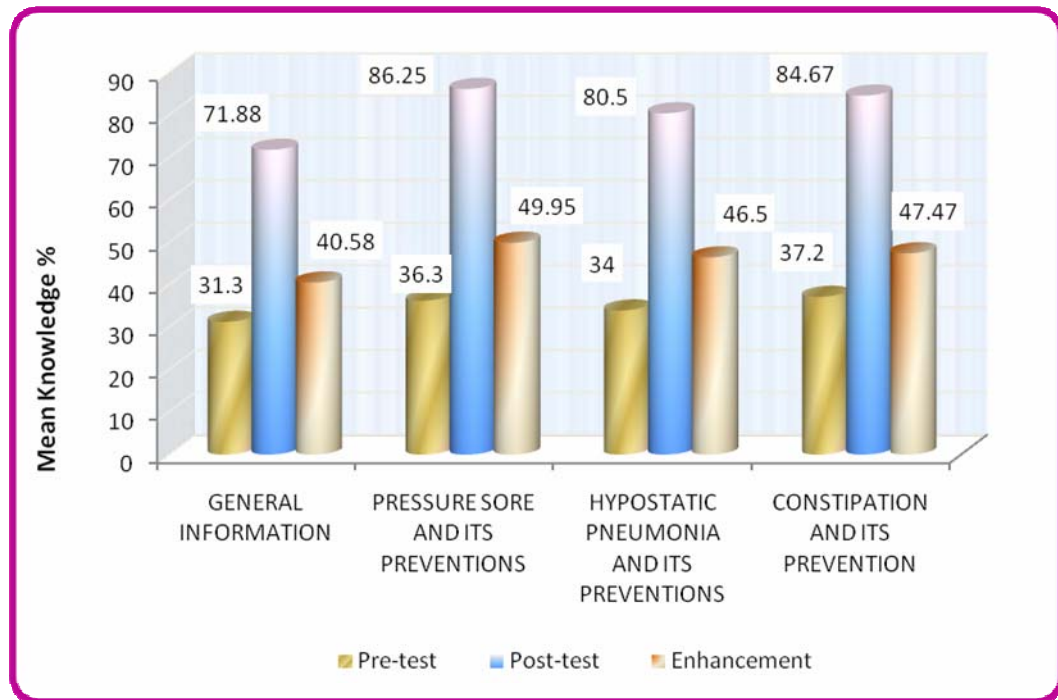


TABLE 5: Classification of respondent's knowledge level on prevention of selected complications				
Knowledge Level	Classification of Respondents			
	Pre Test		Post Test	
	Number	Percent	Number	Percent
Inadequate (<50%)	35	70	0	0
Moderate (51-60%)	15	30	13	26
Adequate (> 75%)	0	0	37	74
Total	50	100	50	100
Chi Square Value	40.036*			

* Significant at $P \leq 0.05$ level

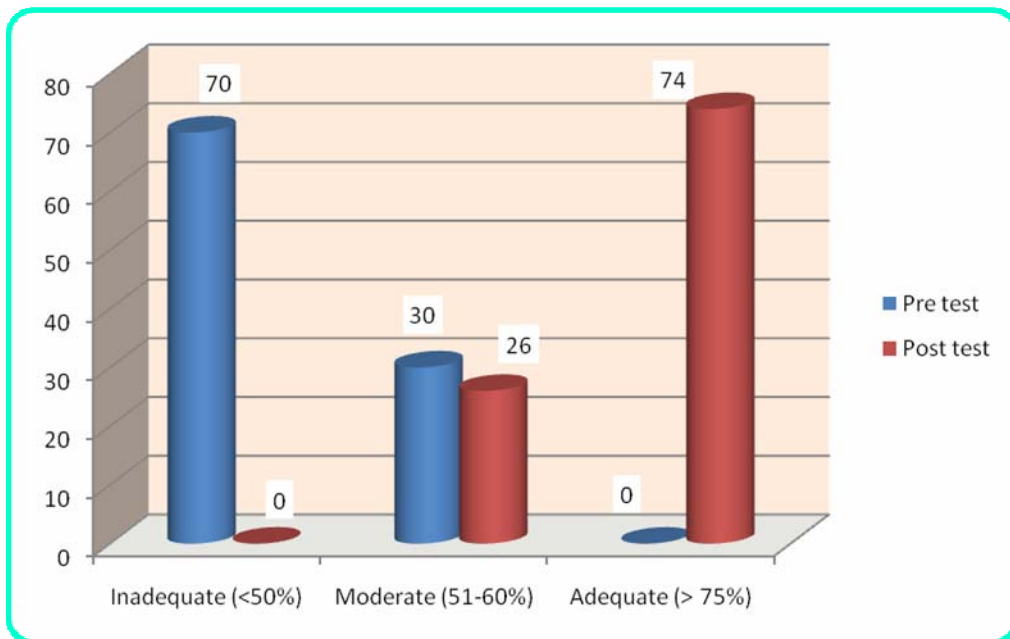
$$X^2 = (0.05, 2df) = 5.991$$

Classification of respondents knowledge level on selected complications among immobilized orthopaedic patients in table 7.

Table 5 and Figure 14 reveal that pre-test result shows 70 percentage of the respondents possess inadequate knowledge and remaining 30 percentage of the respondents possess moderate knowledge. Whereas, in the post – test results 74 percentage of them had adequate knowledge and 26 percentage and moderate knowledge.

However, the Chi square test indicates the significant difference in the knowledge level of respondents on selected complications among immobilized orthopaedic patients ($X^2 = 74.16, P < 0.05$)

Fig: 14 Classification of knowledge level of respondents on prevention of selected complications



C. Association between pre-test and post-test scores with selected demographic variables

N = 50

TABLE 6: Association between Age and Knowledge level of Respondents on prevention of selected complications													
AGE	SAMPLE (n)	KNOWLEDGE LEVEL OF RESPONDENTS								X² Value		Level of Significant	
		PRE TEST				POST TEST							
INADEQUATE		MODERATE		MODERATE		ADEQUATE		Pre	Post	Pre	Post		
N		%	N	%	N	%	N	%					
21-30 Years	20	10	50	10	50	5	25	15	75				
31-50 Years	19	15	78.95	4	21.05	7	36.84	12	63.16				
51-65 Years	11	10	90.91	1	9.09	1	9.09	10	90.91				
		$X^2 (0.05, 2df) = 5.991$								6.89	2.99	S	S
Gender													
MALE	32	21	65.63	11	34.38	8	25	24	75				
FEMALE	18	14	77.78	4	22.22	5	27.8	13	72.2				
		$X^2 (0.05, 1.4) = 3.841$								0.81	0.044	S	S
Marital Status													
Married	30	25	83.3	5	16.7	6	20	24	80				
Un Married	20	13	65	7	35	8	40	12	60				
		$X^2 (0.05, 1df) = 3.841$								0.81	0.044	NS	S

Educational Status													
ILLITERATE	15	13	86.67	2	13.33	9	60	6	40				
PRIMARY	14	13	92.86	1	7.14	1	7.1	13	92.9				
SECONDARY	12	7	58.33	5	41.67	2	16.7	10	83.3				
PUC	9	2	22.22	7	77.78	1	11.1	8	86.9				
	$X^2 (0.05, 3df) = 7.815$									17.21	13.18	NS	NS
Occupation													
HOUSE WIFE	4	2	50.00	2	50.00	1	25.00	3	75.00				
LABOURER	30	24	80.00	6	20.00	9	30.00	21	70.00				
BUSINESS	10	8	80.00	2	20.00	2	20.00	8	80.00				
GOVERNMENT	6	1	16.67	5	83.33	1	16.07	5	83.00				
	$X^2 (0.053df) = 7.815$									10.79	3.395	NS	S
Monthly Income													
2001-3000	9	7	77.78	2	22.22	5	55.6	4	44.4				
3001-4000	18	14	77.78	4	22.22	6	33.3	12	66.7				
4001-5000	23	14	60.87	9	39.13	2	8.7	21	91.3				
	$X^2 (0.65, 2df) = 5.991$									6.614	0.7	NS	NS
Religion													
HINDU	45	34	75.55	11	24.44	11	24.4	34	75.6				

MUSLIM	5	1	20	4	80	2	40	3	60				
	$X^2 (0.05, df) = 3.841$									6.614	0.7	NS	NS
Type of Diet													
VEGETARION	7	6	85.71	1	14.29	1	14.3	6	85.7				
MIXED	43	29	67.44	14	32.56	12	27.9	31	72.1				
	$X^2 (0.05, 1df) = 3.841$									0.96	0.58	NS	NS
Type of Fracture													
SIMPLE	20	14	70	6	30	5	25	15	75				
COMPOUND	30	21	70	9	30	8	26.7	22	73.3				
	$X^2 (0.05, 1df) = 3.841$									0.4	0.02	S	S
Causes of Fracture													
ROAD TRAFFIC ACCIDENT	23	18	78.26	5	21.74	7	30.4	16	69.6				
FALL	15	12	80	3	20	3	20	12	80				
PATHOLOGICAL	12	5	41.67	7	58.33	3	25	9	75				
	$X^2 (0.05, 2df) = 5.991$									6.05	0.52	S	S

The table number 6 shows that there exists a significant association between pretest and posttest in the type of fracture and causes of fracture. Also there exists a significant association in the post test in respect of the demographic variables like Age, Gender, Marital Status and Occupation. It indicates that there exists a nonsignificant association between pretest and post test important of demographic variable like educational status, monthly income, religion and type of diet.

Table 6 and depicts the association between age and knowledge level of respondents. Out of 20 respondents who belong to age group of 21-30 years of age 50 percentage (10) belong to moderate level of knowledge in the pre-test, whereas, in the post-test 75 percentage (15) belong to adequate level of knowledge. Out of 19 respondents who belong to 31-50 years of age 21.05 percentage (4) belong to moderate level of knowledge in the pre-test whereas, in the post-test 63.16 percentage (12) belong to adequate level of knowledge. Out of 11 respondents who belong to 51-65 years of age. 9.09 percentage (1) respondents belong to moderate level of knowledge in the pre-test 90.91 percentage (10) belong to adequate level of knowledge.

The pre-test and post-test knowledge scores of respondents by age are subjected to χ^2 test. There exists a significant association in pre-test [$\chi^2 = 9.22$, $p > 0.05$], post-test [$\chi^2 = 9.40$, $p > 0.05$] between age and knowledge level of respondents.

The association between gender and knowledge level of respondents in pre and post-tests on selected complications among immobilized orthopaedic patients.

In the results of pre-test out of the 32 male respondents 65.63 percentage (21) respondents had inadequate knowledge and 34.38 percentage (11) male respondents have moderate knowledge. Out of 18 female respondents 77.78 percentage (14) respondents had inadequate knowledge and 22.22 percentage (4) had moderate knowledge on selected complications among immobilized orthopaedic patients.

Whereas, in the results of post-test out of 32 male respondents 25 percentage (8) had moderate knowledge and 75 percentage (24) male respondents had adequate knowledge. Out of 18 female respondents 27.8 percentage (5) respondents had moderate knowledge and 72.2 percentage (13) had adequate knowledge on complications due to immobilization.

The pre-test and post-test knowledge scores of respondents by gender was subjected to χ^2 test. There exists a non-significant association in pre-test

[$\chi^2=0.08, p>0.05$], post-test $\chi^2=4.96, p>0.05$] indicating association between gender and knowledge of respondents.

The association between marital status and knowledge level of respondents in pre-test and post-tests on complications related to immobilization among orthopaedic patients.

Whereas, in the results of pre-test out of 30 married respondents who 83.3 percentage (25) respondents had inadequate knowledge and 16.7 percentage (5) respondents had moderate knowledge. Out of 20 unmarried respondents 65 percentage (13) respondents had inadequate knowledge and 35 percentage (7) had moderate knowledge on prevention of complications among immobilized orthopaedic patients.

Whereas in the results of post-test out of 30 married respondents 80 percentage (24) respondents had adequate knowledge. Out of 20 unmarried respondents 40 percentage (12) respondents had moderate knowledge and 72 percentage (36) had adequate knowledge on prevention of complications among immobilized orthopaedic patients.

The pre-test and post-test knowledge scores of respondents by marital status are subjected to χ^2 test. There pre-test and post-test knowledge scores of respondents by marital status are subjected to χ^2 test. There exists a non-significant association in pre-test [$\chi^2= 0.97, p>0.05$], post-test [$\chi^2=1.19, p>0.05$] between marital status and knowledge of respondents.

The Association between Educational status and Knowledge level of respondents on prevention of selected complications

The out of the 14 respondents who had primary education. 92.86 percentage (13) had inadequate knowledge and 7.14 percentage (1) had moderate knowledge level in pre – test where as 73.3 percentage (11) had adequate knowledge in the post – test, out of 12 respondents who had secondary education, 41.67 percentage (10) had moderate knowledge in pre –test whereas, in post – test 83.3percentage (10) has adequate knowledge, out of 9 respondents who had studied PUC, 77.78 percentage (7) had moderate knowledge in pre-test. Remaining 15 respondents were illiterate having 86.67 percentage (13) of inadequate knowledge in pre –test whereas, adequate 40 percentage (6) exhibited adequate knowledge in post – test.

The pre-test and post-test knowledge score of respondent's educational status is subjected to X^2 test. There exists a significant association in pre-test and post-test between respondent's educational status and knowledge of respondents.

The association between occupation and knowledge level of respondents.

In the results of pre-test out of the 4 respondents (housewives), 50.00 percentage (2) respondents had inadequate knowledge and 50 percentage (2) respondents had moderate knowledge. Out of 30 respondents who were laborers 80.00percentage (24) respondents had inadequate knowledge and 20.00 percentage (6) had moderate knowledge on prevention of complications.

Among the (10) business men, 80.00 percentage (8) had inadequate knowledge and 16.67 percentage of the Government employees had inadequate knowledge.

Whereas, in the results of post-test 75.00 percentage (3) respondents (housewives) had adequate knowledge. Out of 30 laborers 70.00 percentage (21) had adequate knowledge and 10 respondents who were businessmen, 20.0 percentage (2) had moderate knowledge whereas 80.0 percentage (8) had adequate knowledge. Among the 6 Government employees 16.01 percentage (1) had moderate knowledge and 83 percentage (5) had adequate knowledge on prevention of complications among immobilized orthopaedic patients. The pre-test and post-test knowledge scores of respondents by occupation was subjected to X^2 test. There exists a significant association in pre-test [$X^2 = 10.0$, $p < 0.05$] post test [$X^2 = 1.01$, $p > 0.05$] between marital status and knowledge of respondents.

The association between family income and knowledge level of respondents in pre and post-tests on prevention of complications among immobilized orthopaedic patients.

Out of 9 respondents whose family income was between Rs.2001-3000, 77.78 percentage (7) had inadequate knowledge in pre-test whereas, in post-test 55.6 percentage (5) had moderate knowledge. Out of 18 respondents whose family income was between Rs.3001- 4000, 77.78 percentage (14) had inadequate knowledge in pre-test whereas, in post-test 66.7 percentage (12) had adequate knowledge. Out of 23 respondents whose family income was between Rs.4001-5000, 60.84 percentage (14) had inadequate knowledge in pre-test whereas, in post-test 91.3 percentage (21) has adequate knowledge.

The pre-test and post-test knowledge score of respondents by family income is subjected to χ^2 test. There exists a non-significant association in pre-test [$\chi^2 = 1.87, > 0.05$] and post-test [$\chi^2 = 8.58, < 0.05$] between family income and knowledge of respondents.

The association between religion and knowledge level of respondents, in pre and post-tests on prevention of complications among immobilized orthopaedic patients.

In the results of pre-test out of the 45 respondents who belong to Hindu religion 75.55 percentage (34) had inadequate knowledge and 24.44 percentage (11) respondents had moderate knowledge. Out of 5 respondents who belong to Muslim religion 80.0 percentage (4) had moderate knowledge on prevention of complications among immobilized orthopaedic patients.

Whereas, in the results of post-test out of 45 respondents who belong to Hindu religion 24.4 percentage (11) respondents had moderate knowledge and 75.6 percentage (34) respondents had adequate knowledge. Out of 5 respondents who belong to Muslim religion 40.0 percentage (2) had moderate knowledge and 60.0 percentage (3) had adequate knowledge on the prevention of complication among immobilized orthopaedic patients.

The pre-test and post-test knowledge scores of respondents by religion are subjected to χ^2 test. There exists a non-significant association in pre-test [$\chi^2 = 1.87, > 0.05$] and significant association in post-test [$\chi^2 = 8.58^*, p < 0.05$] between religion and knowledge of respondents.

The association between Type of diet and knowledge level of respondents in pre-test and post-tests on prevention of complication among immobilized orthopaedic patients.

In the results of pre-test out of 7 respondents who consumer vegetarian diet, 85.71 percentage (6) had inadequate knowledge and 14.29 percentage (1) had moderate knowledge. Out of 43 respondents who consume mixed diet 67.44 percentage (29) had inadequate knowledge and 32.56 percentage (14) had moderate knowledge.

The pre-test and post-test knowledge score of respondents by type of diet is subjected to χ^2 test. There exists a non-significant association in pre-test [$\chi^2 = 1.00, p > 0.05$] and post-test [$\chi^2 = 4.27, p < 0.05$] between type of diet and knowledge of respondents.

The association between Type of Fracture and knowledge level of respondents in pre-test and post-tests on prevention of complication among immobilized orthopaedic patients.

In the results of pre-test out of 20 respondents who had simple fracture, 70.0 percentages (14) had inadequate knowledge and 30 percentage (6) had moderate knowledge. Out of 30 respondents who had compound fracture 70.0 percentage (21) had inadequate knowledge and 30. percentage (9) had moderate knowledge.

The pre-test and post-test knowledge score of respondents by type of fracture is subjected to X^2 test. There exists a non- significant association in pre-test [$X^2 = 0.01, p > 0.05$] and post-test [$X^2 = 0.01, p > 0.05$] between type of diet and knowledge of respondents.

The association between causes of Fracture and knowledge level of respondents. Out of 23 respondents who had traffic accident 21.74 percentage (5) had moderate level of knowledge In the pre-test whereas, in the post-test 69.6 percentage (16) had adequate level of knowledge. Out of 15 respondents who had fracture due to fall, 20.0 percentage (3) respondents had moderate level of knowledge in the pre-test as compared to post-test 80.0 percentage (12) had adequate level of knowledge. Out of 12 respondents who were immobilized due to pathological fracture 41.67 percentage (5) had moderate level of knowledge in the pre-test, whereas, in the post-test 75.00 percentage (9) had adequate level of knowledge.

The pre-test and post-test knowledge score of respondents by causes for immobilization are subjected to X^2 test. There exists a non- significant association in pre-test [$X^2 = 1.24, p > 0.05$] and post-test [$X^2 = 0.82, p > 0.05$] between type of diet and knowledge of respondents.

CHAPTER V

DISCUSSION

Orthopaedic trauma is a major public-health problem with high morbidity and mortality. Immobilization may consist of applying cast or traction, or using equipment, such as orthopaedic frames or Ciro-O-Lectric beds. It can lead to complications like pressure sores, hypostatic pneumonia and constipation. During the immobilization phase, simple basic patient care like skin care, active-passive exercises, position changes in bed (as permitted), good nutrition, adequate fluid intake, regularly in elimination, and common basic hygiene not only contribute to the patient's physical but also psychological well-being.

A structure questionnaire was used to collect the data. A pre-experimental one-group pre-test post-test design was used to evaluate the knowledge of 50 samples (immobilized orthopaedic patients) regarding prevention of complications. The pre-test was followed by implementation of structured teaching programme and post-test was conducted after 8 days to evaluate the effectiveness of teaching programme.

The findings of the study are discussed under the following objectives:

- 1) Demographic characteristics.
- 2) Assessment of knowledge of immobilized orthopaedic patient regarding prevention of complications.
- 3) Evaluating the effectiveness of structured teaching programme.
- 4) Association between demographic variables and knowledge scores.
- 5) Testing of the hypothesis.

1. Demographic characteristics

Findings of the study reveal (40%) of the respondents belong to the age group of 21-30 years, 38% of the respondents were from the age group of 31-50 years and majority were male respondents (64%) and females 36%.

Occupation wise distribution of the respondents reveals that majority (60%) were labourers, 20% of the respondents were involved in business, 12% of the respondents were government employees and 8% were house wives. This finding is supported by the study conducted by **Chandrashekar Agarwal (2004)** that the labourers constituted the largest group (60%) involved in accidents.

Majority (30%) of respondent were illiterates, (28%) had primary school education. 24% had higher secondary education whereas 18% of the respondents have Degree level education.

Distribution based on the marital status reveals that (60%) of respondents were married and 40% of the respondents were unmarried. Equal (36%) of the respondents have monthly family income of Rs. 3001 to 4000, 46% of the respondents have monthly family income of Rs. 4001 to 5000

Religion wise distributions of the respondents reveal that maximum respondents (86%) were Hindus, followed by Muslims who stood at 14%. Based on the type of diet 84% were non vegetarians and 16% were vegetarian.

In relation to the type of fracture, 60% of respondents had compound fracture, and 40% of the respondents had simple fracture. With regard to the causes of fracture majority (46%) of the respondents had road traffic accidents, followed by 30% of the respondents had fracture due to fall and 24% of the respondents had pathological fracture. The findings are similar to a study conducted by **Sidhu Ds. Sodi GS. Banerjee AK (1993)** wherein road traffic accidents are more compared to other traumas.

2. Assessment of the knowledge of immobilized orthopaedic patients regarding prevention of complications

The present study confirms that the overall knowledge in pre-test is 36%, which is less. This shows that there is lack of information among the immobilized patients regarding prevention of complications. Although some patients have some knowledge, majority lack knowledge regarding prevention of complications. Hence it is necessary to provide education in order to prevent the complications.

The present study is supported by the study conducted by **Kirsi Johansson, Sanna salantera, Jouko Katajisto, Helena Lieno-Kilpi (2002)** to asses patients knowledge regarding orthopaedic care. The sample consisted of 146 orthopaedic patients (response rate 81%) and 56 nurses (response rate 67%) on three orthopaedic wards in a Finnish university hospital in 2001. Data were collected using two parallel, purpose-designed, mainly structured questionnaires. Personal discussions, written material and demonstration/practice, were the most commonly used educational

methods, while videos and PCs were seldom used. The results indicated that both the content and methods of orthopaedic patient education should be developed.

The present study confirms that overall mean percentage knowledge score in the pre-test is 36% which shows lack knowledge regarding prevention of complications among immobilised orthopaedic patients, there is need of educational programs in order to improve their knowledge level.

3. Effectiveness of structured teaching programme regarding prevention of complications among immobilized orthopaedic patients.

The present study confirmed that there was a considerable improvement of knowledge after the structured teaching programme and its statistically established as significant. The overall mean percentage knowledge score in the pre-test was 34.71% and 80.91 in the post-test with 46.2% mean percentage knowledge enhancement. The mean knowledge score during pre-test is 12.05 and 28.32 in the post-test .

The present study confirms that the overall mean percentage knowledge score in the post-test is 80.91% when compared pre-test mean knowledge score value 34.71%. This shows the enhancement of knowledge by 46.2% after structured teaching programme. This educational programme leads to gain in knowledge which may have an impact in preventing the complications among immobilized orthopaedic patients.

4. Association between demographic variables and knowledge scores.

Among the demographic variables analyzed in this study, age, gender, educational status, monthly income, religion, type of diet are found to have high significant association with knowledge scores. There was no significant association between marital status, occupation type of fracture, causes for fracture and knowledge scores.

The present study is supported by the study conducted by **DeSouza Shelia Melba (2002)** in which there was no significant association between types of fracture, days of immobilisation, gender and knowledge scores.

Another study conducted by **Lindgren M. Unosson M, Fredrikson M, Ek AC (2004)** to identify risk factors associated with pressure ulcer development. They found to significant association between age and knowledge scores. This supports the present study 10 respondents of the age group 51-65 years had 90.91% knowledge scores in the post test.

CHAPTER VI

SUMMARY / CONCLUSION

The present study was conducted to evaluate the effectiveness of structured teaching programme regarding prevention of complications among immobilised orthopaedic patients and to assess the knowledge of the patients.

Objectives of the Study

- (i) To assess the knowledge regarding prevention of select complications among immobilised orthopaedic patients.
- (ii) To develop and conduct structured teaching programme regarding prevention of selected complications among immobilised orthopaedic patients.
- (iii) To evaluate the effectiveness of the structured teaching programme regarding prevention of select complication among immobilised orthopaedic patients.
- (iv) To associate between knowledge scores with selected demographic variables.

Major Findings of the Study

The major findings of the study were as follows:

- A. Findings related to demographic characteristics of the subjects.
 - Majority (40%) of the respondents were from the age group of 21-30 years.
 - Based on the gender 64% of the respondents were males.
 - More number (60%) of the respondents was married.
 - Majority (30%) of respondents were illiterates.
 - Most of the respondents(60%) were laborers.
 - Number of respondents based on the monthly income group of Rs. 2001-3001, 46%, Rs. 3001-4001, 36% and Rs.4001-5001, 18%
 - Majority (90%) of the respondent were Hindus.
 - Maximum (86%) number of respondents was consuming mixed diet.
 - More number (60%) of the respondents had compound fracture.
 - Majority (46%) of the respondents had road traffic accidents.

B. Findings related to the pre and post-test mean percentage knowledge scores of high school students

- Highest (84.6%) knowledge score in aspect wise post-test mean percentage knowledge score on constipation and its prevention.
- The post-test mean percentage knowledge score was found higher (80.91%) when compared with pre-test mean percentage knowledge score (34.71%).
- Aspect wise enhancement of mean percentage knowledge scores on prevention of complications among immobilized orthopaedic patients was found higher (47.47%) in the aspect of constipation and its prevention.
- The statistical paired 't' test indicates that enhancement in the mean percentage knowledge scores found to be significant at $P \leq 0.05$ for all the aspects under study.

C. Findings related to association between demographic variables and pre-test and post-test mean percentage knowledge scores

The Association between mean percentage knowledge score and demographic variables were computed by using Chi-square test.

There was no significant association between marital status, occupation, type of the fracture, causes for immobilization and mean percentage knowledge scores.

However, there was significant association between age, gender, educational status, monthly income, religion, type of diet and mean percentage knowledge scores.

CONCLUSION

A pre-experimental design and evaluative approach was used in the study. The data was collected from 50 samples through purposive sampling technique.

Further, the conclusion drawn on the basis of the findings of the study includes:

- The overall mean and mean percentage of pre-test knowledge scores on selected complications among immobilized orthopaedic patients was found to be 12.15% and 34.7% respectively. It indicates that the respondents lack knowledge about the complications of immobilization.
- From this study it was concluded that education of the respondents was positively associated with their knowledge. Hence the educated respondents has higher knowledge regarding prevention of complications.

- On the other hand it was observed that the age, gender, educational status, religion, monthly income and type of diet had significant association with respondents knowledge regarding prevention of complications among immobilized orthopaedic patients.
- Further the marital status, occupation, type of fracture and causes of immobilization found non significant association with their knowledge regarding prevention of complications among immobilized orthopaedic patients.
- Based on the aspect wise pre-test knowledge assessment the highest knowledge was found on hypostatic pneumonia and its prevention (80.5%) and least knowledge (34%).

Hence it is concluded that respondents were lacking knowledge in the aspect of general information of immobility. Overall the immobilized orthopaedic patients had inadequacy in their knowledge in all areas of prevention of complications. Conducting a structured teaching programme would be effective in increasing the knowledge of the respondents.

Implications of the study

The findings of the study have implications in the field of nursing practice, nursing education, nursing administration and nursing research.

1. Nursing practice

- It helps the health care professionals to gain an insight into the problems faced by orthopaedic patients.
- Nursing professionals can provide care to the immobilized patients in preventing the complications.
- Nursing professionals can motivate the significant others and family regarding care of immobilized orthopaedic patients.

2. Nursing Education

- As a nurse educator, there are abundant opportunities for nursing professionals to educate the students regarding prevention of complications among immobilised orthopaedic patients.
- The study can be extended for educating the family members or the caregivers as it is a long term complications.

- This study stresses the need for in-service education for the nursing professional in order to prevent such complication.

3. Nursing Administration

- The nursing administration can take part in developing protocols, standing orders changing of position of immobilised patients, deep breathing exercises.
- The nursing administration can appoint nursing professionals based on the in-service education obtained especially in the care of orthopaedic patients.
- The nurse administrators should explore and encourage innovative ideas in the preparation of an appropriate teaching material. She should organize sufficient manpower; money and material for disseminating information regarding care of immobilised patients.

4. Nursing Research

- This study helps nurse researches to conduct researches on other complications of immobility.
- Plan for mandatory in-service education and post diploma courses on orthopaedic complications.
- Research on college students regarding trauma due to road traffic accidents and school health programme on safety rules to avoid accidents.

5. Limitations of the Study

- The study is limited to immobilised orthopaedic patients of selected Government Rajaji Hospital Madurai.
- The study did not use any control group.
- The study did not assess the attitude and practice of immobilised orthopaedic patients. Only a single domain that is knowledge is considered in the present study.
- Small number of subject limits generalization of the study.
- The sample for the study was limited to 50 patients only.

Recommendations

On the basis of the findings of the study following recommendations have been made:

- A similar study can be replicated on a large sample to generalize the findings.
- An experimental study can be undertaken with a control group for effective comparison of the result.
- A study can be conducted by including additional demographic variables.
- A comparative study can be conducted between rural and urban settings or between rich and poor socioeconomic status people or between men and women.
- Manuals, information booklets and self-instruction module may be developed in areas of prevention of complications.
- A study can be carried out to evaluate the efficiency of various teaching strategies like pamphlets, leaflets and computer – assisted instruction on prevention of complications.

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ANNEXURE – 1

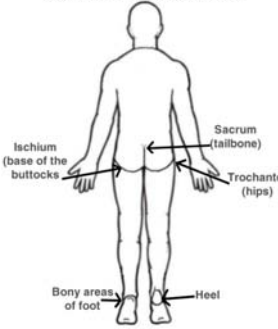

TEACHING PLAN ON PREVENTION OF COMPLICATIONS AMONG

1.	Student Teacher Name	SAROJA
2.	Subject	Medical Surgical Nursing
3.	Unit	Substance abuse
4.	Topic	Prevention of complications of immobilization
5.	Group	Immobilization patients of government hospitals Bangalore
6.	Place	Orthopaedic wards
7.	Date and Time	
8.	Duration	60 mins
9.	Medium of instruction	Tamil
10.	Method of teaching	Lecture cum Discussion
11.	A/V. Aids used	Charts, flashcards, posters etc
12.	Previous knowledge	Some knowledge regarding prevention of complications through health professionals and through Media
	General objective	At the end of the class client will acquire knowledge regarding complications of immobilization like pressure sores, constipation and pneumonia
	Specific objectives	The students will be able to, 1. Explain the causes of complications 2. Enumerate the Anatomy and Physiology 3. Describe the stages of pressure sores 4. Enumerate the preventive measures of pressure sores 5. Explains the term Hypostatic Pneumonia and its prevention 6. Define the term constipation 7. Explain about the high fibre diet 8. List the various precautionary measures

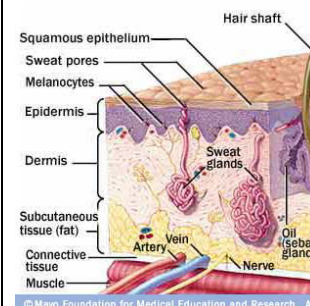
IMMOBILISED ORTHOPPAEDIC PATIENTS

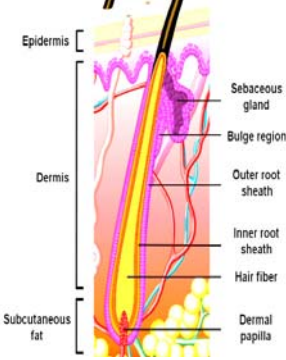
Time	Specific obj.	Contents	Teacher – student Activity	A.V. Aids	evaluation
1 mi n			<p><u>Introduce</u> <u>s the</u> <u>topic:</u></p> <p>Mobility is a physiological process that is taken for granted unless it is lost or restricted in some way. The orthopaedic patient population includes many who have immobility imposed on them either directly because of their</p>		<p>Name come complic ations due to immobil ity.</p>


			<p>condition or because of the treatment. Caste, traction, braces, fracture hips and total joint on mobility. But this can lead to various complications.</p> <p><u>Announce the topic</u></p> <p>There are various complications due to immobility but the selected complications are</p> <p><u>Pressure sores, Hypostatic pneumonia and constipation.</u></p>	
1min	Define the term pressure sores	<p><u>DEFINITION:</u></p> <p>Pressure sores are localized areas of tissue necrosis (tissue death) that develop when soft tissue is compressed between bony prominence and</p>	<p>Teacher defines the term pressure sore.</p>	

		<p>an external surface or when pressure occurs in combination with shearing force and / or friction.</p> <p>SITES OF SKIN BREAKDOWN:</p> <p>The more frequent sites of skin break down are the sacrum (16%) heels (16%), trochanters (11%), ankles (3%) and scapulae (2%)</p>		<p>Most common areas where pressure sores occur on individuals with SCI</p>  <p>Sites of Pressure Points</p>	
3 min	Explain the causes Pressure sores	<p>ETIOLOGY:</p> <p>i) Immobility: When a person is immobile and inactive, pressure is exerted on the skin and subcutaneous tissue by objects on which the person rests, such as mattress, chair seat or cast. The development of pressure ulcer is directly related to the duration of immobility.</p> <p>ii) Impaired sensory perception or cognition: Patients with</p>	Teacher explains and the clients listen		Why impaired sensory perception causes pressure sores.


		<p>sensory loss, impaired level of consciousness or paralysis may not be aware of the discomfort association with prolonged pressure on the skin.</p> <p>iii) Decreased tissue perfusion: Persons with diabetes, oedema, obese patients causes alteration in micro-circulation.</p> <p>iv) Decreased nutritional status: Nutritional deficiencies, metabolic disorders. Anaemia decreases the blood O₂ carrying ability.</p> <p>v) Friction and Shear forces: Friction is resistance to movement that occurs when two surfaces are moved across. Shearing is created by the interplay of</p>			
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		<p>gravitation forces.</p> <p>vi) Moisture : Prolonged contact with moisture causes softening and breakdown of skin.</p>			
3 min	<p>enumerate the Anatomy and Physiology of skin.</p>	<p>ANATOMY AND PHYSIOLOGY</p> <p>Skin is surface area about 1.5-2 m² in adults. It contains glands, hair and nails. It consists of two layers;</p> <ul style="list-style-type: none"> - Epidermis - Dermis <p>Epidermis:</p> <p>The several layers of epidermis are stratum corneum, stratum lucidum, stratum granulosum, germinative layer.</p>	<p>Teacher explains the anatomy and physiological of skin</p>		<p>The skin is made up of how many layers?</p>
1 min		<p><u>Dermis :</u></p> <p>The dermis is tough and elastic, composed of collagen fibres interlaced with elastic fibres. The</p>	<p>Teacher explains with the help of chart</p>		<p>Which are the different structures of the dermis layer?</p>


		<p>Structure in the dermis are:</p> <ul style="list-style-type: none"> • Blood vessels • Lymph vessels • Sensory nerve ending • Sweat glands and their ducts • Hair roots, hair follicles and hairs • Arrectores pilorum <p>Sebaceous glands</p>			
1 mi n	List the functions of skin	<p><u>Function:</u></p> <p>It is one of the main protective organ of the body.</p> <p>The important function of the skin are;</p> <ol style="list-style-type: none"> i) Regulation of body temperature ii) Formation of Vitamin D iii) Sensation 			

		iv) Absorption Excretion			
5 min	describe the stages of pressure ulcer.	<p><u>Describe the stages of pressure ulcer.</u></p> <p><u>Stage – I:</u> Erythema (redness) that does not blanch when pressed.</p> <p><u>Stage – II:</u> Skin loss in the epidermis and dermis. Ulcer is surrounded by broad, irregular and painful redness area that is warmer than normal.</p> <p><u>Stage – III:</u> Characterized by full thickness skin loss involving damage or necrosis of the</p>	Learner listens to the development of pressure sores.		<p>Which are the different stages of pressure ulcer?</p> <p>What do you mean by shearing forces?</p>

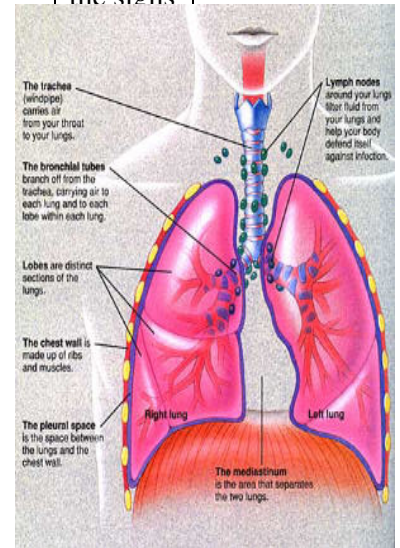
		<p>dermis and the subcutaneous tissue.</p> <p><u>Stage – IV:</u></p> <p>Penetrates bone, muscle or the joint.</p> <p>The ulcer is usually extensively infected and may appear black with exudation, foul odour and purulent drainage.</p>			
2 min	Explain the development of pressure sores.	<p><u>DEVELOPMENT OF PRESSURE SORES:</u></p> <p>An area of erythema (redness) is the beginning of a pressure ulcer. Erythema can occur within an hour or two in a person with healthy skin and adequate circulation. Factors in addition to immobility that contribute to the development of pressure sores are shearing forces, urine, sedation, and</p>			How often you should shift or change position?

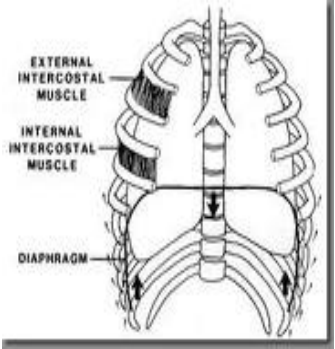
2 mi n		<p>air patients to shift their weight every 15 min</p> <ul style="list-style-type: none"> - Keep bed liners dry, smooth and free of wrinkles - Gently cleanse the skin when soiled and at regular intervals using warm water and a mild cleansing agent - Avoid friction when moving patients to prevent damage to the uppermost layer of the skin. - Used moisturizers, lubricants, 	<p>Clients listens to the various risks factors.</p>		do by at to
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		<p>protective films, barriers and dressings to reduce friction and shearing</p> <ul style="list-style-type: none"> - When the patient is in bed keep head lowered to reduce shearing force caused by sliding down in bed - Use special mattress or bed designed to reduce pressure such as, egg crate, water mattress and air mattress - Prevent shearing forces to the feet by using pillows to 			
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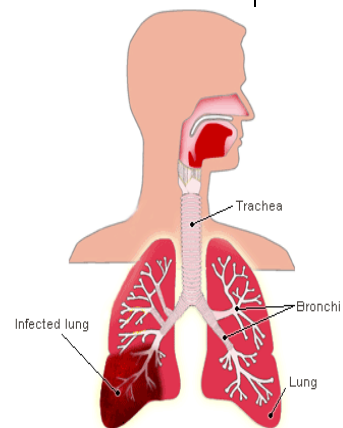
		<p>prevent heel pressures</p> <p>Instruct patient and family about risk factors and strategies for preventing pressure ulcers.</p>			
2 min	Lists of the points to be remembered	<p><u>POINTS TO BE REMEMBERED</u></p> <ul style="list-style-type: none"> - Message is not recommended for pressure points. - Rubber rings (Donut cushions) should not be used to elevate heel or sacral area. - The best preventive measure is frequent position change. 			
	Defines the term hypo-	<p><u>HYPOSTATIC – PNEUMONIA :</u></p> <p>DEFINITION:</p>			

	<p>static pneumonia?</p>	<p>A lung inflammation associated with immobility is called hypostatic pneumonia.</p> <p>RISK FACTORS:</p> <p>Individual at risk for impaired gas exchange related to immobility include;</p> <ul style="list-style-type: none"> - Drugs that depress respiration such as anaesthetic agents, narcotics or sedatives. - Have abdominal distension from gas, fluid or faeces. - Lie in one position for extended period of time. 			<p>What are the signs</p>
<p>5 min</p>	<p>Lists the signs and symptoms</p>	<p>CLINICAL MANIFESTATION</p> <ul style="list-style-type: none"> - Sudden onset of chill, 	<p>Teacher lists various signs and</p>		



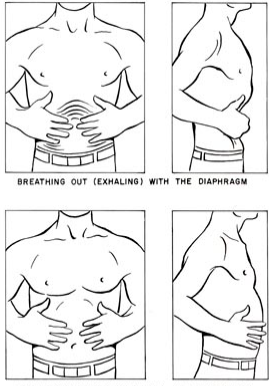
		<p>increased fever 39.5° - 40.5° C</p> <ul style="list-style-type: none"> - Cough productive purulent sputum. - Pleuritic chest pain - Tachypnea - Nasal flaring, use of accessory muscles for respiration 	symptoms		
2 min	Explains the anatomy and physiology lungs	<p>ANATOMY AND PHYSIOLOGY</p> <p>There are two lungs lying on each side of the midline in the thoracic cavity. Each lung is covered by pleura – a sac of serous membrane which consists of serous fluid. The lungs are compound of bronchi, smaller air passages, alveoli, connective tissue, blood</p>		 <p>The diagram illustrates a cross-section of the thoracic wall and diaphragm. Labels on the left side point to the 'EXTERNAL INTERCOSTAL MUSCLE' (the outer layer of muscle between the ribs), the 'INTERNAL INTERCOSTAL MUSCLE' (the inner layer of muscle between the ribs), and the 'DIAPHRAGM' (the muscular partition separating the thoracic and abdominal cavities). Arrows indicate the direction of muscle fibers.</p>	
3 min	Explain the cycle of respiration				How much is the normal

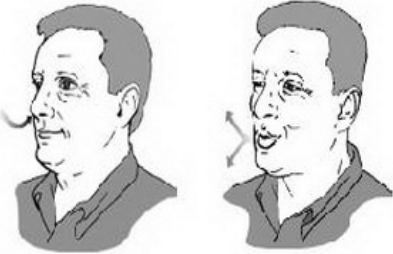
1 min		<p>vessels, lymph vessels and nerves.</p> <p>The muscles of respiration are:-</p> <ul style="list-style-type: none"> - Intercostals muscles - Diaphragm muscle <p>Intercostal muscles:- there are 11 pairs of intercostals muscles. They occupy the space between the 12 pairs of ribs. The first rib is fixed. When the intercostals muscles they pull all the other rib is fixed. When the intercostals muscles contract they pull all the other rib towards the first rib the thoracic cavity is enlarged anterior – posteriorly and laterally.</p>	Teacher explains about the cycle of respiration	breath per minute?
2 min	Describe the patho - physiology	<p>Diaphragm:- It is dome shaped, separating thoracic and abdominal cavities</p>	Teacher explain about the pathophysiology	do you as




		<p>The intercostals muscles and the diaphragm contracts simultaneously ensuring the enlargement of thoracic cavity.</p> <p><u>Cycle of Respiration:-</u></p> <p>This occurs 12-15 times per minute and consists of three phases: Inspiration Expiration Pause The Process of inspiration is active but expiration is passive. After expiration, there is a pause before next cycle begins.</p> <p><u>PATHOPHYSIOLOGY:</u></p> <p>Oxygen and CO₂ are exchanges in the thin, moist mucous membrane the lines the airway passage and the alveoli. Healthy persons take about 6 – 8 deep sighing breathes every hour.</p> <p>Sighs help keep the lung</p>			
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		<p>expanded and move secretions upward along the air passages. When a person remains immobile or does not take deep breathes, thick secretions accumulate and pool in the lower respiratory structures. These secretions interface with the normal exchange of gases, can cause areas of the lung to collapse (Atelectasis).</p> <p>Thus provide an environment for growth of pathogens.</p>			
2 mi n		<p>PREVENTIO N OF PNEUMONI A:</p> <p>Patients at risk for respiratory complications include frequent turning and position changing and coughing and deep breath exercises. These interventions should be done every 2 hours.</p>			
3 mi n					

		<p>BREATHING EXERCISES:-</p> <p>General instructions:-</p> <ul style="list-style-type: none"> - Breathe slowly and rhythmically to exhale completely and empty the lungs completely. - Inhale through the nose to filter, humidify and warm the air before it enters the lungs. <p>Diaphragmatic breathing:-</p> <ul style="list-style-type: none"> - Place one hand on the abdomen (just below the ribs) and the other hand on the middle of the 			 <p>BREATHING OUT (EXHALING) WITH THE DIAPHRAGM</p> <p>BREATHING IN (INHALING) WITH THE DIAPHRAGM</p> <p><small>FIGURE 3.—Diaphragmatic. The idea of diaphragmatic breathing is difficult to get over because you cannot see it work. The diaphragm is the partition between the organs in your abdomen and chest. This big, sheetlike muscular partition is fastened to the lower rib margins, and when it moves up into the chest—like a piston—it forces air out of the lungs. If you push in with your hands on your abdomen and blow out air through your mouth, you are making the diaphragm force air up out of the lungs. When you take in a very deep breath, you must relax the pressure on your belly wall (and let it swell out)—this means that you are making the piston move downward and sucking in air through the nose. Again, to make it clearer: push in on the belly and push air out through the mouth—then breathe in through the nose and push the belly out.</small></p>
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		<p>chest.</p> <ul style="list-style-type: none"> - Breathe in slowly and deeply through the nose (the abdomen should protrude). <p>Breathe out through the pursed lips while tightening the abdominal muscles.</p>			
1 min	Enumerates the steps of breathing exercises.	<ul style="list-style-type: none"> - Press inward and upward on the abdomen while breathing out. - Repeat for 1 min, follow with a rest period of 2 min. - Work up to 5 min, several times a day. 			
2 min	Lists of steps of diaphragmatic breathing	<p>Pursed lip breathing</p> <ul style="list-style-type: none"> - Inhale through the nose while 			What do you

		<p>counting to 3.</p> <ul style="list-style-type: none"> - Exhale slowly and evenly against pursed lips while tightening abdominal muscles. - Count to 7 while prolonging expiration through pursed lips. After taking several deep breaths a cough should be attempted to bring up secretion. 		Pursed lip breathing	g?
	Gives the definition	<p>CONSTIPATION</p> <p>Definition:</p> <p>It refers to and abdominal infrequency of defecation and also to abnormal hardening of stools that makes their</p>			Define constipation.

		<p>activity as possible can prevent or relieve constipation. Laxative should be used sparingly.</p>			
2 min	Lists of causes of constipation	<p>HIGH FIBER DIET:</p> <p>A high fiber diet is a regular diet that substitute high fiber – foods.</p> <p>Cereals will provide adequate fiber -2-4- servings of fruit/day. Eat fruit with the skin whenever possible. -3-5- serving of vegetables/day</p> <p>High fiber diet</p> <p>Consume whole wheat</p> <p>Eat dried peas and beans two to three times/day</p> <p>Consume at least 8 -10 glasses of fluid daily.</p>		<p>Fruits & Vegetables</p> 	

2 min	Lists the various precautionary measures	<p>PRECAUTIONS FOR USING BEDPAN</p> <ul style="list-style-type: none"> - Provide privacy to the clients. - Place fracture bed pan under the buttocks with the flat end towards the client's back if he/she cannot use a regular bed pan. - If client is immobile, roll him on the side away from you. Position the bed pan against client's buttock, hold it in place and turn the client. - Elevate the head end to semi fowler's position 	<p>Teacher explains with the help of chart.</p> <p>Teacher explains and the learners listen</p>	<p>Use Fracture bed pan</p> 	<p>What is the function of fracture bed pan?</p>
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		<p>and knees flexed.</p> <ul style="list-style-type: none"> - Provide sufficient time to eliminate the bowler contents . - After removing the bed pan provide perineal care. 			
1 mi n	Summarises the topic		<p>Summarises the topic. The ability to move freely purposively and without restriction is vital to maintaining life. The nurse needs to be knowledgeable about the potential dangers of immobility which can cause even discomfort to the client.</p>		

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ANNEXURE –A

LETTER SEEKING PERMISSION FOR CONTENT VALIDITY FOR TOOL

From

K. Saroja
M. Sc.,(N) II year,
College of Nursing,
Madurai Medical college
Madurai – 20

To

The Professor and Head of the Department,
Department of Orthopedic and Trauma,
Government Rajaji Hospital,
Madurai – 20.

Through

The Proper Channel

Respected Sir / Madam,

Sub: College of Nursing, Madurai Medical College, Madurai – 20. M. Sc.,
(N) II year Medical & Surgical Nursing student – Permission for
conducting study in Orthopedic and Trauma Department at
Government Rajaji Hospital – requested - regarding

I Mrs. K. Saroja, M. Sc (N) II year student, college of Nursing, Madurai Medical College, Madurai in partial fulfillment of M. Sc., Nursing course, have a plan to conduct a study on topic mentioned below at Orthopedic and Trauma Department, Government Rajaji Hospital, Madurai – 600 020. The study period is from 15-11-2010 to 15-12-2010. I assure that I will not interfere with the routine activity of the department.

The topic is: “A STUDY TO EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME REGARDING PREVENTION OF SELECTED COMPLICATIONS AMONG IMMOBILIZED ORTHOPAEDIC PATIENTS IN GOVERNMENT RAJAJI HOSPITAL, MADURAI – 20.”

Kindly consider my request and permit me to conduct the study.

Thanking you

Date: 5.11.2010
sincerely,

yours

Place :

(K.
SAROJA)

ANNEXURE –B

Evaluation Criteria Checklist for the Validation of Tool and Structured Teaching Programme.

Respected Sir / Madam,

I requested you to examine the research tool and give your valuable opinion and suggestions on the developed structured knowledge questionnaire.

There are three columns for responses. Please tick (\checkmark) mark in the appropriate column and give your remarks in the columns.

Interpretation of columns:

1. Column 1. Completely meets the criteria
2. Column 2. Partially meets the criteria
3. Column 3. Does not meet the criteria
4. Remarks

Your valuable opinion and kind cooperation will be highly appreciated.

Thanking you in anticipation.

Sl.No	Content	I	II	III	Remarks
1	Objective				
1.1	Is the formulation of the objective in				
1.2	order				
	Is the general objective				
	comprehensive in terms of				
	knowledge and practice				
2	Content				
2.1	Selection of the content				
2.2	Is the content appropriate				
2.3	Is the content adequate				

2.4	Content provides current information and is accurate				
3	Organization of the content a) Logical sequence b) Continuation c) Integration				
4	Presentation of the content Does the STP have; a) Introduction b) Duration c) Specific objective d) Content and its organization with teaching criteria e) Method				
5	Language				
5.1	Is the language simple and understandable				
5.2	Teaching terms are explained at the level of learner's ability				
6	Flexibility and Practicability a) Duration of the STP is suitable for the clients b) Permits self learning c) Acceptable to the client d) Interesting and useful to the clients				
7	Audio Visual Aids: Are audio visual aids - Easy to follow - Appropriate and attractive				

Date :

Place :
Evaluator

Signature of the

ANNEXURE –C
PART – I
DEMOGRAPHIC DATA

Sample Code

- 1) Age in years
- 2) Gender
 - 2.1 Male ()
 - 2.2 Female ()
- 3) Marital Status
 - 3.1 Married ()
 - 3.2 Unmarried ()
 - 3.3 Widow / Widower ()

- 3.4 Divorced ()
- 4) Educational Status
 - 4.1 Illiterate ()
 - 4.2 Primary School ()
 - 4.3 Secondary School ()
 - 4.4 PUC ()
 - 4.5 Graduate ()
 - 4.6 Others- Specify
- 5) Occupation
 - 5.1 House Wife ()
 - 5.2 Labourer ()
 - 5.3 Business ()
 - 5.4 Government ()
 - 5.5 Others –specify ()
- 6) Monthly income in Rupees.....

- 6.1 2000-3000 ()
- 6.2 3000-4000 ()
- 6.3 4000-5000 ()
- 7) Religion
 - 7.1 Hindu ()
 - 7.2 Muslim ()
 - 7.3 Christian ()
 - 7.4 Others ()
- 8) Diet
 - 8.1 Vegetarian ()
 - 8.2 Non-vegetarian ()
 - 8.3 Mixed ()
- 9) Type of Fracture
 - 9.1 Simple fracture ()
 - 9.2 Compound Fracture ()
- 10) Causes for fracture

- 10.1 Road Traffic Accident ()
- 10.2 Fracture due to fall ()
- 10.3 Pathological fracture ()

PART II

Consists of items related to knowledge regarding prevention of complications among immobilized orthopaedic patients.

General Information

- 1) What do you mean by fracture
 - a) Break in the continuity of the bone ()
 - b) Break in the continuity of skin ()
 - c) Break in the continuity of the muscle ()

d) Break in the continuity of the organ ()

2) Which of the following is the sign of fracture?

a) Itching ()

b) Swelling ()

c) Redness ()

d) Numbness ()

3) Which of the following is the complications of immobility?

a) Pressure sores, Constipation, Pneumonia ()

b) Itching, Swelling, bluish discoloration ()

c) Headache, Lethargic, feels sleepy ()

d) Excess eating, active, diarrhea ()

- 4) How do you prevent the complications of immobility due to fracture?
- a) Ambulating ()
 - b) Eating adequately ()
 - c) Sleeping adequately ()
 - d) Changing position ()
- 5) Where is the lung situated?
- a) Urinary system ()
 - b) Abdominal cavity ()
 - c) Pelvic cavity ()
 - d) Thoracic cavity ()
- 6) Which of the following group of item is the rich source of protein?
- a) Egg, Meat, Pulses ()
 - b) Sugar, Ragi, Rice ()
 - c) Grapes, Banana, Mango ()

d) Water, Milk, Honey ()

7) What is the effect of smoking?

a) Increases blood supply to the skin ()

b) Reduces blood supply to the skin ()

c) Causes diseases of the skin ()

d) Purifies the skin ()

Section- B

Items regarding pressure sores and its prevention

8) What do you mean by pressure sores?

a) Break in the continuity of the bone ()

b) Skin breakdown due to pressure ()

c) Break in the continuity of the joints ()

d) Reduced blood supply to the brain ()

9) Which are the common sites of pressure sores on supine position?

a) Eyes, Ears, Stomach ()

b) Knees, Toes, Face ()

c) Head, Scapula, Heel ()

d) Breast, Neck, Stomach ()

10) Which is the risk factor of pressure sores?

a) Fluid intake ()

b) Immobility ()

c) Excessive eating ()

d) Standing ()

11) What is the first sign of pressure sores?

a) Redness ()

- b) Bluish ()
- c) Brownish ()
- d) Whitish ()

12) Which is the best method to relieve the pressure from the cast?

- a) Insert additional pads between cast and the skin ()
- b) Additional padding is placed above the cast ()
- c) Dangling the leg from the bed with the cast ()
- d) Elevate ()

13) How should the skin be to prevent skin breakdown?

- a) Moist and Cold ()
- b) Wet and Oily ()
- c) Dry and Clean ()
- d) Very dry ()

- 14) When client is on the bed which is the best position? ()
- a) Supine position ()
 - b) Head and lowered ()
 - c) Side lying position ()
 - d) Semi flowered position ()
- 15) How often position should be changed when client is immobilised on the bed? ()
- a) Every 2nd hourly ()
 - b) Every 4th hourly ()
 - c) Every 6th hourly ()
 - d) Every 8th hourly ()

Section C

Items regarding hypostatic pneumonia and its prevention

- 16) What do you mean by pneumonia?

- a) Infection of the stomach ()
)
 - b) Infection of the heart ()
)
 - c) Infection of the kidney ()
)
 - d) Infection of the Lung ()
)
- 17) Which of the following is the risk factor for hypostatic pneumonia?
- a) Snoring ()
)
 - b) Immobility ()
)
 - c) Over eating ()
)
 - d) Exercises ()
)
- 18) Which of the following is the sign of pneumonia?
- a) Vomiting and diarrhea ()
)
 - b) Throat pain and fever ()
)
 - c) Stomach pain and weakness ()
)
 - d) Fever and dyspnoea ()
)
- 19) How do you perform the deep breathing exercise?

- a) Slowly inhale through the nose and exhale through the mouth()
 - b) Inhale through the mouth and exhale through the mouth ()
 - c) Quickly inhale and quickly exhale ()
 - d) Slowly inhale and slowly exhale ()
- 20) Which is the best position for deep breathing exercises?
- a) Side lying ()
 - b) Sleeping ()
 - c) Sitting ()
 - d) Prone position ()
- 21) How often deep breathing should be done?
- a) Every 4th hourly ()
 - b) Every 3rd hourly ()
 - c) Every 6th hourly ()
 - d) Every 2nd hourly ()
- 22) What happens if patient does not do deep breathing exercises?

- a) Secretions accumulates in the lungs ()
)
 - b) Secretions become purified ()
)
 - c) Secretions are diluted ()
)
 - d) Secretions enter the stomach ()
)
- 23) What is the purpose of splinting the abdomen during coughing exercises?
- a) Prevents tiredness ()
)
 - b) Increases thoracic pressure ()
)
 - c) Makes easy for sitting ()
)
 - d) Prevent abdominal pain ()
)
- 24) What is the benefit of turning the client frequently?
- a) Dilutes secretions ()
)
 - b) Causes infection ()
)
 - c) Mobilized secretions ()
)
 - d) Makes the patient active ()
)
- 25) Which of the following causes good lung expansion?

- a) Blowing a balloon ()
- b) Sitting for long time ()
- c) Walking with the nurse ()
- d) Drinking excess water ()

Section D

Items regarding constipation and its prevention

26) What is the cause for constipation?

- a) Drinking water ()
- b) Playing ()
- c) Eating excessively ()
- d) Immobility ()

27) which one of the following is the complication of constipation?

- a) Haemorrhoids ()
- b) Loss of weight ()

- c) Difficulty in walking ()
)
- d) Diarrhea ()
)
- 28) What do you do when you get the urge to defecate?
- a) Watch T.V ()
)
- b) Ask for bedpan ()
)
- c) Postpone it ()
)
- d) Get angry ()
)
- 29) Which is the best position on the bed pan>
- a) Semi fowlers position ()
)
- b) Lower the head end of the bed ()
)
- c) Supine position ()
)
- d) Semi fowler with knees flexed ()
)
- 30) Which is the best method of strengthening the abdominal muscles?
- a) Tightening the muscles of the chest ()
)
- b) Tightening the muscles of the face ()
)

c) Tightening the muscles of the abdomen ()

d) Tightening the muscles of the fingers ()

31) Which is the following statement is correct regarding passing stool?

a) Privacy should be provided ()

b) Do not leave the patient alone ()

c) Converse with the patient ()

d) Provide exercise to the patient ()

32) What is the quantity of water required for an average adult?

a) 3-5 glasses ()

b) 8-10 glasses ()

c) 15.18 glasses ()

d) 20-22 glasses ()

33) Which food contains high fiber content?

a) Meat, Egg, Fish ()

- b) Cereals, Pulses, Egg ()
- c) Fruits, Vegetables, Grains ()
- d) Milk and Milk Products ()

34) What is the advantage of high fiber diet?

- a) Easy digestion ()
- b) Increases fat content ()
- c) Causes diarrhea ()
- d) Prevents constipation ()

ANNEXURE - D

ऑऑ-ऑ,èŠò†ì Gđ%ooî-ù

đ°F - I

1. ađò~:

2. õò¶:

3. ð£Lù<: Ý‡ () / ªð‡()

4. F¼ñí< ðÿPò Mõó<:

Ü) F¼ñí< Ýùõ~ ()

Ý) F¼ñí< Ýè£îõ~ ()

Þ) Mî-õ ()

ß) Mõ£èó^î£ùõ~ ()

5. è™M^î°F:

Ü) ð®,è£îõ~ ()

Ý) ªî£î,è,è™M ()

Þ) «ñ™G-ò,è™M ()

ß) ð†îî£K ()

à) Hø ð®Š¹èœ ()

6. ªî£N™

Ü) Þ™ò^îóC ()

Ý) ÆL^ªî£N™ ()

Þ) ²òªî£N™ ()

ß) Üó² áNò~ ()

à) Hø ªî£N™èœ ()

7. ñ£î ð¼ñ£ù<

Ü) İð£œ 1000 - ^Fÿ°œ ()

Ý) 1000 °î™ 2000 ð-ó ()

Þ) 2000 °î™ 3000 ð-ó ()

ß) 3000 ^Fÿ°œ ()

8. ñî<

Ü) Þ%ø¶ ()

Ý) °vh< ()

Þ) APv¶ð~ ()

ß) Hø ñî< ()

9. àí¾ ðö,è<

Ü) -êõ àí¾ ()

Ý) Ü-êõ àí¾ ()

Þ) èø%ø¶ ()

10. â½<¹ °P¾ ð-èèœ:

Ü) îQ â½<¹ °P¾ ()

Ý) Æ†´ â½<¹°P¾ ()

11. â½<¹°P¾,è£ù è£óí<:

Ü) ê£-ôMð^¶ ()

Ý) W«ö M¿%ø¶ Mð^¶ ()

Þ) «ï£Jù£™ ãÿð´ â½<¹°P¾ ()

Ü-èè£F¼~ïø£™ ãÿð´ H¡M-÷¾è-÷ î´,°< â½<¹°PMù£™

ð£F,èŠð†ì ïð~èO¡ ÜP¾-ó è†ìP»< ð-èèœ

ð°F - II

HK¾ - I

ªð£¶ ÜP¾

1. $\hat{a}^{1/2} \langle^{10} P^{3/4} \hat{a}_j \emptyset \text{E}^{\text{TM}} \hat{a}_j \hat{u}$?

- Ü) $\hat{a}^{1/2} \langle^{10} P^{3/4} \hat{a}_j \text{E}^{\text{TM}} \hat{a} \check{Y} \check{\delta} \langle \text{P}^{3/4}$ ()
- Ý) « $\hat{i} \text{E} \text{L}^{\text{TM}} \hat{a} \check{Y} \check{\delta} \langle \text{H} \div^{3/4}$ ()
- Þ) $\hat{i} \rightarrow \hat{e} \text{J}^{\text{TM}} \hat{a} \check{Y} \check{\delta} \langle \text{H} \div^{3/4}$ ()
- ß) $\hat{a} \check{A} \check{S}^1 \hat{e} \text{O}^{\text{TM}} \hat{a} \check{Y} \check{\delta} \langle \langle \hat{e} \hat{i} \langle$ ()

2. $\text{W} \rangle, \hat{e} \ddagger \hat{i} \rightarrow \hat{o} \hat{e} \text{O}^{\text{TM}} \hat{a}^{1/2} \langle^{10} \text{P} \text{M}_j \ddot{\text{U}} \text{P}^\circ \text{P} \hat{a}_j \hat{u}$?

- Ü) $\ddot{\text{U}} \text{K} \check{S}^1$ ()
- Ý) $\hat{i}, \hat{e} \langle$ ()
- Þ) $\text{C} \check{o} \% \circ \text{¶} \langle \check{\delta} \text{E} \hat{i}^{\text{TM}}$ ()
- ß) $\check{n} \hat{i} \check{n} \hat{i} \check{S}^1$ ()

3. $\ddot{\text{U}} \rightarrow \hat{e} \hat{o} \text{E} \text{F}^{1/4} \hat{i} \hat{o} \text{E}^{\text{TM}} \hat{a} \check{Y} \check{\delta} \langle \text{H}_j \text{M} \rightarrow \div^{3/4} \hat{e} \hat{o} \hat{e} \hat{a}_j \hat{u}$?

- Ü) $\check{\delta} \langle, \rightarrow \hat{e} \text{¶}, \check{n} \hat{o}, \text{C}, \hat{e}^{\text{TM}}, \text{G} \langle \check{n} \text{E} \text{Q} \hat{o} \text{E}$ ()
- Ý) $\ddot{\text{U}} \text{K} \check{S}^1, \hat{i}, \hat{e} \langle, \text{c} \hat{o} \text{G} \check{o} \check{n} \text{E} \check{Y} \check{\delta} \langle$ ()
- Þ) $\hat{i} \rightarrow \hat{o} \check{o} \text{L}, \langle \hat{e} \text{E} \sim^{3/4}, \acute{\text{E}}, \hat{e} \langle$ ()
- ß) $\ddot{\text{U}} \text{F} \hat{e} \check{\delta} \text{C}, \text{Z} \acute{\text{A}} \text{Z} \acute{\text{A}} \check{S}^1, \check{o} \text{J} \check{Y} \acute{\text{A}} \check{S} \langle \check{\delta} \text{E}, \circ$ ()

4. $\hat{a}^{1/2} \langle^{10} \text{P} \text{M} \hat{u} \text{E}^{\text{TM}} \hat{a} \check{Y} \check{\delta} \langle \text{H}_j \text{M} \rightarrow \div^{3/4} \hat{e} \rightarrow \div \hat{a} \check{s} \check{o} \text{E} \acute{\text{A}} \hat{i} \langle, \hat{e} \hat{o} \text{E} \langle$?

- Ü) $\ddot{\text{U}} \hat{i}, \hat{e}, \text{a} \hat{e} \text{O} \hat{i}^{\text{TM}}$ ()
- Ý) $\hat{e} \text{K} \hat{o} \text{E} \hat{u} \hat{a} \hat{i}^{3/4} \hat{a} \hat{i}^{\text{TM}}$ ()
- Þ) $\hat{i}_i \circ \acute{\text{E}} \text{f} \circ \hat{i}^{\text{TM}}$ ()
- ß) $\check{\delta} \langle, \rightarrow \hat{e} \text{G} \rightarrow \hat{o} \rightarrow \hat{o} \check{n} \text{E} \check{Y} \acute{\text{A}} \hat{i}^{\text{TM}}$ ()

5. $\text{J}, \rightarrow \acute{o} \text{f} \acute{o}^{\text{TM}} \hat{a} \text{f}^\circ \hat{a} \check{o} \div \text{¶} \text{¶}$?

- Ü) $\text{C} \acute{\text{A}} \text{c} \acute{o} \hat{e} \check{S} \text{H} \text{K}^{3/4}$ ()
- Ý) $\check{o} \text{J} \check{Y} \acute{\text{A}} \check{S} \check{\delta}^\circ \text{F}$ ()

Ü) è†, è£¶, òJÁ ()

Ý) °†®, è£™Mó™, °è< ()

Þ) î-ô, «î£œð†-ì, ð£î< ()

ß) ñ£~¹, è¿^¶, òJÁ ()

10. ð´,-è ¹‡ ãÿð´õîÿ° É†´è£óEèœ â-õ?

Ü) î‡ã~ ð¼°î™ ()

Ý) Ü-êò£F¼^î™ ()

Þ) ÜFèñ£è ê£ŠH´î™ ()

ß) ÜFèñ£è Gÿðî£™ ()

11. ð´,-è ¹‡E; Ýó<ð è£ô ÜP°P â;ù?

Ü) Cõ%F¼^î™ ()

Ý) cò Gðñ£ÿø< ()

Þ) è¼ còGø< ()

ß) ºõÀ^F¼^î™ ()

12. è†´Š«ð£†ì ð°FJ™ Ü¿^î-î °-ø,è â¶ Cø%oi õN?

Ü) Ã´î™ ð...²/ ¶E-ò è†´,°< «î£½,°<
Þ-ì«ò -õ^î™ ()

Ý) è†´,° ºõO«ò ð...² -õ^î™ ()

Þ) è†´Š«ð£†ì ð°F-ò Ü-ê^î™ ()

ß) è†´Š«ð£†ì ð°F-ò àò~F -õ^î™ ()

13. ð´,-èŠ ¹‡ îM~,è «î£™ âšõ£Á Þ¼,è «õ‡´?

Ü) ßóñ£è¾<, °O~%o¶< Þ¼,è «õ‡´. ()

Ý) î-ù%o¶ ñÿÁ< â‡ªíOE «íOE^¶

Þ¼,è «õþ´ ()

Þ) è£OE%¶, ²îñÈè Þ¼,è «õþ´. ()

ß) lè¾, è£OE%¶ Þ¼,è «õþ´. ()

14. ð´,-èJTM Þ¼,° «ð£¶ Cø%î ð´,-è^{0-ø} â¶?

Ü) «ñTM «ï£,A ð´F¼TM ()

Ý) î-ô-ò î£)F ð´TM ()

Þ) á¼ ð,è è£OE%¶ ð´TM ()

ß) Ü-óè£OE%î G-ôJTM ð´TM ()

15. âî-ù^{0-ø} «ï£ò£OJ; ð´,-è^{0-ø-ò} ñ£ÿø «õþ´?

Ü) 2 ñE «ïóFÿ° á¼^{0-ø} ()

Ý) 4 ñE «ïóFÿ° á¼^{0-ø} ()

Þ) 6 ñE «ïóFÿ° á¼^{0-ø} ()

ß) 8 ñE «ïóFÿ° á¼^{0-ø} ()

HK¾ - III

G«ñ£Qò£¾, Üî-ù îM´,° õN^{0-øèè}

16. G«ñ£Qò£ âjø£TM âjù?

Ü) øJÿPTM ãÿð´, æ£ÿÁ ()

Ý) Þ¼îòFTM ãÿð´, æ£ÿÁ ()

Þ) CÁcóèFTM ãÿð´, i,è ()

ß) ,-ófóLTM ãÿð´, i,è ()

17. G«ñ£Qò£Mj Éþ´ è£óEèè?

Ü) °øþ-ì M´TM ()

Ý) Ü-èò£F¼TM ()

- Þ) ÜFèñ£è ê£ŠH'™ ()
 ß) àiÿðJÿC aêœî™ ()
18. G«ñ£Qò£M; ÜP°Pèœ â-ð?
- Ü) ð£%F» , ðJÿÁŠ«ð£,° ()
 Ý) aî£‡-ið½» , è£œ,,ê½ ()
 Þ) ðJÿÁ ðL» , «ê£~¾ ()
 ß) è£œ,,ê½ , Í,,²^Fíð½ ()
19. ²ð£êŠ ðJÿC-ò «ñÿ^è£œð¶ âŠð®?
- Ü) añ¶ð£è Í,A; ðNò£è è£ÿ-ð Þ¿^¶
 ð£œ ðNò£è Í,,-ê M'™ ()
 Ý) ð£œ ðNò£è«ð Í,,-ê Þ¿^¶ M'™ ()
 Þ) «ðèñ£è Í,,-ê Þ¿^¶ M'™ ()
 ß) añ¶ð£è Í,,-ê Þ¿^¶ M'™ ()
20. Ý,%î Í,,²ŠðJÿC â',è â%î G-ðJ™ Þ¼%î£™ «ð‡'¿?
- Ü) ê£œ%¶ ð'^F¼^™ ()
 Ý) Éf°™ ()
 Þ) à‡è£~%F¼^™ ()
 ß) °Š¹ðŠð'^™ ()
21. âî-ù ñE,° â¼°-ð Ý,%î Í,,²ŠðJÿC aêœî™ «ð‡'¿?
- Ü) 2 ñE «ió^Fÿ° â¼°-ð ()
 Ý) 4 ñE «ió^Fÿ° â¼°-ð ()
 Þ) 6 ñE «ió^Fÿ° â¼°-ð ()
 ß) 8 ñE «ió^Fÿ° â¼°-ð ()
22. Ý,%î Í,,²ŠðJÿC aêœî£™ â;ù ïi,°¿?
- Ü) ,-ófó™ êO«îfA Þ¼^™ ()
 Ý) ,-ófó™ êO ²^FèK,èŠð'^™ ()
 Þ) ,-ófó™ êO è-ó%¶ «ð£°™ ()
 ß) êO ðJÿP™ «ð£°™ ()
23. Þ¼ñ™ ðJÿC «ñÿ^è£œÀ« ðð¶ ã; ðJÿP™ Ü¿^¿ «è£',è «ð‡'¿?

Ü) «ê£M-ù í',è ()

Ý) ,-óó™ Ü¿î-î ÜFèK,è ()

Þ) à†è£ó ã¶õ£è Þ¼,è ()

ß) õJŸÁ õL-ò í',è ()

25. «ï£ò£OJ; ð',-è °-ø-ò ñ£ŸÁõîù£™ ãŸð'¿ ðò; â;ù?

Ü) êO-ò è-ó,è ()

Ý) A¼I ãî£Ÿø ()

Þ) êO-ò ÜèŸø ()

ß) «ï£ò£O-ò ²Á²ÁŠð£,è ()

26. W>,è†ì-ðèO™ â-õ ,-óó™ MKõ-î É†'A;øù?

Ü) á¶î™ ()

Ý) ÜFè «íó¿ à†è£~%¶ Þ¼î™ ()

Þ) ïî™ ()

ß) ÜFè c~ ð¼°î™ ()

ñô,,C,è½¿ Üî-ù îM~î½¿

HK¾ - IV

26. ñô,,C,èL; è£óí¿ â;ù?

Ü) c~ ð¼°î™ ()

Ý) M-÷ò£'î™ ()

Þ) ÜFè àí¾ â~¶, ãè£œÀî™ ()

ß) Ü-èò£F¼î™ ()

27. W>,è†ì-ðèO™ ñô,,C,èL; H; M-÷¾èœ â;ù?

Ü) Íó¿ ()

Ý) â-ì,°-øî™ ()

Þ) ïî,è CónŠð'î™ ()

ß) õJŸÁŠ«ð£,° ()

28. ñôˆ èN,è «õ±ˆˆ âjÁ «î£jÁˆ ˆð£¿¶ âjù ˆêOEĩèœ?

Ü) ˆî£-ò,è£†C ð£~Š«ðj. ()

Ý) «è£Š-ð-ò «è†«ðj ()

Þ) «ð£èñ£†«ìj ()

ß) «è£ðŠðˆ«õj. ()

29. «è£Š-ð-ò ðòjðˆ¶ˆ ˆð£¿¶ ˆ%oi G-ò-òŠ ðòjðˆˆî «õ±ˆˆ?

Ü) Ü-ó G-òJ™ ê£OE%o¶ Þ¼ˆî™ ()

Ý) î-òŠð°F-ò î£ˆF -ðˆî™ ()

Þ) «ñ™«î£,A ðˆ¶ Þ¼ˆî™ ()

ß) ê£OE%o¶ ðˆ¶ ˆöfè£™è-÷ ñì,A -ðˆF¼ˆî™ ()

30. õJÿÁŠð°FJ™ àœ÷ î-êè-÷ òL-ñò£,è ˆ¶ Cø%oi ðN?

Ü) ˆj...?Š ð°FJj î-êè-÷ ÞÁ,ˆî™ ()

Ý) ˆè^Fj î-êè-÷ ÞÁ,ˆî™ ()

Þ) õJÿPj î-êè-÷ ÞÁ,ˆî™ ()

ß) Mó™è-÷ ÞÁ,ˆî™ ()

31. Wˆ,è±ì-ðèO™ ˆ-ð ñôˆ èNŠðîÿ° Cø%oi ÃÿÁ?

Ü) «î£ò£O,° îQ-ñ «õ±ˆˆ ()

Ý) «î£ò£O-ò îQò£è Mi,Ãì£¶. ()

Þ) «î£ò£O-ò à-óò£ì «õ±ˆˆ ()

ß) «î£ò£O,° àìÿðJÿC ˆè£ˆ,è «õ±ˆˆ ()

32. êó£êK ñQîÂ,° ˆ¼ î£O™ «î-ðò£ù cKj Ü÷¾ ˆjù?

Ü) 3 - 5 ì÷ˆ î±aˆ ()

Ý) 8 - 10 ì÷ˆ î±aˆ ()

Þ) 15 - 18 ì÷ˆ î±aˆ ()

- β) 20 - 22 ì÷~ îþã~ ()
33. â%oî àíM™ ÜFè ì£~„ê^¶ àœ÷¶?
- Ü) èP, °†-ì, eì ()
- Ý) ð¼Š¹, ðòÁ, °†-ì ()
- þ) ðöfèœ, è£œÈPèœ, î£Qòfèœ ()
- β) ð£™ ñŸÁ< ð£™ õ-èèœ ()
34. ÜFè ì£~„ê^¶ àè£†ì àíM-ù â´¶, àè£†ì£™ âìù ðòì?
- Ü) âOF™ àêKñ£ù< ()
- Ý) àè£¿Š¹„ê^-î ÜFèK,°< ()
- þ) õJŸÁŠ«ð£,° ãŸð´< ()
- β) ñô„C,è-ô îM´,°< ()

ANEXURE – E

KEY ANSWERS

**Total Marks: 40
Mark**

Right Answers: 1




**Number of Item: 40
Mark**

Wrong Answer: 0

Question Numbers	Answers	Question Numbers	Answers
1	a	18	d
2	b	19	a
3	a	20	c
4	d	21	d
5	d	22	a
6	a	23	b
7	b	24	c

8	b	25	a
9	c	26	d
10	b	27	a
11	a	28	b
12	d	29	d
13	c	30	c
14	d	31	a
15	b	32	b
16	c	33	c
17	b	34	d

ANNEXURE – F
Prevention Bed Sore

Pressure Sore	Unconscious Patient	Layers of skin
		
Structure of Dermis	Stages of pressure ulcer	

<p>Pressure sore</p>	<p>Preventive measures</p>	<p>Rubber rings</p>


Prevention of Pneumonia

<p>Movable cotton</p>	<p>Mattress</p>	<p>Mattress</p>
<p>Part of lungs</p>	<p>Diaphragm and intercostals Muscle</p>	<p>Pneumonia</p>

<p>Diaphragmatic breathing</p>	<p>Pursed lip breathing</p>	<p>Constipation</p>

Prevention of Constipation

<p>Two liters of water / day</p>	<p>Fruits and Vegetables</p>	<p>Use fracture bed pan</p>

Constipation	Preventive measures	Pressure sore
 <p data-bbox="375 604 539 636">Constipation</p>	