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The Relationship between Implementation of Discharge Plan and Mobilizing of Adult Clients Recovering From Fractured Tibia and Fibula

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Abstract: *Statistics from one Central Hospital Orthopedic Outpatients register for subjects recovering from fractured tibia and fibula show that 99% of the subjects present with difficulties in mobilizing due to biological influencing factors such as, malunion, sepsis, knee stiffness, ankle stiffness, muscle atrophy and shortening of the affected limp.*
The purpose of the study was to describe and examine the relationship between the implementation of the discharge plan and mobilizing in subjects recovering from fractured tibia and fibula. A random sampling method was used for the selection of 70 subjects which comprised 52 males and 18 females recovering from fractured tibia and fibula. Roper, Logan and Tierney model of living provided the foundation for the study.
The study site was one referral Central Hospital in Zimbabwe. The instruments used for the questionnaire were structured interview questionnaire developed by the investigator from literature for measuring the demographic characteristics, implementation of the discharge plan and mobilizing.
The total score for the mobilizing questionnaire was 26. The majority 54 (77.2%) scored above the mean and only 16 (22.8%) were below the mean 13. The total score for the implementation of the discharge plan was 46. The majority 64 (91.5%) scored above the mean 23 and only 6 (8.5%) were below the mean. The Pearson Correlation (r) Coefficient identified that there was a positive relationship between the implementation of the discharge plan and mobilizing, (r= .224, p<.05). The regression analysis of mobilizing showed a positive effect b= 4.13302. The communication between the hospital and the Community health care personnel should be revived so that home visits can be conducted during the implementation of the discharge plan.*

I. Background And Organizing Framework

Problem statement

Mobilizing is one of the activities of living of major concern to medical and surgical nursing practice. Mobility is defined as the ability to move purposefully and quickly within an environment such as bed mobility, transfers, ambulation, range of motion and good muscle strength (Lewis & Collier, 1992). Mobility has also been conceptualized as a critical component of the person's functional health and self-esteem and is much valued human activity (Roper, Logan & Tierney, 1996). Mobilizing is conceptualized as an activity exercise pattern that refers to a person's routine of exercises, activity, leisure and recreation which includes activities of daily living that requires energy expenditure and it involves moving freely, rhythmically and purposefully in the environment and is essential for proper functioning of bones and muscles and is vital to independence (Kozier, Erb, Berman & Burke, 2000).

Threats to musculoskeletal integrity such as fractures of the tibia and fibula can interfere with mobilizing in many ways namely biological, psychological, and socio-cultural environmental and politico-economic (Roper Logan & Tierney, 1996). Statistics from one of the Central Hospitals Orthopedic Outpatients register for adult clients recovering from fractured tibia and fibula showed that 90% of the adult clients present with difficulties in mobilizing due to biological influencing factors such as malunion, sepsis, knee stiffness, ankle stiffness, muscle atrophy, shortening of the affected limp and pain.

Mobilizing in adult clients recovering from fractures of tibia and fibula includes movement produced by groups of muscles which enables people to stand, sit, walk and run as well as groups of smaller muscles which produce free movement (Roper, Logan & Tierney, 1996). The biological influencing factors such as muscle atrophy and shortening of the affected limb result from lack of exercise. The individual becomes dependent and cannot attain individuality. The most important goal is for the individual to be independent so that he/she could perform his/her social roles. Dwell and Martin, (2000) found that muscles that were not used became weak and shortened. During prolonged bed rest, strength and endurance decrease rapidly and clients could only regain muscle strength by practicing specific groups of exercises daily. Extension and flexion of knees and ankles to its greatest tolerable range is an important component of mobilizing of adult clients

recovering from fractured tibia and fibula (Roper, Logan & Tierney, 1996). Failure to conduct the exercises results in knee or ankle stiffness resulting in adult client's posture and gait being affected.

The adult client also suffers from a lot of pain. The adult client recovering from fractured tibia and fibula becomes emotionally labile ranging from aggression to depression because of the discomfort. Dwell, Smith and Martin, (2000) found that range of motion is the most common form of exercises for maintaining good joint mobility and increases maximal motion of joint when the client is totally or partially immobilized. Therefore optimal function of the leg depends on the strength of muscles and joint motion (Brunner & Suddarth, 1996).

Mobilizing of adult clients recovering from fractured tibia and fibula may be further interfered with by the biological influencing factors of bone malunion. Malunion of bones causes pain which can only be described by the owner. Black and Jacobs (1993) state that it is the compound fracture that mostly end up with malunion of bones because of poor alignment. Fractures of tibia and fibula in particular as a result of soccer incurs serious injuries which are also associated with a high incidence of malunion and other complications such as sepsis (Ozaka, Hillmann, Wuisman, Actar, Ortho & Sand 1997). Clarke (1990) randomly selected patient readmissions to hospital and found that many could have been avoided. The report concluded that readmissions to hospital should be interpreted as a negative outcome particularly for mobilizing of adult clients recovering from fractured tibia and fibula.

In addition the biological influencing factor of delayed bone healing interferes further with the activity of living of mobilizing. The adult client's expectation is to heal quickly and attain independence so that he/she performs social roles satisfactorily. Hassenhutti (1981) found that the complication rate in closed fractures of the tibia and fibula of 7.1% was primarily due to delayed bone union. There was a complication rate of 34, 3% in open fractures of the tibia of which 17, 4% showed delayed tissue healing. He also found that 8, 4% of the clients had deep infection with osteomyelitis.

Mobilizing in adult clients recovering from fractured tibia and fibula can be affected by psychological influencing factors such as intelligence level which includes level of schooling attained, values, beliefs and attitudes (Roper, Logan & Tierney, 1996). Therefore the adult clients should have knowledge about benefits of exercises and precaution to take to prevent further injury. The attitudes of the adult clients to dependence and disability fluctuate and their motivation decreases.

Most of the adult clients recovering from fractures of tibia and fibula seen at one of the Central Hospitals come under escort. They are escorted by their relatives, friends, cars and significant others. Some of them use wheelchairs. The adult clients are not independent and have not attained individuality. A few adult clients come unescorted but they struggle to use the wooden crutches. Quite a number of these adult clients recovering from fractured tibia and fibula are stressed because they cannot perform the activity of living of mobilizing. Stress is characterized by anxiety, apathy, fright reactions, fatigue, insomnia, intolerance, heightened aggression and withdrawal (Kotze, 1997).

The Socio-cultural influencing factors such as social roles, tradition, religion, work activities, transport and leisure also interfere with the activity of living of mobilizing (Roper, Logan & Tierney, 1996) in adult clients recovering from fractured tibia and fibula. Failure to perform the social roles expected by the family members reflects a degree of dependency.

Moral values and ideas are determined by the society in which people live (Pearson & Vaughhan, 1986). Likewise values on mobilizing of the adult client recovering from fractured tibia and fibula are determined by the society (Roper, Logan & Tierney, 1996).

Religion is subsumed in socio-cultural factors and in many ways it can have a very powerful influencing factor on mobilizing in the adult client recovering from fractured tibia and fibula. What exercises to do and how to do them and when to do them is often dictated by the religious regulations (Roper, Logan & Tierney, 1996)?

Failure to heal within the expected period means the client incurs extra expenses in buying drugs. Some of the clients can end up being readmitted. The later is costly to both the hospital and the adult client recovering from fractured tibia and fibula and hence the adult client becomes dependent on the social and health care system. Dependence affects the role in relation to family work (Roper, Logan & Tierney, 1996).

Mobilizing in adult clients with fractured tibia and fibula may be influenced by the environmental influencing factors such as safety of the roads, the terrain of the roads and the arrangement of the household items (Roper, Logan & Tierney, 1996). Most of the injured adult clients reside, work and travel within urban areas and the main mode of transport used is the bicycles. A substantial number of the adult clients sustain fractures as a result of Road Traffic Accidents. At one Central Hospital in Harare, medical records, statistics of Road Traffic Accidents show that the incidence is on the increase. In 2003, 720 people were admitted following Road Traffic accident of which 95 (13.9%) of the admissions sustained fractures of tibia and fibula. Eighty-nine (12, 5%) were discharged home while 6(0, 8%) died. In 2004, 917 people were admitted following Road Traffic Accident of which 143 (15,5%) of this total sustained fractures of the tibia and fibula, 136 (14,8%) were

discharged home and 7 (0,76%) died, showing a 12% increase in Road Traffic Accidents admissions and a 20% increase of clients who were admitted with fractured tibia and fibula. The tendency in an increase in bicycle Road Traffic Accidents resulting in fractured tibia and fibula suggests that adult clients are not maintaining a safe environment and therefore becomes a high risk for impaired mobility.

The environment within some houses is also not conducive to allow the adult client to do exercises. The houses are overcrowded with household items arranged in such a way that the adult clients encounter problems in trying to fulfill the activity of living of mobilizing. As a result pain and fear may be induced in the clients trying to perform the activity of living of mobilizing.

The politico-economic influencing factors also interfere with activities of living of mobilizing. In some cases the adult client does not have the facilities to do the exercises. Lack of facilities for exercises implies the likelihood the adult client recovering from fractured tibia and fibula failing to engage in the activity of living of mobilizing.

Literature shows that some studies have been conducted on patient participation in some other long term medical surgical conditions in relation to length of hospital stay. However documented evidence of mobilizing of an adult client recovering from fractured tibia and fibula from nursing perspective seems limited. In view of the actual and potential problems encountered by adult clients with activity of living of mobilizing, it is important to describe the phenomena.

Implementation of the discharge plan is process of moving the patient from one level of care to another. The process should start on admission to hospital (National AIDS Coordinating Programme & Ministry of Health & Child Welfare, 1998) as the client actually arrives in the Accident and Emergency Department (Anwal, 1995). The process should incorporate the multidisciplinary team in particular the medical surgical nurse practitioner. It involves all multidisciplinary efforts to achieve a successful transfer of the adult client recovering from fractured tibia and fibula from the health care facility to an alternative site of care such as the community. Implementation of the discharge plan is used to assure safety and efficacy of continuing care of the adult client.

Implementation of the discharge plan is conceptualized as a category of nursing behavior in which the actions necessary for achieving the goals and expected outcome of nursing care are initiated and completed. This includes nursing interventions for performing, assisting or directing the performance of activities of daily living (Potter & Perry, 2001).

Cahill (1996) indicates that because of consumer knowledge and increased care costs, the concept of implementation of the discharge plan has become very important in medical surgical nursing practice and should start at the time of admission (Gessner & Phelps, 1998). This approach is currently used by the Ministry of Health & Child Welfare (1998) as a result early discharge of adult clients has been implemented so that hospital beds are decongested and the adult client continue to get quality care with the help of family and health personnel in the community setting. The adult client is discharged home early, the hospital costs and clients and family costs are reduced. It is postulated that the longer an adult client stays in hospital the more cost to both the hospital and the adult client. Moyo S, (2013) found that home based care can decongest hospitals by permitting a more appropriate implementation of the discharge plan thereby reducing hospital costs and readmissions. In the Ministry of Health and Child Welfare (1998) national discharge plan guidelines, implementation of the discharge plan involves assessment, planning, implementation, evaluation and monitoring of care of patient. Jewel (1993) states that a careful assessment of patients and family care givers needs as well as adequately arranged care are both essential if a return home is to be successful.

Therefore needs of the adult clients recovering from fractured tibia and fibula are prioritized and the multidisciplinary team in particular the medical surgical nursing practitioner is engaged to plan for intervention (National AIDS Coordinating Programme & Ministry of Health and Child Welfare, 1998). An effective implementation of the discharge plan could be described as construction and implementation of a planned programme of continuing care which needs the adult client's needs after discharge from hospital (Dukker, Van, Emden et al, 1999).

The objective of the discharge planning process according to the national discharge plan guidelines are the identification of patients needs, resources, support systems, education of the client, family care giver on the client condition, management, potential environment changes and lifestyle.

Smith Dwell and Martin (2000) state that quadriceps exercises, passive and active limb exercises and range of emotion are the most common forms of exercises to be implemented by adult clients recovering from fractured tibia and fibula.

Ambulation and walking is an important function that most people accomplish automatically. Ambulation improves physical and mental wellbeing and increases muscle strength and joint mobility. Thus the adult client recovering from fractured tibia and fibula is motivated. Samiento (1967) initiated non weight bearing after 24 hours to allow the plaster to dry and then being weight bearing. With an effective implementation of the discharge plan by the adult client recovering from fractured tibia and fibula there should

be provision of appropriate support and services following discharge from hospital which may result in preventing unnecessary readmissions.

Implementation of the discharge plan identifies the potential need for referrals or assistance in needed arrangements for clients and family members (Lowenstein & Hoff, 1994).

However the complexity of the implementation of the discharge plan is determined by the client's individual medical condition, needs and goals, members of the discharge plan team and their responsibilities should also be identified with an overall coordinator so that specified steps in planning the process (Robert et al, 1995) can be fully implemented.

Evidence-based literature in Zimbabwe focuses on discharge planning for other client conditions namely diabetes mellitus, renal disease and HIV/AIDS. Therefore discharge planning as an essential component of client care also is relevant for the adult client recovering from fractured tibia and fibula.

Purpose

The purpose of this study is to describe and examine the relationship between implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula.

Theoretical framework

Roper, Logan and Tierney, (1996) theoretical framework has been chosen to guide this study. The independent variable in the study is the implementation of the discharge plan while the dependent variable is mobilizing in adult clients recovering from fractured tibia and fibula. Roper, Logan and Tierney, (1996) devised the model of living which is made up of five components namely the activities of living, lifespan, dependence-independence continuum, factors influencing the activities of living and individuality. The factors that influencing the individuality of the person include the biological, psychological, socio-economic, environmental and the politico-economic.

Skinner and Hampson (2001), states that the theoretical framework assumes the relationships between the independent and dependent variables. Similarly in this study it is proposed that a relationship exist between implementation of the discharge plan and mobilizing. According to Roper, Logan and Tierney (1996) a client is seen as an individual engaged in living throughout his/her lifespan and moves from dependence to independence according to age, circumstance and environment. A person progresses along a life span. The dependence independence continuum is moved along dynamically. Mature adults may be at the independent end in all of the activities of living, but, may become dependent if illness or trauma occurs.

The model of living sees individuals as engaging in 12 basic activities of living (Pearson & Vaughlan , 1996) of which mobilizing is a much valued activity of living (Roper , Logan & Tierney , 1996) and the focus of this study .

There are some circumstances that may also restrict performance in one or more of the activities of living in particular mobilizing. The persons individuality in carrying out the activities of living is in part determined by the stage on the lifespan and the degree of independence / dependence and is further fashioned by the various influencing factors such as the biological , psychological , socio-cultural , environmental and politico-economic (Roper , Logan & Tierney 1996) .

The model identifies nursing as individualizing nursing which contains assessment, planning, implementation and evaluating. Nursing is viewed as helping the clients to prevent, solve, alleviate or cope with problems of the activities of living. When the individual cannot attain independence in any one of the activities of living and the family or social group is unable to ensure that the activities are performed , then , nursing intervention are needed (Pearson & Vaughlan, 1986). Little is known about the patients discharge outcome from hospital Little is known about the patients discharge outcome from hospital (Jenks et al ,2001).

The concepts which are going to be used in this study are the lifespan, individuality, the dependence-independence continuum, independent in Activity of living and the influencing factors.

The adult client recovering from fractured tibia and fibula is now independent because of his age. He/she is also an individual who now have a certain degree of dependence because of the limb fractures. It is imperative that the medical surgical nurse practitioner assesses the adult client, plans for the care, implements and evaluates the care given. Therefore this study is based on the premise that as implementation of the discharge plan increase, mobilizing of the adult client recovering from fractured tibia and fibula will improve (See Figure 1).

Conceptual Definition of Terms

Mobilizing

Conceptual definition of mobilizing is an activity-exercise pattern that refers to a person routine of exercises, activity, leisure and reaction which includes activities of daily living that requires energy expenditure and involves moving freely, rhythmically and purposefully in the environment and is essential for proper

functioning of bones and muscles and is vital to independence (Kozier, Erb, Berman & Burke, 2002) involves posture, gait, balance range of movement of knees and ankle joints on the muscle strength.

Implementation of discharge plan

Implementation of the discharge plan is a category of nursing behaviors in which actions necessary for achieving the goals and expected outcome of nursing care are initiated and completed. This includes nursing interventions for performing, assisting or directing the performance of the activities of daily living (Potter & Perry, 2001), namely diet medication, exercises, psychosocial and physical activity (Machete & Hollomans, 1986), gained through education whilst still admitted to hospital.

Dependence/ Independence Continuum

Dependence may be help from other people or special walking aids and equipment for example wheelchair which provides aided independence for activity of living and mobilizing (Roper, Logan & Tierney, 1996).

Life span

The life span is the period between conception and death (Pearson & Vaugham, 1986). As the individual moves along a life span there is a continuous change. The lifespan is broken down to stages prenatal infancy childhood adolescence. Adulthood and old age and the purpose of lifespan are to meet the needs of the individual according to age and dependence level.

Influencing Factors

It is the process of physical intellectual emotional and social development which affects the aspect of living (Roper, Logan & Tierney, 1996).

Independent in activity of living

The ability to perform the activities of living of mobilizing in adult clients recovering from fractured tibia and fibula reflects his/her independence.

Individuality

The persons individuality manifests itself in many ways namely how, where, when and why the person performs the activity of living (Roper, Logan & Tierney, 1996).

Research Objectives

1) To assess the activity of living mobilizing of adult clients recovering from fractured tibia and fibula.
2) To determine the nature of the implementation of the discharge plan by adult clients recovering from fractured tibia and fibula.
3) To determine the relationship between implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula.

Research Questions

1) What is the mobilizing status of adult clients recovering from fractured tibia and fibula?
2) How is the implementation of the discharge plan effected by adult clients recovering from fractured tibia and fibula?
3) Is there a relationship between the implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula?

Significance to Nursing

Medical Surgical Nursing practice aims at provision of quality care to adult clients recovering from fractured tibia and fibula through the use of model (Roper, Logan & Tierney, 1996) for assessing planning, implementing and evaluating. It is hence imperative to provide quality care which is scientifically based. This study may empower medical surgical nursing practice with new information to care for the adult clients recovering from fractured tibia and fibula and the information may be used in continuing education. The new knowledge can be applied in nursing practice in the clinical area. Above all the profession of nursing is uplifted and strengthened as a profession and the old existing information on care of the adult clients recovering from fractured tibia and fibula

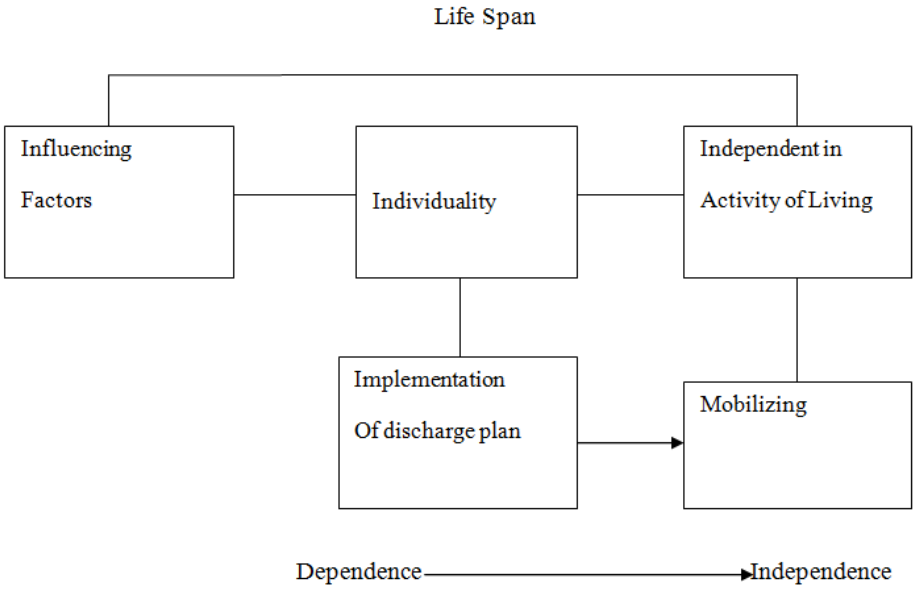

Figure 1: Adopted from Model of Living (Roper, Logan & Tierney, 1996).

II. Literature Review

A review of literature is conducted to generate what is known and not known about a particular situation (Burns & Grove 1993). The benefits of literature review include helping the investigator to develop data collection tools to identify the approaches used by the other researchers. This chapter therefore, presents review of current and pertinent literature focusing on the variable mobilizing as the dependent variable and implementation of discharge plan as the independent variable.

Mobilizing

Mobilizing is one of the activities of living of major concern to medical surgical nursing practice .It is also defined as to push , to pull and lift , to walk , run , jog and to maintain posture , (Roger , Logan & Tierney , 1996) the ability to move purposefully and quickly within an environment (Lewis & Collier , 1992) . Mobilizing is further conceptualized as an activity exercise pattern that refers to a person's routine of exercise, activity, leisure and recreation which includes activities of daily living that requires energy expenditure and it involves moving freely, rhythmically and purposefully in the environment and is essential for proper functioning of bones and muscles and is vital to independence (Kozier, Erb, Berman & Burke, 2000). Various muscles surrounding the trunk and limbs are used and other groups of small muscles are constantly in use to bring about movement (Roper, Logan & Tierney, 1996). Body movement involves four basic elements namely body alignment , joint mobility , balance and coordinated movement in which the purposeful coordinated movement relies on integrated functioning of the musculoskeletal system , nervous system and the vestibular apparatus of the inner car (Kozier , Erb , Berman &Burke 2000) . One of the objectives of care of the clients who have sustained a fracture is to prevent loss of mobility and muscle tone (Phipps, Logan & Tierney 1996).

The principle of leverage and the law of gravity are also useful in understating the nature of mobilizing (Phipps, Logan & Woods, 1999). People maintain alignment and balance when the line of gravity passes through the centre of gravity and the base of support (Kozier, Erb, and Berman & Snyder 2004).

Threats to musculoskeletal such as fractures of the tibia and fibula can interfere with mobilizing in many ways namely, the biological, psychological, sociocultural,environmental and politico-economic (Roper ,Logan& Tierny, 1996).

The biological influencing factors such as pain, loss of function of the limb, swelling of the limb, infection, knee stiffness, ankle stiffness, muscle weakness and shortening of the affected limb interfere with mobilizing. In addition contractures may exist because of soft tissues limitation and bones limitation (Phipps, Long & Woods 1987)

Kozier , Erb , Berman and Snyder , (2004) states that the problems of mobilizing includes disuse osteoporosis , cardiac reserves diminished , orthostatic hypotension, venous stasis , oedema , thrombus formation , decreased respiratory movement , pooling of secretions , decreased metabolic rate , negative nitrogen balance , various emotional reactions , urinary stasis and retention infection (Kozier , Erb , Berman and Snyder 200t4)

Open fractures and soft tissue injuries have a high incidence of infection (Lewis & Collier 1992). It is therefore important to know the anatomy and physiology of the tibia and fibula so as to appreciate the problems encountered by the adult clients recovering from fractured tibia and fibula.

According to Ignatavicious, Workman and Mishler, (1999) the tibia is the medial of the two bones in the lower leg. The tibia has the proximal and the distal extremities. The proximal extremity is broad and flat and is made of two condyles which articulate with the femur at the knee joint. The fractured tibia is also called the uncontrollable fragment because its location and muscle attachments prevent it from being moved when attempting to bring the separate fragments into alignment (Phipps, Long & Woods 1987). The medical maleolus on the tibia is at the distal extremity. The fibular is long slender bone in leg. Bones are composed of both living cells and non living intracellular material. Bones are derived from hyaline cartilage that undergoes a process called osteogenesis to become bone (Phipps, Long & Woods 1987).

Some muscles and ligaments which support the arches of the foot are necessary to maintain the strength and resilience and stability of the leg during walking, running and jumping. The posterior tibialis muscle is the most important muscular support of the medial longitudinal arch found on the posterior aspect of the leg. The muscle originates from the middle third of the tibia and fibula and its tendon passes the medial maleolus and is inserted in the navicular cuneiform cuboid and metatarsal bones. It acts as a spring or suspension apparatus of the arch.

Phipps, Long and Woods (1987) states that there are three mechanical functions of the bone namely support of the body tissue, protection of the body organs and movement. Disruption of the structure causes mobility problems.

It is also imperative to know the healing process of the bone so as to appreciate the mobility problems faced by the adult clients recovering from fractured tibia and fibula. Black and Jacobs (1993) define a fracture as a disruption of normal bone continuity one can have due to bone fracture problems. Some of the problems which can develop in fractures include fat emboli, which are often associated with fracture of long bone, contribute to many deaths associated with the fracture and there are two theories related to origin of fat embolism, the mechanical and the bioethical (Lewis & Collier, 1992). The soft tissue injury has more serious consequences than the fracture which occurs when the bone is subjected to more kinetic energy than it can absorb (Lemone & Burke. 2000). The bone is likely to regenerate unlike some specialized body tissue (Ignatavicious, Workman & Mishler, 1999). Immobilization of a fractured bone is necessary to promote healing and immobilization can take place in the following three ways, the physiologic splintage, external orthopaedic splinting and the internal fixation (Phipps, Long & Woods, 1987)

Fractures usually heal in the following stages. Firstly there is hematoma which is caused by bleeding into the fractured site. Soon after a fracture there is inflammatory exudates. Blood comes from the ruptured vessels within the bone and from tears in the periosteum. Signs and symptoms of the fracture vary according to the location and function of the involved bone, the strength of its muscles attachments the type of the fracture and the amount of related damage (Phipps, Long & Woods, 1987). A haematoma forms around the area of injured bone filling the cleft of the bone. A compartment syndrome can occur because of the compression of structures within a defined area formed by fiscal walls and as a result of secondary oedema (Lewis & Collier, 1992).

Within 24 hours blood clot begin to organize and a loose delicate mesh of fibrin forms around the fracture site (Ignatavicious, Workman & Mishler, 1999). The fibrin mesh protectively encloses the damaged bone and acts as a scaffold for the in growth of capillary buds and fibroblasts. New capillaries start to grow into the clotted haematoma. The clot is bound together by fibroblasts. After 24 hours the blood supply to fractured bone ends increases. The haematoma that surrounds the fracture undergoes change and develops into granulation tissue. The veins of the lower extremities are highly susceptible to thrombus formation. The precipitating factors could be venous stasis caused by incorrectly applied cast. (Lewis & Collier, 1992).

Cells and new capillaries gradually invade the haematoma. Within a few days granulation tissue replaces the blood clot. Then the red blood cells and tissue debris are removed by phagocytosis. Simultaneously the periphery of the clot is invaded by fibroblasts from the medullary cavity, periosteum and adjacent connective tissue. The fibroblasts form the callus surrounding the fracture site. (Black & Jacobs, 1993).

Osteoblasts continue to proliferate and synthesise collagen fibres and bone matrix which are gradually mineralized with calcium and mineral salts to form a spongy mass of woven bone (Lemone & Burke 2000).

Within 6-10 days a procallus forms. Then the newly formed cartilage, bone matrix disperse through the soft tissue callus. They increase in number until a provisional callus is large and extends some distance beyond the fracture line, serving as a temporary splint. The provisional callus is not strong enough to support the weight bearing or to withstand strain. A permanent callus of true rigid bone eventually forms by deposition of calcium salts. Then during the third to the tenth week of healing the callus converts into a bone (Ignatavicious, Workman & Mishler, 1999).

Mobilizing of adult clients recovering from fractured tibia and fibula includes movement produced by groups of muscles which enable people to stand, sit, walk and run as well as groups of small muscles which produce free movement (Roper, Logan & Tierney, 1996).

The biological influencing factors such as muscle atrophy and shortening of the affected limp result from lack of exercises. Some muscles and ligaments which support the arches of the foot are necessary to maintain the strength and resilience and stability of the leg during walking, running and jumping (Ignatavicous, Workman & Mishler, 1999). In view of the muscle damage in musculoskeletal muscles the urine output should be assessed because myoglobin is released from the damaged muscle cell and can be trapped in the renal tubules because of its high molecular weight (Lewis & Collier, 1992). In a study conducted by Samiento, (1967) on a record of some preliminary observation of the use of below the knee cast, for the treatment of fractured tibia and fibula it was found that active people do not seem to need repeat cast changes since atrophy is minimum and the original snugness of the cast appears to remain. He also found that the maximum shortening was 7/8 of an inch on a patient who had segmental fracture at the junction of the proximal and middle 1/3 and at the junction of the middle and distal 1/3 of the tibia.

The adult clients recovering from fractured tibia and fibula may need range of motion exercises until they can regain their normal activity levels. Kozier, Erb, Berman and Snyder, (2004) state that active range of motion are isotonic exercises in which the adult client moves each joint in the body through its complete range of movement, maximally stretching all muscle groups within each plane over the joint. These exercises maintain or increase muscle strength and endurance and help to maintain cardiorespiratory function in an immobilized client (Kozier, Erb, Berman & Snyder, 2004). Thus extension and flexion of knee joints and ankle joints to its greatest tolerable range is an important component of mobilizing of adult clients recovering from fractured tibia and fibula (Roper, Logan & Tierney, 1996).

If a joint cannot be moved beyond 30 degrees of flexion the joint is said to be contracted (Phipps, Long & Woods, 1987). Failure to conduct the range of motion exercises in the knee and ankle joints would result in knee joint contractures and knee and ankle joint stiffness. Thus the assessment of strength of muscles and range of motion are effective measurement of a person's functional capacity (Phipps, Long & Woods, 1987).

In a case study by Fyfe (1992) in which he studied the movements in the thoracic spine to be rotation, flexion and extension he/she found that rowers become limited in extension because they have a long time sitting. He/she also found that rowers fall into thoracic spine problems when fatigued with extension stiffness which is associated with limitations of movement into rotation. A rower with a right sided chest pain is treated by regular stretches to improve his/her extension and rotation.

The adult client also suffers a lot of pain. Kozier, Erb, Berman and Snyder (2004) state that pain is transmitted through the nociceptors and the physiologic perception of pain are described in nociception which includes four processes of transduction, transmission, perception and modulation (Paice, 2002). During the transduction phase tissue injury trigger the release of biochemical mediators such as prostaglandins, bradykinin, serotonin, histamine and substance P and this sensitize the nociceptors. The painful stimulation causes movement of ions across cell membranes which excites nociceptors. Pain is transmitted using three segments.

During the first segment pain is transmitted from the peripheral nerve fibres to the spinal cord by the neurotransmitter substance P. Substance P also enhances the movement of impulses across the nerve synapses from the primary afferent neurone to the second neuron in the dorsal horn of the spinal cord. The alpha-delta and the C fibres transmit the sharp and dull aching pain respectively. Pain is then transmitted to the thalamus and brain stem by the spinothalamic tracts. The transmission of signals occurs between the thalamus to the somatic sensory cortex where pain is perceived and a response is done (Kozier, Erb, Berman & Snyder, 2004). It is also believed that pain perception occurs in the cortical structures, which allows different cognitive behavioral strategies to be applied to reduce the sensory and affective components of pain (McCaffery & Pasero, 1999).

The adult client recovering from fractured tibia and fibula becomes emotionally unstable because of pain. Pain may be immediate, severe and is aggravated by attempted motion and pressure at site of injury (Phipps, Long & Woods 1987). It is postulated that the earliest sign of developing compartment syndrome is progression of pain distal to the injury that is not relieved by analgesia (Lewis & Collier, 1992) and various definitions have included comfort as an outcome of nursing, a basic human need and a process (Malinowski & Stamler, 2001).

Briggs and Nean (1998) did a qualitative study analysis of the nursing documentation of post operative pain management in an orthopaedic ward directorate of a large teaching hospital. She interviewed patients post operatively about their pain experiences and the present and worse pain scores were recorded. The nursing documentation of pain relating to pain was transcribed and a content analysis of pain was documented. Findings indicated that the individual assessment of pain was poorly documented and that the nurse's records of post operative pain experiences differed from the patients report. The reliance on pharmacological methods of pain relief was evident and interventions to help patients cope with night pain were rarely documented.

Therefore one of the medical surgical nursing practice priorities in care of the adult clients recovering from fractured tibia and fibula is effective management of pain so that the adult clients are able to perform the activities of daily living of mobilizing.

The biological influencing factors of the bone malunion causes permanent disability due to poor alignment (Black & Jacobs, 1993). It is the compound fracture that mostly end up with malunion of bones because of poor alignment (Black & Jacobs, 1993). The growth in the diameter of bone is accomplished as the osteoblasts enlarge the medullary cavity while osteoblasts produce new bone in older or inactive people and the degeneration and reabsorption of bone occur more rapidly than the growth of new bone (Phipps, Long & Woods, 1987). Compound fractures are also associated with a high incidence of malunion and other complications such as sepsis. Quite a number of these clients (Ozak, et al 1997). Clark (1990) randomly selected patient's readmission to hospital and found that many could have been avoided. The report concluded that readmission to hospital should be interpreted as a negative outcome, particularly for mobilizing adult clients recovering from fractured tibia and fibula.

Delayed bone healing is one of the influencing factors to mobilizing. According to Black and Jacobs (1993) a permanent callus of true rigid bone eventually forms by deposition of calcium salts and during the third to the tenth week of healing the callus converts into a bone. Phipps, Long and Woods (1987) state that the factors that impede good callus formation are inadequate reduction, excessive oedema at fracture site which impedes supply of nutrients to the fracture site and too much bone lost at the time of injury to permit bridging of the broken ends.

In a study conducted by Augusto and Samiento (1967) on a record of some preliminary observations of the use of below knee cast, for the treatment of fractured tibia with a conceptual feeling that uneventful healing of the tibial fracture will occur in the presence of motion of the knee joint and early weight bearing. It was found that out of 15 fractures in the proximal 1/3 united in an average of 13,5 weeks within a median of 13 and modes of 11 and 14. Fifty-two fractures in the middle 1/3 had an average healing time of 14,2 weeks and median 15, mode 16. Twenty-eight in the distal end had an average healing time of 14,7 weeks, median 15 modes 10, 12, 14, 16 and 20 weeks. The shortest healing time was nine weeks in a patient with oblique fracture. The longest was 21 in the patient with segmental fracture at the junction of the proximal and middle 1/3 and at the junction of the middle and distal third of the tibia. He drew a conclusion that comfort provided by the below knee cast and the ability to retain motion of knee is of practical significance to the patient in his daily activities such as mobilizing (Roper, Logan & Tierney, 1996).

Wade, Moocraft and Thomas (2001) conducted a study on the progression of healing on 103 unstable fractures of the tibia. The patients had external fixators which were removed when stiffness reached 15 degrees on 76 patient's stiffness was measured on the sagital plane and four had deformity at the site of the fracture. The other 27 patients had the stiffness measured in several planes and the fixators were then removed. He drew a conclusion that fracture stiffness should be measured in two planes when assessing tibial healing and suggested that values above 15 degrees in the two planes give an indication that it is safe to remove the fixator.

The delayed bone healing has been found to interfere with activities of living of mobilizing especially in adult clients recovering from fractured tibia and fibula. Delaune and Ladner, (2002) study on musculoskeletal assessment includes range of motion, strength of muscles, muscle tone, size and contour of joints, movement and gait. He/she pointed out that the way one walks is assessed to determine the baseline. Normal gait is characterized by a smooth rhythmic movement of muscles when walking. A step height and length are symmetrical from foot and the arms swing freely on each side of the torso in opposite movement of the legs. The muscular and nervous system function cooperatively, to produce body movement (Phipps, Long & Woods,1987). Normally the lower limbs are able to bear the full body weight during standing and ambulation. Gait is described in terms of smoothness, balance, arm movements effectiveness and the length and the width of the step.

Other people, in particular the adult clients recovering from fractured tibia and fibula may use walking assistive devices such as crutches, walkers, wheelchairs and the devices are sometimes used improperly (Phipps, Long & Woods, 1987). An adult client recovering from fractured tibia and fibula may have problems in mobilizing because of a cast which is tight. Regardless of the type of material of which the cast is made of, the cast can interfere with circulation and nerve function because it is applied too tight a cast passed through one generation to another (Lewis & Collier, 1992).

According to Roper, Logan and Tierney (1996) the psychological influencing factors to mobilizing includes the schooling level values beliefs and attitudes. The adult clients recovering from fractured tibia and fibula should know the benefits of exercises and the prevention of further injury so that they value the activity of living of mobilizing. Some of the adult clients have attitudes on dependence and disability and this hinders them in the activity of living of mobilizing and their motivation decreases.

Perception , thoughts , emotions , attitudes were found to affect the body profoundly and gained recognition as being therapeutic and being important in healing . The mind body therapies focus on helping

individuals to use their minds to heal their own bodies and includes relaxation techniques , images ,therapies , biofeedback ,hypnosis and counseling (Kozier , Erb . Berman & Snyder , 2004) . Lowenstein and Hoff , (1994) state that patients education and resources can enable patients to assume control of their care . Thus the medical surgical nurse practitioner have a challenge to educate the adult clients .

The socio-cultural influencing factors to mobilizing such as social roles , tradition , religion ,work activities , transport , leisure also interfere with the activity of living of mobilizing (Roper , Logan & Tierney , 1996) . According to Leiningers theory , nursing care actions and decision , which recognize and respect cultural care values of the people will result in congruency and positive signs of the health maintenance and recovery from illness .

Leininger (1985) identifies three nursing care principles that are used to examine and provide cultural congruent care for clients namely culturally care preservation which refers to those culturally based assistive , facilitative or enabling phenomena that help individuals to preserve favorable health and caring lifestyle , cultural care accommodation which refers to those culturally based assistive phenomena that reflects ways to adapt to the client health and care and life types and cultural care repatterning which refers to altered designs to help client's health or life patterns that are meaningful to them . The principles may be considered in the activity of living of mobilizing by the medical surgical nurse practitioner

Culture includes values , beliefs , attitudes and customs shaped by a group of people . Culture is learned , shared and is a transcribed experience which is passed from one generation to another .

Andrew and Boyles , (2002) described three views of health beliefs , the magico-religious , scientific and the holistic . In the magico-religious beliefs health and illness are controlled by supernatural powers and in the scientific belief life and life processes are controlled by physical and biochemical processes manipulated by human and in the holistic health belief holds that the forces of nature must be maintained in balance or harmony in particular the adult client recovering from fractured tibia and fibula .

The sociological factors that can influence the activity of living of mobilizing include participation in sport , relaxation , economic which includes walking , public transport , and the private transport (Hunt & Sendel , 1987) . Cultural values determine pattern of communication in the family . The relationship between individuals own body and objects and persons within space is learned and is influenced by culture (Kozier , Erb , Berman & Snyder , 2004) .

Activity of living of mobilizing is also influenced by the environment . Abdellah and Levine , (1986) describe the environment as societal and environment needs recognized as contributing factors to actual and / or anticipated impairments. Problems presented by patient / client is not limited to the hospital but also includes home and community . Skeets (1970) survey showed that few patients had been asked about their domestic arrangements on returning home , thus making an accurate evaluation of need difficult. The assessment of home circumstances may be particularly significant adult clients recovering from fractured tibia and fibula so that they perform the activities of living of mobilizing with no difficulties .

Roy , (1984) views the environment within and around the person which is an input for the person as an adaptive system as such environment may be described as internal and external stimuli .

Orem , (1971) sees the environment as a subcomponent of a person , Orem , (1971) states that provision of a developmental environment is offered as a method of assistance and the environmental condition conducive to development include opportunities to be helped by being with other persons or groups where care is offered and the individual decisions , personal pursuit , shared respect , belief , trust , recognition and fostering of developmental potential.. The small spatial circle surrounding us is the personal environment which includes personal space that we own and work or live in such as the bedroom (Friedman , 1986) . This may interfere with activity of living of mobilizing if that environment is crowded by items . In order to achieve the level of environment sensitivity needed to enhance health, people must first recognize the effects of environment has on health (Ardell, 1977).

Most of the adult clients recovering from fractured tibia and fibula are from the urban locations where they are staying as lodgers. The rooms being owned are very small and crowded with items. As a result the adult client fails to mobilize because of lack of space and fear of falling.

The Central Statistical Office Census results (2002) shows that the total population for Zimbabwe was 11 681 657 and the total number for Harare Province only 1 896 134 and this is 16% of the total population. The total household average for Harare urban is 4 persons per house. Ninety percent of the houses in the Harare high density suburbs are either six roomed or seven roomed according to the Harare Municipality Housing Plans. These 4 persons are adults sharing the house with their families. This reflects over crowdedness taking into consideration that most of the high density suburbs houses are on a 150 square meter ground. Thus the adult client in particular has no space to mobilize.

The streets, avenues and roads are not safe to do the activity of living of mobilizing because of the motorists who do not observe the road safety regulations. The motorists drive their cars when they are drunken and under-estimate the speed at which they drive the cars. In addition commuter omnibuses drivers over speed

their vehicles to meet the days target. This create an unsafe environment for the adult client recovering from fractured tibia and fibula to do
the activity of living of mobilizing.

The politico- economic influencing factors interfere with mobilizing. In Zimbabwe the commonest mode of transport is the bicycle. It is therefore important that the cyclists put on safety wear to alert the motorists and subsequently prevent accidents. The cyclists know the road rules but they do not value them. The cyclists are supposed to put on the reflector jackets and reflector shoes as they cycle during the night, but, they never practice that. Most cyclists use bicycles with no headlights at night and as a result most of them end up getting involved in accidents. This induces fear to the adult clients recovering from fractured tibia and fibula and hence fails to mobilize.

Implementation of the discharge plan and mobilizing.

The implementation of the discharge plan and mobilizing should empower the patient to achieve early recovery in the home setting which involves the family, friends and significant others to take part in the care and by so doing the relationship is strengthened, the hospital stay is also reduced and the hospital and client costs are reduced. (Moyo, 2003).

Implementation of the discharge plan.

Implementation of the discharge plan is the process of moving the patient from one level of care to another. The process starts on admission to hospital (National AIDS Coordinating programme and Ministry of Health & Child Welfare, 1998).

Armittage (1981) states that implementation of the discharge plan refers to the period of preparation necessary for arrangement to be made and embraces adequate notice of discharge, discussion of after hospital care and liason with community services as well as the education of patient and care givers. It begins when the patient is admitted in order to prepare for discharge and the possible need for the follow up care in the home. Clark (1996) defines implementation of discharge plan as a process in which the client and family needs are identified and evaluated and responsibility for meeting those needs is transferred to the client, to significant others, or to other health care providers.

Implementation of the discharge plan as the independent variable is a category of nursing behaviors in which the actions necessary for achieving the goals and expected outcome of nursing care are initiated and completed. This includes nursing interventions for performing, assisting or directing the performance of the activities of daily living (Potter & Perry 2001) namely diet, medication, exercises, psychological and physical activity (Machete & Holloman's 1986) gained through education whilst still admitted to hospital. An effective implementation of discharge plan could be described as a construction and implementation of a planned programme of community care which meets the patient's needs after discharge from hospital (Dukkers, et al, 1999).

Continuing care is defined as the effective and efficient transition of the patient from hospital to home (Phipps , Long , Wood & Cassmeyer , 1995) . The continuing and quality of care after discharge from hospital is an area of concern for medical surgical nursing practice since recent evidence suggest that patients are now being discharged from hospital quicker and sicker (Bours , 1998) .

In the past patients were considered to be passive recipients of nursing care and were incapable of making decisions about their care and a paternalistic approach to patient care was taken by nurses and other health care providers (Biley , 1992) . When given the label of patient, the patient was expected to be passive and dependent. The role was relative to care givers and health care providers who assumed a prescriptive role .

The discharge plan which was put in place by the national AIDS Coordinating program and the Ministry of Health and Child Welfare , (1998) could be used on patients recovering from fractured tibia and fibula to avoid poor nurse patient ratio in hospitals as this compromises care of the patient . Subsequently the hospital cost and the length of hospital stay is reduced and there is less financial burden to the family . As such the medical surgical nurse practitioner facilitates for the implementation of the discharge plan in adult client recovering from fractured tibia and fibula from admissions through discharge to review in the outpatient department

In the National Discharge plan guide lines implementations of discharge plans involves assessment, planning, implementation, evaluation, monitoring discharge and handover of patients to the other multidisciplinary team members. The objectives of discharge plan process according to discharge plan guidelines are the identification of patient's needs, resources, support system, education of clients, management, potential environmental changes and life style. Clark (1996) states that the discharge plan has two primary purposes which include to promote continuity of care to provide client health status and to facilitate the client transition between components of the health care system and to coordinate services between and among a variety of health care providers. The advantage of the implementation of discharge plan is improved continuity

of care to the adult client and the advantage to the health care agencies include reduction in average length of hospital stay resulting in lower cost and more efficient use of resources (Clark , 1996). There is also improved communication and better information on client needs.

Implementation of the discharge plans includes elements such as diet, medication, activity, psychosocial and physical activity (Machete & Hollomans, 1994). Jewel (1993) cites activity, diet, pain management as some issues to be included in the implementation of the discharge plan. The AIDS Action (1996) outlines that discharge plan should include good nutrition personal hygiene and exercises.

Moffat and Spiegel (1987) allude to the fact that nutritional concerns are crucial for the self care of persons with HIV and AIDS because fevers and infections create an increased metabolic rate and thus there is increased need for proteins and calorie intake. If mobility is restricted catabolic activity is accelerated reducing a rapid breakdown of cellular materials leading to protein deficiency, hence, diet rich in protein is indicative to overcome protein deficiency and return the body to a state of positive nitrogen balance and thus the adult client with fractures of the tibia and fibula have increased need for iron, protein, vitamins and calcium to allow bone repair to progress (Phipps, Long & Woods, 1987)

Kozier, Erb, Blais and Wilkinson (1995) state that in the nursing interventions for clients with retention catheters many agencies implement prophylactic measures to acidify the clients urine to prevent urinary infections and the acidification or alkalization of urine can be achieved by changing the composition of diet and state that most vegetables and fruits yield alkaline urine where as meat, fish, fowl eggs and cereals yield an acid urine and alkalization of urine may be helpful in soothing an irritated bladder. Dietary intake must often be altered to promote healing and restore health and the objectives of dietary treatment may be to increase or decrease weight, allow an organ to rest, remedy nutritional deficits, promote healing and provide nutrients the body can metabolize.

In a study conducted by Chabuda, (2005) on end stage renal disease on clients knowledge concerning their therapies while on dialysis the results showed that clients demonstrated knowledge on dialysis and arteriovenous fistula care mean percentage score 72% and less knowledge on medication and diet mean percentage score of 53% and 52% respectively. A conclusion was drawn that the medical surgical nursing practice need to be aware that client who leave hospital with little or no information may not be confident in the management of their health condition, which in turn undermines the effectiveness of care and leads to unpredictable progression of disease and greater likelihood of complications especially the adult client recovering from fractured tibia and fibula.

Continuing care also means continuing with taking the prescribed drugs by the medical practitioner. Nevertheless the adult clients need to continue taking some drugs because the healing process of the bones takes long. Ignatavicious, Workman, Mishler (1999) state that a true callus converts into a bone from the third week to the tenth week. Every drug is prescribed to accomplish a therapeutic goal and hence each drug is carefully chosen for its therapeutic effects (Craven & Hernel 1996).

Since many of the adult clients recovering from fractured tibia and fibula are in hospital for approximately six weeks and this is quite a long time and bones might take long to heal they need information. Education concerning medication is necessary from the beginning of treatment and acts as a rescue, importance is placed on timing, dosage and possible side effects of the drug during hospitalization whereby the client becomes fully educated (Holloway, 1996). Esposito (1994) conducted a study of the effects of medication education on adherence to medication regimes in an elderly population and found that the group with medication schedules had a decreased incidence of errors compared with the group without schedules. . The medical surgical nurse practitioners should aim to teach clients about medication so that at the time of discharge the client should be able to display a full understanding of his / her illness and medications and taking their medications with 100% accuracy. They pointed out the role of medical surgical nurse should include assessment, teaching and evaluation with a plan that covers information giving.

The adult client recovering from fractured tibia and fibula need to perform some exercises in order to strengthen muscles, increase endurance and promote joint mobility.

Exercise is the active contraction and relaxation of muscles and can be classified according to the type of muscle contraction, isotomic, isometric or isokinetic (Kozier, Erb, Blais, & Wilkinson, 1995) and according to the source of energy aerobic or anaerobic,(Kozier, Erb, Blais &Wilkinson).

The isotomic exercises are those in which there is constant muscle tension, muscle contraction and active movement. Activities such as walking, running, and activities of daily living and range of motion are isotomic (Craven & Hirnle, 1996)and the implementation of the isotomic exercises is more valued in the adult client recovering from fractured tibia and fibula.

The isometric exercise is a static exercise in which the muscle undergoes tension and contraction but no change in length and no joint movement and the example is the quadriceps setting to strengthen the quadriceps muscles, maintaining strength in the immobilized muscle and endurance training (Craven & Hirnle, 1996).

Smith, Dwell and Martin (2000) state that quadriceps exercises and range of motion are the most common forms of exercises to be implemented by the adult client recovering from fractured tibia and fibula.

Psychosocial nursing interventions focus on resolving psychological or social problems of the adult client recovering from fractured tibia and fibula. Humuor, individual or group therapy, role modeling, social skills and exploring feelings are all ways of carrying psychosocial nursing interventions (Craven & Hirnle, 1996).

According to Kozier, Erb, Blais and Wilkinson (1995) state that the adult clients recovering from fractured tibia should be assessed for level of anxiety and they are encouraged to verbalize their concerns and the adult clients are given knowledge and provided with ongoing support and encouragement to promote motivation. After careful assessment of the adult client recovering from fractured tibia and fibula and identifying the adult client's needs, the medical surgical nurse practitioner makes referrals to health care providers with required expertise, in particular the adult client recovering from fractured tibia and fibula may be referred to the physiotherapist or the orthopaedic surgeon. In some settings the medical surgical nurse practitioner might do group meetings with the family to determine the problem (Kozier, Erb, Blais & Wilkinson, 1996).

Above all implementation of the discharge plan involves knowledge which is defined as a process and service where patient's needs are identified, evaluated and assistance is given in preparing the patient to move from one level of care to another, that is from hospital to home or hospital to another facility (Jackson, 1994). Jackson (1994) argues that as families and friends provide care, it is essential to assess the family resources, coping strategies and informational needs.

Baumann, Web and Smith (2002) conducted a study on the discharge information patients may desire on wound care and it was found that although patients felt informed about wound care on the day of discharge they did not feel sufficiently informed 1 to 2 weeks after discharge. This suggest that health personnel should continuously reinforce the information in particular the medical surgical nurse practitioners. The results were that clients who received information 73% (n=116) indicated that they received the standard information prior to discharge about their wound care. Ninety-one percent (n=105) stated that at the time of discharge the information which was given was sufficient for their needs. When the clients were tasked 1-2 weeks after discharge, if the information they received from hospital was sufficient only 78% (n=90) agreed. Chi-square analysis revealed that although most clients felt well informed about wound care on the day of discharge they did not feel sufficiently informed one to two weeks after discharge. A small number of clients 9% (n=11) indicated that the information received on wound care was sufficient. Hence it is a challenge for the medical surgical nurse practitioner to make sure that the adult client recovering from fractured tibia and fibula is given information and the multidisciplinary team in particular the medical surgical nurse put arrangements in place for the continuing care of the adult client .Nurses value the uniqueness of a client, and where possible tend to initiate educational process that actually empower individuals (Morgan, 1993)

Implementation of the discharge plan involves assessment of patients and family care givers needs and adequately arranged after care both essential if a return home is to be successful. Implementation of discharge plan offers the medical surgical nurse practitioner to promote education and assistance to both the adult client and the family care givers at home. Adult client education can provide information and resources that enable adult client to take control of their care (Lowenstein & Hoff, 1996).

It is therefore important that the medical surgical nurse practitioner assesses the adult client capability in the activity of living of mobilizing (Roper, Logan & Tierney, 1996) and plans forecasting on the shortfall that the adult client needs help (Orem, 1971). In a study conducted by Cleary, Horsfall and Hunt (2003) on consumer feedback and discharge plan in which the aim of the study was to clarify the consumer discharge needs, ascertain consumer perceptions of helpful practice and identify areas that require improvements, identify resources consumer deem important, ascertain satisfaction with specific aspects of services and obtain baseline data to improve discharge plan, the following results were obtained. Clients were not satisfied with the respect they received from staff, the attention staff gave to clients concerns and worries, quality of services provided by nurses, the way treatment met client needs and overall stay in hospital. Majority of respondents 95% indicated that the discharge arrangements were explained to them and 90% were satisfied with these whilst over 2/3 indicated that the information provided in hospital to assist with discharge had been helpful. The clients identified the areas of concern for service improvement which included increased contact with the consumer consultants and more information about mental health problems, medication and relapse prevention. Findings provide basis for the development of more appropriate strategies to improve the continuityof services between hospital and community mental setting especially for the adult client recovering from fractured tibia and fibula.

Ambulation and walking is an important function that most people accomplish automatically. It is an act of walking (Kozier, Erb, Blais & Wilkinson, 1995). The longer the adult clients are in bed the more the difficulty they have in walking. One to two days in bed can make the adult client feel weak, unsteady and shaky when first getting out of bed (Kozier, Erb, Blais & Wilkison, 1995) in particular the adult client recovering from

fractured tibia and fibula. As a result a client who has been confined to bed for a long time need to do muscle tone exercises to strengthen muscles used for walking before walking. Then would ambulate with assistance until when the client is able to walk unaided. In a bid to promote Ambulation (Samieto, 1967) applied the plaster of Paris to clients with fractured tibia. He initiated the non weight bearing after 24 hours to allow the plaster to dry then begin weight bearing.

With an effective implementation of the discharge plan by the adult client recovering from fractured tibia and fibula there should be provision of appropriate support and service following discharge from hospital and this may result in preventing unnecessary readmission's (Closs & Tierney, 1993). Implementation of the discharge plan identifies the potential need for the referrals or assistance in needed arrangement for continuing care.

Implementation of the discharge plan and mobilizing

If the discharge plan is implemented well whilst the client is still admitted in hospital, mobilizing should be improved and the adult client is discharged home early for the continuity of care by the client or by significant others. The quality of care is improved, the hospital costs reduced to the adult client/ family and the hospital. As the family members take part in the care of their relative
the relationship is also strengthened.

Theoretical Framework

A theoretical framework provides a context for examining a problem. It is a distinct frame of reference and provides a unique focus that has a profound influence on our perceptions (Fawcet, 1995). A theoretical framework serves as a guide by providing a systematic identification of relationships between variables. Skinner and Hampson (2001) states that the theoretical framework assumes there are relationships between the dependent variable mobilizing and independent variable implementation of the discharge plan.

Roper, Logan and Tierney, (1996) theoretical framework focuses on person as an individual who has a life span from birth to death. During development the individual gradually attains some degree of independence and as a result the individual has attained individuality. The person engages in the activities of living to sustain health. The psychological, socio-cultural, environmental, biological and politico-economic influencing factors can interfere with mobilizing. Roper's model of living is focused on the life span, the activities of living, the independence/dependence continuum, the individuality and the influencing factors. The components of the model that were selected for the study are the life span, influencing factors, individuality and the activities of living of mobilizing and the dependence/ independence continuum and these give a health outcome on the individual's independence.

The individuality of an individual is reflected in his/her performance of the activities of living of mobilizing. The performance influence how he carries out the activities of living, how often, where, when, why, what he knows and what he believes about the activities of living (Roper, Logan & Tierney, 1996).

Roper's framework was used in some studies. Tution and Seers (2004) did a study on comfort as a central part of nursing. The aim was to see how staff and patients view comfort and how it is achieved in practice. The participants included 19 older adults and 27 staff members and 130 hours of participant observations which were completed by additional weekly visits to the staff ward. In the results, themes were identified as nature of comfort, discomfort, the underlying factor that influences the achievement of comfort/ discomfort and the determinants of comfort/ discomfort. In this study the forecast of nursing on relief of discomfort suggested a tendency of teaching to problems, rather than proactively to create an environment that facilitate comfort. Staff were aware of the ideas of practice but found these difficult to achieve in reality. In the study comfort was not consistently provided and some ways of working actively promoted discomfort.

Bellman (1996) did a study with a topic, changing nursing practice through reflection on the Roper, Logan and Tierney model of living. Surgical nurses were empowered to effect change and consistently to enhance the quality of care in the ward. The study was taken over a period of 15 months period and utilized a multi-method approach. In phase 1 triangulation of data enabled practitioners/ co researchers to identify and reflect on patients psychological needs within the independence/ dependence continuum of (Roper, Logan & Tierney, 1996). Phase 2 involved a collaborative approach of planning, implementation and evaluation of innovations, which resulted from reflection on practice. Collaborative practice was undermined by researchers ambivalence concerning feedback from staff. They had both choice and control which enabled them to develop personally and professionally. Group reflection was seen as an essential feedback strategy during the change process.

In addition another study was conducted by Webb and Pontin (1997) to evaluate the introduction of primary nursing the use of care plan audit using the Roper, Logan and Tierney (!996) model of living. The care plan audit tool was based on the Roper, Logan and Tierney (1996) activities of living model and the nursing process. The audit showed that few changes in documentation had taken place as a result of the introduction of

primary nursing. The volume of communication had increased but much of this was not documented. Other positive changes as a result of introducing the primary nursing care were found and both the patients and nurses were aware of these. Roper, Logan and Tierney's conceptual framework reflects on his/her degree of independence. The adult client may fail to do the activity of living of mobilizing because of the biological, psychological, socio-cultural environmental and politico-economic influencing factors. Therefore the model seems appropriate to apply to this study.

III. Summary

Mobilizing is one of the activities of living of major concern to medical surgical nursing practice. It is also defined as to push to pull and lift, to walk, run, and jog and to maintain posture, (Roper, Logan & Tierney, 1996). It involves moving freely rhythmically and purposefully in the environment and is essential for proper functioning of bones and muscles and is vital to independence, (Kozier, Erb, and Berman & Burke 2000).

Threats to musculoskeletal such as fractures of the tibia and fibula can interfere with mobilizing in biological, psychological, socio cultural, environmental and politico-economic (Roper, Logan & Tierney, 1996). The discharge plan is implemented to empower the adult client recovering from fractured tibia and fibula to achieve early recovery in the home setting which involves the family, friends and significant others to take part in the care and by so doing the relationship is strengthened, the hospital stay is reduced and the hospital and client costs are reduced.

The study examined the implementation of the discharge plan by adult clients recovering from fractured tibia and fibula. The actual activities by adult clients to improve their mobilizing status is also assessed.

IV. Methods

A scientific method incorporates all the procedures that scientists have used or may use in future to pursue knowledge (Kaplan, 1994). There are two scientific methods namely the qualitative and quantitative. The research method is based on the philosophy of logical empiricism (Norbeck, 1987; Scheffler, 1867). As a result the scientific knowledge is generated through an application of logical principles and reasoning (Silva & Rothbort, 1984).

The research method to be used in this study is the quantitative research method. A quantitative research method is a formal, objective, systematic process in which numerical data are obtained to obtain information about the world (Burns & Grove, 1993). The method is used to describe, examine relationships among variables and determine cause and effect interactions between variables.

Design

A descriptive correlational design was used for this study. A descriptive correlational design is one of the non experimental quantitative research designs in which there is no manipulation of the independent variables nor is the setting controlled (Burns & Grove, 1993). The study was carried out in a natural setting and phenomena were observed as they occurred at one point in time. The purpose of a descriptive correlational design was to examine, determine and describe the relationship that exists in a situation between variables. The design was suitable for the study because the purpose of the study was to examine the relationship between implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula and the sample was studied as a single group.

Sampling plan

Sampling plan involves selecting a group of people, events, behaviors or other elements with which to conduct a study (Burns & Grove, 1993). A sample was a portion of the population that represented the entire population. Polit & Hungler,(1999) state that it is more advantageous to use a sample because it is more practical and less costly than collecting data from the whole target population. According to Burns and Grove, (1993) sampling plan increases representativeness, decreases systematic bias and decreases the sampling error. The study site was at one of the Central Hospital Outpatient Department Orthopaedic clinic in Harare. The Orthopaedic clinic reviews approximately 100 clients weekly out of which approximately 30 are clients with fractured tibia and fibula. The services offered in the Orthopaedic clinic are medical reviews and health education concerning self care.

The inclusion criteria was eligible for the study participants. The inclusion criteria is used by researchers as a basis to decide whether an individual or object would or would not be classified as a member of the population in question (Brink, 1996). In this study the inclusion criteria was that subjects must have been medically diagnosed with fractured tibia and fibula. The subjects were seen as outpatients in the Outpatient Department at one Central Hospital in Harare. The subjects were discharged from hospital for four weeks and thereafter were coming for medical reviews two weekly. In summary the subjects had about ten to twelve weeks

post fracture because during the third to the tenth week of healing the callus converts into a bone (Black & Jacobs, 1993). The subjects used walking aids such as crutches, plaster of Paris, leg casts or wheelchairs. The subjects had no operation done to the fractures to immobilize the fracture. Either gender between the ages 18 to 50 years was considered as subjects because this is an active group which is in the working class. The selected subjects were able to speak or read Shona or English.

The exclusion criteria included subjects who had been discharged from hospital less than four weeks. Subjects who were also attending ward clinics as well as other Outpatient appointments were excluded from the study as these subjects were likely to be having other medical concerns.

Sample size

A sample size is the number of subjects needed in a study (Polit & Hungler, 1999). Brink, (1996) states that the scientific programmatic factors influencing the sample size must be considered, when deciding on the number of subjects to be included in the study. Polit and Hungler,(1999) states that the larger the sample the more representation of the population is likely. In this study the sample size was determined by the power analysis, effect size and the level of significance.

Power is the capacity of the study to detect differences or relationships that actually exist in the population. It has the capacity to correctly reject the null hypothesis. Power analysis represents a method of reducing the risk of Type II error which means wrongly accepting a false null hypothesis (Polit & Hungler, 1999). The study used the power of .80 which is the minimum acceptable power for a study (Cohen, 1988).

Effect size is the extent to which the null hypothesis is false (Burns & Grove, 1993). It is concerned with the strength of the relationships among research variables (Polit & Hungler, 1999). The effect size must be determined in order to perform a power analysis (Burns & Grove, 1993) for the purpose of determining sample size. If the effect size is large approximately .8 a small sample is required which is about 25 when using the power .8 (Lipsey, Mark, W. 1990). However the effect size is small approximately .2 it would be more difficult to detect the power and a large sample is required. A medium effect size of .5 was used in this study.

The significance level is the probability of committing a Type I error which is wrongly rejecting a true null hypothesis (Polit & Hungler, 1999). The level of significance is used as an index of the probability that the findings are reliable. The more stringent the significance level for example . 001 the greater the necessary sample size (Burns & Grove , 1993) . The significance level that was used in this study was (0.05). It indicates that only five times out of a hundred the results were unreliable and that 95 times out of a hundred the results were reliable (Polit & Hungler , 1999) .

Therefore basing on Lipsey table (1990) of power . 80 , effects size . 5 and significance level of 0,05 the sample size was 65 subjects . In addition 5 subjects were added for the potential mortality which is a potential threat to internal validity . Therefore the sample size was 70 subjects .

Internal validity

Internal validity refers to the degree to which the outcome of the experiment can be attributed to the manipulated independent variable rather than the controlled extraneous factors (Brink , 1996) . There are several threats to internal validity namely history , maturation , testing , selection bias and instrumentation change . In this study the potential extraneous variables were controlled by the investigator through the attention to the methodological issues in sampling instrumentation and pilot testing .

Sampling procedure

The sampling procedure that was used for this study was probability simple random sampling . The probability sampling methods have been developed to ensure some degree of precision in accurately estimating the population parameters (Burns & Grove , 1993) . In random sampling each individual in the population has an equal opportunity to be selected for the sample . Furthermore the sample was representative of the target population and there was less chance for systematic bias . The accessible population were waiting on benches in the outpatients department so as to be seen by the doctor . The investigator asked for permission from the Matron or Sister –Incharge in Outpatients Department to select the subjects for the study . The investigator first went through the patients outpatient cards to determine all those clients with fractured tibia and fibula .. The identified subjects were taken into a side room where they were informed about the study so that they made an informed decision to participate in the study .

Those subjects who were willing to be involved in the study were informed about the selection procedures . The number 1 and 2 were written on separate small papers . The written slip were placed in a container and mixed well . The eligible available subjects were identified and asked to pick one piece of paper from the container . All those who picked paper slips written 2 were enrolled for the study and those with number 1 were not enrolled . This method was repeated on each clinic day until the required number of subjects was met . The selected subjects maintained their position in the waiting area to be seen by the doctor .

Variables

Conceptual and operational definitions

Mobilizing as the dependent variable is conceptualized as an activity –exercise pattern that refers to a person's routine of exercises, activity, leisure and recreation which includes activities of daily living that requires energy expenditure and it involves moving freely, rhythmically and purposefully in the environment and is essential for proper functioning of bones and muscles and is vital to independence (Kozier, Erb, Berman & Burke, 2000).

Mobilizing was operationalised using the mobilizing questionnaire (M Q). Mobilizing requires co-ordinated muscle activity which involves posture, gait, balance, range of movement of the knee joint including extension and flexion and the ankle joint including eversion and inversion and the muscles strength.

Implementation of the discharge plan

Implementation of the discharge plan as the independent variable is conceptualized as a category of nursing behaviors in which the actions necessary for achieving the goals and expected outcome of nursing care are initiated and completed. This includes nursing interventions for performing, assisting or directing the performance of the activities of daily living (Potter & Perry, 2001) namely diet, medication, exercises, psychosocial and physical activity (Machete & Holloman, 1986) gained through education whilst still admitted in hospital.

Implementation of the discharge plan was operationalised as the discharge plan questionnaire (DPQ). It involved initiation and completion of the plans for continuing care by the adult clients recovering from fractured tibia and fibula, which involved initiation and completion of the acquired knowledge whilst still admitted to hospital. The acquired knowledge on the disease and possible complications of the fractured tibia and fibula , knowledge on diet , range of motion , exercises , medications , use of available multidisciplinary team members and use of the community resources to attain the goal of mobilizing effectively .

Instruments

Mobilizing

Mobilizing is the dependent variable. The questionnaire comprises 6 items (See Appendix C). Item 30 added the subjects on the most comfortable posture. The scoring for the leaning away from the affected leg '3' , sitting on the chair with the affected leg bent '2', sitting in chair with affected leg elevated '1' and sleeping on '0' .

Item 31 asked the subjects to rate themselves on their walking status. The scoring for the best option limping with no pain '4' ,limping with minimal pain '3', limping with moderate pain '2', limping with severe pain '1' and immobile on none weight bearing '0'.

Item 32 asked subjects on what they used to balance themselves when trying to walk. The scoring for the best option nothing(unaided) '5', walking stick '4'. Crutches '3', walking frame '2' , chair '1' , assisted from another person '0'.

Item 33 asked the subjects to what extent they could bend their affected legs using the knee when seated on the chair. The best option normally scored'3' halfway'2', slightly'1' and unable to '0'.

Item 34 asked the subjects on the extent of extending the leg using the knee. The scoring for the best option normally with no pain scored '4' , moderately '3' , minimally '2', unable because of pain '1' , and unable because of plaster of Paris '0' .

Item 35 asked the subjects to what extent they could move their feet for the affected leg at the ankle joint. The scoring for the best option normally with no pain '4', moderately with pain '3' , minimally with pain '2' , unable because of pain '1'and unable because of Plaster of Paris '0'. The total maximum score for the mobilizing questionnaire was '26' and the minimum score was '0' .

The discharge plan

The discharge plan for adult clients recovering from fractured tibia and fibula was adopted from (National AIDS Coordinating Programme and Ministry of Health and Child Welfare, 1998).

The discharge plan is a plan of moving a client from one level of care to another and the program starts on admission of the client to hospital (National AIDS Coordinating Program and Ministry of Health and Child Welfare, 1998). The plan entails specific goals and objectives for continued client care (Clark, 1996). The plan was implemented by the adult client assisted by family members and multidisciplinary team members.

Assessment of client post discharge needs

The following areas are focused at to assess the clients post discharge needs, human biology, environment, lifestyle and health care systems. The client and relatives are involved in the assessment. The prioritization of client care needs which depends on the condition of patient is done. The discharge summary is documented in the patient's hospital notes, the referral letter, and on the patient's outpatient card. A list of all

discharged adult clients recovering from fractured tibia and fibula is written and given to the Community Health Coordinating Nurse in Outpatient Department, who in turn communicates with the local clinics to follow up these clients at home.

Goals

The goal of the discharge plan is to implement discharge plan according to the adult clients needs, to recover promptly to assume the normal duties with minimal disabilities, to prevent/ reduce morbidity rate of adult clients recovering from fractured tibia and fibula, to involve client, family and multidisciplinary team members in the implementation of discharge plan so that the adult clients recover in total.

Objectives

The objectives for the discharge plan are for the adult client to know the extent of the fracture, signs and symptoms of a fracture, complications of a fracture, food to be taken by clients with fractures so as to cooperate in the implementation of the discharge plan, to implement some specific exercises from fractured tibia and fibula to prevent disabilities and contractures, to continue taking drugs as prescribed on the outpatient card, to promote drug compliance and prevent infection, to involve the multidisciplinary team members in the community during the implementation of the discharge plan, to ensure continuity of care.

Education to the hospitalised adult client recovering from fractured tibia and fibula

Clients recovering from fractured tibia and fibula should be well educated on the extent of the fractured tibia and fibula and tissue involved, signs and symptoms of the fracture, complications of the fracture, diet taken by the adult clients with fractured tibia and fibula and exercises done by adult client recovering from tibia and fibula. The exercises include passive limb exercises initiated by the nurse during the acute stage, active limb exercise as the adult client improves, straining and bending of knee joint several times a set of ten, movement of ankle joint several times a set of ten, walking several times, repositioning self several times, position change using assistive device several times, tightening and relaxing of thigh muscles several times a set of ten. The adult client should know the drugs to continue taking at home, the purpose of taking the drugs and the frequency of taking the drugs. Normally drugs to be known are antibiotic, pain killers and muscle relaxant.

The adult client is expected to identify and use the Multidisciplinary Team Members in their community to ensure continuation of quality care. The adult clients are referred to the local clinic through the Community Health Coordinating Nurse who knows the multidisciplinary team members in the respective community areas and refers the adult clients respectively. The Outpatients Review Dates are reinforced to the adult client. The adult client is encouraged to book for the Outpatients Review Clinics with Sister in Outpatient Department before leaving the hospital.

Implementation of the discharge plan

Implementation of the discharge plan is the independent variable. The questionnaire comprises 17 items (See Appendix B).

Items 13 asked the subjects what information they were given regarding signs and symptoms of the fractured leg, five signs and symptoms were given and each sign and symptom carried a score of '1'. If the subjects mentioned all the correct signs and symptoms he/she scored '5'.

Item 14 asked the subjects on the information they had on the possible complications of fractures of the tibia and fibula. This gave a total score of '5'. A score of 1 was given to each response given.

Item 15 asked the subjects about knowledge on diet that they were taking to promote healing of the fracture. The correct options were given. The subjects were expected to mention all three with score of 1 given for each correct response.

Item 16, 17, 19 and 21 wanted to assess how often the subjects were performing exercises to prevent joint stiffness and muscle wasting of the affected limb. A likert scale was drawn . The best option on the likert scale which is several times scored 4, 3 times plus a set of 10 scored '3,' two times plus a set of ten score '2' , once plus a set of 10,'1' and 0 , '0'.The scores for walking exercise were '2' for the best option several times , '1' for someone and '0' forever doing the walking exercise . The total score for item 16 to item 21was '22' .

Item 22 asked the subjects about analgesia medication . This wanted to understand if the subjects were knowledgeable about their medication ,. The subject who named the drug which was being taken and got '1' score. Those subjects who said they did not know the name ,had forgotten the name and were not on drug scored'0'

Item 23 wanted to understand how often the subject were taking the analgesia and got a score '1' for the option chosen.

Item 24 the investigator wanted to understand if the subjects were knowledgeable about the other drug they were taking since standard prescription also included the antibiotics or the muscle relaxants. There was a score '1' for the option chosen.

Item 25 wanted to understand if subjects were knowledgeable on the purpose for taking the antibiotic drug. The option scored '1' from the two options given and did not get a score for not knowing and not being on drug. The subject chose 1 option.

Item 26 the investigator wanted to know if the subjects knew the other drugs they were on apart from analgesia and antibiotics. There was a score '1' for knowing the muscle relaxant. No score was given for not being on the drug and not knowing the muscle relaxant.

Item 27 the investigator wanted to understand if the subjects were knowledgeable on the purpose of taking the muscle relaxant. A score '1' was given to the correct answer and no score was given for not knowing the purpose or for the wrong answer chosen.

Item 28 the investigator asked the subjects on how often he/se took the antibiotic. A score '1' was given to the option chosen that corresponded with the frequency of taking the antibiotic. If the frequency did not correspond with the type of the drug then the subject scored '0'.

Item 29 wanted to determine if the subjects were aware of or consulted any multidisciplinary team members in her/his home area and wanted to find out if he/she got any help from them. There were 6 options given and these constituted a score '6'. The scores were not given to someone who knew nothing. The scores were given according to how many of these multidisciplinary team members they knew or consulted.

The total maximum score for the implementation of the discharge plan questionnaire was '46' and the minimum score was zero.

Demographic Variables

The demographic questionnaire asked subjects about their personal details which included gender, age, marital status, educational level, religion, occupation, income, number of children, residence area, whom the subject stayed with, what was done to the leg to promote healing and the problems that interfered with mobilizing. (See Appendix A). there were 12 items for the purpose of describing the sample.

The reliability of an instrument is very important in a study so as to yield good results. Polit and Hungler (1999), state that the reliability of an instrument that yields quantitative data is a major criterion for assessing its quality and adequacy. Reliability is defined as the degree of consistency with which to measure the attribute and can be equated with stability, consistency and dependability of a measuring tool (Polit & Hungler, 1999). Stability refers to the extent to which the same results are yielded on repeated administration of the instrument and an instrument can be considered to be internally consistent when all its subjects are measuring the same characteristics. The investigator may determine reliability by the way of equivalence in which different observers or investigators measure the same phenomena. In this study a pilot study was conducted to ensure reliability of the instrument and to determine the adequacy of the instrument which was evaluated by its validity. Validity refers to the degree to which an instrument measures what it is supposed to measure (Polit & Hungler, 1999).

Content validity is concerned with the sampling adequacy of items for the construct that is being measured. In this study a panel of experts checked and acknowledged the instrument. The experts included the senior nursing officers in the study site, medical doctors, the hospital clinical director, the supervisors in the department of nursing and the Research Board at the University of Zimbabwe. The investigator made use of the observations to confirm the subjects responses.

Pilot Study

A Pilot study was also done to determine the length of the time it took to administer the entire instrument package and some changes were done on the instrument on Appendix A Section A of the instrument. The changes done on the instrument are as follows. On Appendix A Section A of the instrument item 5 which asks the subjects their church was changed from Roman Catholic, Protestant, Evangelical, none, Baptist and Johanne Marage to Christian, Hindu, Moslem, Traditional and Judaism. Item 11 which was initially not in the instrument was added. Appendix B section B on the implementation of the discharge plan , the initial instrument had likert scale which only include once, twice and thrice set of ten . After the pilot study several times was added to the likert scale on item 16 to 21 . Appendix C Section C item 34 was originally not there and was only introduced after the pilot study .

Pilot study is defined as a small scale version of the planned study , the trial runs of planned methods (Prescott& Soeken , 1998) . The principal focus of the pilot study was the assessment of the adequacy of the data collection plan (Polit & Hungler , 1999) .

In this study the pilot study was conducted by the investigator at the Outpatient Department of one Central Hospital in Harare . Five subjects for the pilot study were chosen from the same population as subject

for the main study . The subjects interviewed were subjects who met the selection criteria .The subjects were asked to sign an informed consent before the interview . After the pilot study some changes were done to the instruments .

Data collection plan

Data collection is the precise systematic gathering of the information relevant to the research purpose , the specific objectives, questions and hypothesis (Burn & Grove , 1993).

Human Rights Consideration

Human rights for ethical considerations were taken into account for data collection . Following the permission to conduct the study from the Clinical Director of the Hospital , Medical Research Council of Zimbabwe and the Department of Nursing Science University of Zimbabwe subjects were informed about the study so that they made an informed decision regarding their voluntary participation . The participants were informed that they would not pay or receive monetary gains for being involved in the study . The participants did not benefit directly from the study , but, information acquired during their participation might benefit other people with the same problem in future . Subjects were requested to sign a consent if they voluntarily agreed to be involved in the study

The subjects were not coerced to enter into the study .Those willing were entered into the study until the required number of subjects was reached . Subjects were assured that if they refused or withdrew from the study they would continue to receive medical or nursing service . All the agreement between the investigator and the subject were honoured. The participants were free to access information from the investigator and to access the appropriate professional assistance if required . The subjects were assured that the information they provided was not to be used against them in any way . The relationship created between the investigators and subjects was not exploited . Privacy and confidentiality was maintained throughout the study . The subjects were informed that the completed questionnaire had no name but had numbers . The questionnaires were kept in cupboard under lock and key which was only accessed by the investigator . The interview forms were destroyed when the study was completed .

Data collection procedure

Following permission to conduct the study data was collected by the investigator in the Outpatients Department on two successive days weekly from the twentieth of April 2006 to 20th May 2006 . There are three orthopaedic clinics which are conducted by different orthopaedic consultant weekly . Two clinics are conducted on Monday and Tuesday morning from 0800 hours to 1100hours and one orthopaedic clinic is done on Monday afternoons from 1300hours to 1500hours.

Once sampling selection procedures were carried out the interviews were conducted from 0700hours to 0900hours on the morning orthopaedic clinic and from 1200 hours to 1400hours afternoon orthopaedic clinic before the subjects were seen by nurse or doctor as this was thought to interfere with the study because the subjects would have gained some information prior to the interview. The interview was done privately in the doctors consultation rooms which were not occupied in the outpatient department of the central hospital.

Data analysis

According to Polit and Hungler (1999) data analysis is the systematic organization and synthesis of data collected. Raw data was coded and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS).

The demographic data was analysed using the descriptive statistics such as measure of central tendency, and dispersion for the purpose of describing the sample.

The first question, "How is the implementation of the discharge plan effected by adult clients recovering from fractured tibia and fibula?" was analysed by the descriptive statistics the measure of central tendency, the frequency and the standard deviation.

The second question, "What is the mobilizing status of adult clients recovering from fractured tibia and fibula?" was also analysed by the descriptive statistics the measure of central tendency, the frequency and the standard deviation.

The third question, "Is there a relationship between implementation of the discharge plan and mobilizing?" was analysed using the inferential statistics of the Pearson (r) Correlation Coefficient test and simple linear regression.

The Pearson Product- Moment Correlation Coefficient test (r) at significance level of 0,05 was used to identify the strength of the relationship between the implementation of discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula. A value 0 indicated no relationship a +1 a perfect positive relationship and -1 a perfect negative relationship (Burns & Grove, 1993). Simple linear regression was also

used to show the direction of the relationship or the line of best fit which explained the extent or offered impression of the implementation of the discharge plan has on mobilizing.

V. Results

Summary

The purpose of this study was to describe and examine the relationship between implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula. The implementation of the discharge plan is the independent variable and mobilizing is the dependent variable. The study was carried out at one of the major referral Central Hospital in Zimbabwe.

The study sought to answer three research questions. Question 1, "How is the implementation of the discharge plan effected by adult clients recovering from fractured tibia and fibula?" Question 2 was, "What is the mobilizing status of the adult client recovering from fractured tibia and fibula?" Question 3 was, " Is there a relationship between implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula. Data was analyzed using descriptive statistics such as the Pearson (r) Correlation test and simple linear regression.

Sample Demographics

The demographic characteristics provide a profile of the clients who participated in the study. A total of 70 clients participated 52 (74.3%) were male and the 18 (25.7%) were female. The ages of the clients ranged from 18 years to 50years.

Table 1 shows the distribution of ages in categories. Twenty-five (35.7%) ranged from 18 to 29years, 23 (32.9%) were 40 to 50 years and 22 (31.4%) were 30 to 39 years. The marital status of the subjects showed that 49 (70%) were married, 14 (20%0 were single, 5 (7.1%) were widowed and 2 (2.9%) were divorced. The educational level of the subjects was that 48 (68,6%) attended secondary education, 16 (22.9%) primary education, 4 (5.7%) attended college or university education and 2 (2.9%) had no schooling. Regarding religion 60 (85.7%) subjects were Christians, 5 (7.2%) were Moslems, 3 (4.3%) were Traditional believers, 1 (1.4%) was a Hindu and 1 (1.4%) was if the Judaism faith.

Considering occupation, 22(31.4%) were unskilled workers , 21(30,0%) were not employed , 19(27,2%) were skilled workers , 7(10,0%) did any job which has not been specified and 1(1,4%) was a professional worker .

Thirty two (45,7%) clients earned less than 5 million dollars monthly ,13(18,6%) earned between 5 to 9 million dollars monthly, 10 (14.3%) earned 1o to 14 million dollars, 8 (11.4%) had no income, 4 (5.7%) earned between 15 to 19 million dollars, 2 (2.9%) earned above 25 million dollars, 1 (1.4%) was not able to count the money but expressed it as a lot of money and he stayed alone, no client had an income between 20 and 25 million dollars.

Table 2 shows that (27.1%) of the subjects had no children, 16 (22.9%) had two children, 13 (18.6%) had more than four children 11 (15.7%) had three children, 7 (10.0%) and one child 4 (5.7%) had four children.

Twenty-four (34.3%) of the adult subjects stayed in high-density suburbs of Harare, 19 (27.2%) stayed in the rural areas, 14 (20.0%) were from the low-density suburbs of Harare, 8 (11.4%) came from farms and 5(7.1%) came from any other areas not specified. Regarding whom they stayed with 40 (57.1%) subjects stayed with their spouses and family, 14 (20.0%) stayed with parents, 9 (12.9%) stayed alone and 2 (2.9%) stayed with friends.

Referring to medical interventions to promote healing of the fractured leg 35 (50.0%) of the subjects had a plaster of Paris applied to promote healing of bones, 19 (27.1%) once had an operation done to the fractured leg, 12 (17.1%) had a backslab applied and 4 (5.7%) had a skin traction once applied.

The subjects had different problems which interfered with their ability to walk. Table 2 shows that 28 (40,0%) of the clients had healing which had taken more than ten weeks, 23 (32.0%) had infection to the fracture site, 9 (12.8%) experienced pain on walking, 6 (8.6%) had deformity, 2(2.9%) religion prevented hospital treatment, 1 (1.4%) had problems with household items which were crowded plus and 1 (1.4%) was afraid to do exercises in crowded houses.

Mobilizing

Table 3 shows the results of mobilizing for subjects recovering from fractured tibia and fibula. There were several preferred postures by different clients. The expected preferred posture by the investigator was upright posture. The result show that 22 (31.4%) preferred the upright posture, 48(68.6%) did not prefer the upright posture, 12 (17.1%) preferred sitting on chair with affected leg elevated and 58 (82.9%) did not prefer this position, 10 (14.3%) preferred sitting on a chair with affected leg bent and 60 (85.7%) did not prefer sitting on chair with affected leg bent, 6 (8.6%) preferred leaning towards the affected leg, 64 (91.4%) did not prefer this position, 6 (8.6%) preferred leaning away from the affected leg and 64 (91.4%) did not prefer the position, 5

(7.1%) preferred lying down and 65 (91.9%) did not prefer lying down and 3 (4.3%) preferred leaning forwards whilst 67 (95.7%) did not prefer leaning forwards on chair with affected leg bent

Table 1:

Sample Demographics 1
N=70

Variable	Frequency	Percentage
Gender		
Male	52	74.3
Female	18	25.7
Age of client		
18-29 years	25	35.7
30-39 years	22	31.4
40-50 years	23	32.9
Marital status		
Married	49	70
Single	14	20
Widowed	5	7.1
Divorced	2	2.9
Educational Level		
None	2	2.9
Primary	16	22.9
Secondary	48	68.5
Tertiary	4	5.7
Religion		
Christian	60	85.7
Hindu	1	1.4
Moslem	5	7.2
Traditional	3	4.3
Judaism	1	1.4
Occupation		
Not employed	21	30
Unskilled Worker	22	31.4
Skilled worker	18	27.2
Professional worker	1	1.4
Any other Unmentioned	7	10
Income		
Less than 5 Million	32	45.7
5-9 Million	13	18.6
10-14 Million	10	24.3
15-19 Million	4	5.7
20-25 Million	0	0
Above 25 Million	2	2.9
A lot of money	1	1.4
Nothing	8	11.4

Table 2:

Sample Demographics 2

N=70

Variable	Frequency	Percentage
Number of Children		
None	19	27.1
One	7	10
Two	16	22.9
Three	11	15.7
Four	4	5.7
More than Four	13	18.6
Residence		
Low density	14	20
High density	24	34.3
Rural areas	19	27.2
Farm	8	11.4

Any other place	5	7.1
Stayed with		
Alone	5	7.1
Parents	14	20
Spouse	40	57.1
Extended family	9	12.9
Friend	2	2.9
What was done to the fractured leg to promote healing		
Plaster of Paris	35	50
Backslab	12	17.1
Operation	19	27.2
Traction	4	5.7
Problems interfering with walking		
Healing has taken more than ten weeks	28	41
Infection to the fracture site	23	32
Pain on walking	9	12.7
Deformity	6	8.6
Religion prevent treatment	2	2.9
Household items crowded++	1	1.4
Fear to do exercised in crowded houses	1	1.4

60 (85.7%) did not prefer sitting on chair with affected leg bent, 6 (8.6%) preferred leaning towards the affected leg, 64 (91.4%) did not prefer leaning towards the affected leg, 6(8,6%) preferred leaning away from the affected leg and 64(91,4%) did not prefer that posture ,5(7,1%) preferred lying down whilst 65(91,9%) did not prefer lying down and 3(4,3%) preferred leanig forward 65(95,7%) did not prefer leaning forwards .

Regarding the walking status 18(25,7%) limped with moderate pain 52(74,3%) did not limp with moderate pain , 14(20,0%) limped with no pain while 56(80,0%) limped with some pain and 11(15,7%) limped with minimal pain and 59(84,3%) did not limp with minimal pain .

Regarding the walking status Table 4 shows that 10(14, 3%) subjects limped with severe pain and 60(85,3%) did not limp with severe pain and 7(10,0%) were immobile on non weight bearing whilst 63(90,0%) were mobile.

Table 4 also provides the results of the balance to prevent falling. The results show that 56 (80.0%) used crutches and 14 (20.0%) did not use crutches, 5 (7.1%) used a walking stick and 65 (91.9%) did not use a walking stick, 4 (5.7%) used nothing to balance and 66 (94.3%) used other things to balance such as crutches, walking sticks, chair and other people 4 (5.7%) were helped by other people to balance and 66 (94.3%) were not helped by other people to balance, 2 (2.9%) used a chair to balance and 68 (97.1%) did not use a chair. None used a walking frame.

Pertaining to extent of bending leg on knee joint the results on Table 4 shows that 40 (57.1%) bent their legs normally at knee joint 30 (42.9%) did not bend their legs normally, 12 (17.1%) bent their legs slightly at knee joint and 58 (82.9%) did not bend their legs slightly and 4 (5.7%) bent their legs halfway at knee joint and 66 (94.3%) did not bend the legs halfway.

Regarding the extent of bending leg on knee joint table 5 shows that 9 (12.9%0 were unable to bend their legs at knee joint and 61 (87.1%) could bend their legs at knee joint. Pertaining to the extension of leg at knee joint table 5 shows that 39 (55.7%) were able to extend legs at knee joint normally and 31 (44.3%) did not extend their legs normally at knee joint, 15 (21.4%) extended their legs moderately and 55 (78.5%) did not extend their legs moderately at knee joint, 10 (14.3%) were unable to extend their legs at knee joint because of the plaster of Paris and 60 (85.7%) extended the legs, 4 (5.7%) were unable to extend their legs at knee joint because of pain 66 (94.3%) extended their legs and 3 (4.3%) extended their legs minimally and 67 (95.7%) did not extend their legs minimally.

Table 6 also illustrates the results on the extent of moving the foot and shows that 18 (25.7%) were unable to move foot because of the plaster of Paris and 52(74.3%) were not interfered by the plaster of Paris to move their ankle joint, 11 (15.7%) moved their feet normally and 59 (84.3%) did not move feet normally, 11

(15.7%) moved their feet minimally at ankle joint and 59 (84.3%) did not move their feet minimally and 5 (7.1%) moved their feet moderately at ankle joint and 65 (92.5%) did not move their feet moderately.

Table 7 shows total scores for the dependent variable mobilizing. The scores for mobilizing ranged from zero to 26. The minimum score for the subjects was 7 and the maximum score was 23. The mean was 15. Those above the mean were 45 (64.3%) and below the mean were 25 (35.7%).

Table 3

Mobilizing 1
N=70

Variable	Frequency	Percentage
Preferred posture		
Upright	48	68.6
No	22	31.4
Yes		
Sitting on a chair with affected leg elevated and extended		
No	58	82.9
Yes	12	17.1
sitting on chair with affected leg bent		
No	60	85.7
Yes	10	14.3
Leaning towards affected leg		
No	64	91.4
Yes	6	8.6
Leaning away from affetcted leg		
No	64	91.4
Yes	6	8.6
Lying down		
No	65	91.9
Yes	5	8.1
Leaning forward		
No	67	95.7
Yes	3	4.3
Walking status		
Limping with no pain		
No	56	80
Yes	14	20
Limping with minimal pain		
No	59	84.3
Yes	11	15.7
Limping with moderate pain		
No	52	74.3
Yes	18	25.7

Table 4

Mobilizing 2

N=70

Variable	Frequency	Percentage
Limping with severe pain		
No	60	85.7
Yes	10	14.3
Immobile/ non weight bearing		
No	63	90
Yes	7	10
Balance to prevent falling nothing used		
No	66	94.3
Yes	4	5.7
Walking stick		
No	65	92.9
Yes	5	7.1

Crutches		
No	14	20
Yes	56	80
Walking frame		
No	70	100
Chair		
No	68	97.1
Yes	2	2.9
Other people to help to balance		
No	66	94.3
Yes	4	5.7
Extent of bending leg at knee joint		
Normally		
No	30	42.9
Yes	40	57.1
Halfway leg bent		
No	66	94.3
Yes	4	5.7
Slightly bent at knee joint		
No	58	82.9
Yes	12	17.1

Table 5

Mobilizing 3

N=70

Variable	Frequency	Percentage
Unable to bend at the knee joint		
No	61	87.1
Yes	9	12.9
Extension of leg at knee joint		
Normally		
No	31	44.3
Yes	39	55.7
Moderate		
No	55	78.6
Yes	15	21.4
Minimally		
No	67	95.7
Yes	3	4.3
Unable to extend/painful		
No	66	94.3
Yes	4	5.7
Unable to extend/ P.O.P		
No	60	85.7
Yes	10	14.3

Table 6 Mobilizing 4
N=70

Variable	Frequency	Percentage
Movement of ankle joint/ foot Normally		
No		
Yes	59	84.3
	11	15.7
Moderate movement		
No		
Yes	65	92.9
	5	7.1
Minimal Movement		
No		
Yes	59	84.3
	11	15.7
Unable to move foot/ POP		
No		
Yes	52	74.3
	18	25.7
Unable to move foot/ pain		
No		
Yes	45	64.3
	25	35.7

Table 7: Mobilizing Total Score Sheet
N=70

Totals	Frequency	Percentage
7	1	1.4
8	1	1.4
9	1	1.4
10	2	2.9
11	5	7.2
12	4	5.2
13	4	5.2
14	5	7.2
15	6	8.8
16	6	8.8
17	11	16.7
18	5	7.2
19	9	13.8
20	3	4.5
21	3	4.5
22	1	1.4
23	1	1.4

VI. The implementation of the discharge plan

Table 8, gives a level of the knowledge the subjects had on the signs and symptoms of a fracture and complications of the fracture.

The table 8 shows that 58 (82.9%) knew the symptom loss of function and 12 (17.1%) did not know this, 54 (77.1%) knew the sign redness and 16 (22.9%) did not know, 46 (65.7%) knew swelling of the leg and 24 (34.3%) did not know, 39 (55.7%) knew deformity and 31(44.3%) did not know , 29(41.4%) knew fainting and 41(58.6%) did not know this symptom , all in all 7(10.0%) did not know even one sign and symptom but the 63(90.0%) knew some signs and symptoms

Regarding the complications of a fracture Table 8 shows that 58(82.9%) knew the complication loss of function and 12(17.1%) did not know it, 55(78.6%) knew the swelling leg and 15(21.4%) did not know it , 39(55,7%) knew the complication muscles wasting and 31(44.3%) did not know this complication , 5(7.1%) knew the fat embolism and 65 (92..9%) did not know this complication .

Considering knowledge on the complications of a fracture which continues on Table 9 shows that 6(8.6%) did not know any complications and 64(91.4%) knew some complications and 4(5.7%) knew the complications deep thrombosis and 66(94.3%) did not know deep vein thrombosis . Regarding knowledge on food Table 9 also indicates that 66(94.3%) knew that food rich in vitamin promotes healing of bones and the other 4(5.7%)did not know that vitamins have a significant role in promotion of bone healing , 55(78.6%) knew protein and 15 (21.4%) did not know about protein and 44(62.9%) new calcium rich foods and 26(37.1%) did not know about the calcium rich foods .

Regarding exercises to be done daily Table 9 illustrates that 35(50.0%) did the straightening and bending of knee joint exercise several times daily and the other 35(50.0%) did not do it several times 14(20.0%) did this exercises three times daily a set of ten and 56(80.0%) did not do it three times daily , 11(15.7%) did the straightening and bending of the knee joint twice daily set of ten and 59(84.3%) did not do it twice set of ten daily, 7(10%) did the exercise once a set of ten daily and 63(90.0%) did not do it once daily . All in all 63(90.0%) did the straightening and bending of knee joint and 7(10.0%) did not do this exercise .

Regarding exercise s to be done by a client with fractured tibia and fibula daily table 10 shows that 29(4 1.4%) did the ankle movement exercise several times daily and 41(58.6%) did not do this exercise several times daily , 7(10.0%) did the exercise twice set of ten daily and 63(90.0%) did not do this three times daily 2, 7(10.0%) did the exercise twice the set of ten and 63(90.0%) did not do this three times daily , 6(8.6%) did the exercise once the set of ten and 64(91.4%) did not do it once the set of ten . All in all 21(30.0%) did not do the ankle movement exercises but 49(70.0%) did the ankle movement exercises .

With reference to the walking exercise Table 10 shows that 45(64.3%) walked several times and 25(35.7%) did not do this several times , 17(24.3%) walked sometimes and 53(75.7%) did not walk sometimes and 8(11.4%) did not walk but 62(88.6%) attempted walking .

Table 11 shows that 42(60.0%) repositioned themselves in bed thrice daily and 28 (40%) did not do it several times, 9(12,9%) repositioned themselves in bed thrice daily and 61(87.1%) did not do it thrice daily , 8(11.4%) repositioned themselves in bed twice daily and 62 (88.6%) did not do it twice daily and 3(4.3%) were unable to reposition themselves in bed and 67(95.7%) were able to reposition themselves .

Regarding changing of position in bed using an assistive device Table 11 shows 43(61.4%) changed their position using an assistive device several times daily and 27(38.6%) did not do this several times daily, 13(18.6%) changed their position using an assistive device thrice daily and 57(81.4%) did not do it three times daily, 8(11.4%) changed position using an assistive device once daily and 62(92.9%) used some assistive device to change position .

Pertaining to exercises done daily Table 12 shows that 43(61.4%) did the exercise of tightening and the relaxing of the thigh muscles several times daily and 27(38.6%) did not do it several times, 8 (11.4%) did this exercise three times a set of ten daily and 62(88,6%) did not do the exercise three times a set of ten, 6 (8.6%) did it once a set of ten daily and 64 (91.4%) did not do it once, 5 (7.1%) did the exercise twice a set of ten and 65 (92.9%) did not do it twice and 5 (7.1%) did not do the tightening and relaxing of thigh muscles and 65 (95.9%) did the exercise. Regarding knowledge on the pain killers they took, 39 (55.7%) named the pain killer they took, 31 (44.3%) did not name the pain killer, 12 (17.1%) were not on a pain killer, 58 (82.9%) were on the pain killer, 8 (11.4%) had forgotten the name of the pain killer 62 (88.6%) had not forgotten and 6 (8.6%) did not know the name of the pain killer they were on and 64 (91.4%) knew the name of the pain killer.

Table 8

The implementation of the discharge plan 1
N=70

Variable	Frequency	Percentage
signs and symptoms		
Fainting		
No	41	58.6
Yes	29	41.4
Swelling of Leg		
No	24	34.3
Yes	46	65.7
Deformity		
No	31	44.3
Yes	39	55.7
Redness		
No	16	22.9
Yes	54	77.1
Loss of function		
No	12	17.1
Yes	58	82.9
None		
No	63	90
Yes	7	10
Complications		
Loss of function		
No	12	17.1
Yes	58	82.9
Swelling of leg		
No	15	21.4
Yes	55	78.6
Muscle wasting		
No	31	44.3
Yes	39	55.7

Fat embolism		
No	65	92.9
Yes	5	7.1

Table 9:						
The implementation of the discharge plan 2						
N=70						
Variable				Frequency		Percentage
Deep vein thrombosis						
No				66		94.3
Yes				4		5.7
Do not know complications						
No				64		91.4
Yes				6		8.6
Food taken to promote healing						
Calcium rich foods						
No				26		37.1
Yes				44		62.9
Protein						
No				15		21.4
Yes				55		78.6
Vitamins						
No				4		5.7
Yes				66		94.3
Exercises straightening and bending knee						
joint						
Several times						
No				35		50
Yes				35		50
Three times set of ten						
No				56		80
Yes				14		20
Twice set of ten						
No				59		84.3
Yes				11		15.7
Once set of ten						
No				63		90
Yes				7		10
Not Done						
No				63		90
yes				7		10

Table 10:						
Implementation of the discharge plan 3						
N=70						
Variable				Frequency		Percentage
Movement of the ankle joint						
Several times						

No				41		58.6
Yes				29		41.4
Three times set of ten						
No				63		90
Yes				7		10
Twice set of ten						
No				63		90
Yes				7		10
Once set of ten						
No				64		91.4
Yes				6		8.6
Not done						
No				49		70
Yes				21		30
Walling Several Times						
No				25		35.7
Yes				45		64.3
Sometimes						
No				53		75.7
Yes				17		24.3
Never						
No				62		88.6
Yes				8		11.4

Table 11:
Implementation of discharge plan 4
N=70

Variable	Frequency	Percentage
Exercises		
Reposition self in bed several times		
No	28	40
Yes	42	60
Thrice daily		
No	61	87.1
Yes	9	12.9
Twice daily		
No	62	88.6
Yes	8	11.4
Once daily		
No	63	90
Yes	7	10
Unable to reposition self		
No	67	95.7
Yes	3	4.3

Position change with assistive device several times		
No	27	38.6
Yes	43	61.4
Thrice daily		
No	57	81.4
Yes	13	18.6
Twice daily		
No	69	98.6
Yes	1	1.4
Once daily		
No	62	88.6
Yes	8	11.4
Unable to change position		
No	65	92.9
Yes	5	7.1

Table 12:

Implementation of the discharge plan 5

N=70

Variable	Frequency	Percentage
Exercises tightening and relaxing thigh Muscles Several times		
No	27	38.6
Yes	43	61.4
Three times set of ten		
No	62	88.6
Yes	8	11.4
Twice set of ten		
No	65	92.9
Yes	5	7.1
Once set of ten		
No	64	91.4
Yes	6	8.6
Not done		
No	65	92.9
Yes	5	7.1
Named pain killer		
No	31	44.3
Yes	39	55.7
Do not know name of pain killer		
No	64	91.4
Yes	6	8.6
Not on pain killer		
No	58	82.9
Yes	12	17.1

Forgotten name of pain killer		
No	62	88.6
Yes	8	11.4

Pertaining to frequency of taking pain killer Table 13 shows that 25 (35.7%) took the pain killer three times daily, 45 (64.3%) did not take it three times a daily, 19 (27.1%) took the pain killer when they were in pain, 51 (72.9%) did not take it when they were in pain, 12 (17.1%) took the pain killer twice daily and 58 (82.9%) did not take it twice daily, 8 (11,4%) took it once daily, 62 (88.6%) did not take it once daily and 2 (2.9%) took the pain killer four times daily and 68 (97.1%) did not take it four times daily.

With reference to knowledge on other drugs subjects were on and the purpose of taking the other drug, Table 14 shows that 40 (57.1%) were not on any other drug, 30 (42.9%) were on other apart from pain killer, 17(24.3%) named the antibiotic they were on, 53 (75.7%) did not name it, 1 (1.4%) named the muscle relaxant he/she was on, 69 (98.6%) did not name the muscle relaxant, 1 (1.4%) did not know the name of the other drug and 69 (98.9%) knew the name of the other drug.

Regarding the purpose of the other drug Table 13 shows that 14 (20.0%) knew the purpose of the antibiotic, 56 (80.0%) did not know the purpose and 4 (5.7%) knew the purpose of the muscle relaxant, 66 (94.3%) did not know the purpose of the muscle relaxant.

In view of the purpose of the other drug Table 14 shows that 53 (75.7%) were not on another drug and 17 (24.3%) were on another drug and 4 (5.7%) clients knew the purpose of the muscle relaxant and 66 (94.3%) did not know the purpose of the muscle relaxant.

Regarding the frequency of taking this other drug Table 14 shows that 9 (12,9%) took the drug three times daily and 61 (87,1%) did not take the drug three times daily, 5 (7.1%) took the drug four times daily 65 (92.9%) did not take the drug four times daily, 1 (1.4%) took the drug twice daily and 69 (98.6%) did not take it twice daily, 1 (1.4%) took the drug once daily and 69 (98.6%) did not take the drug once daily and no one took the drug when feeling like.

Table 15 shows that 50 (71.4%) clients consulted the nurses and 20 (28.6) did not consult the nurse, 15 (21.4%) clients consulted the community based health coordinators and 55 (78.6%) did not consult the community based health coordinators, 12 (17.1%) consulted the doctor and 58 (82.9%) did not consult the doctor, 12 (17.1%) consulted an environmental health technician and 58 (82.9%) did not consult the environmental technician, 5 (7.1%) consulted the first aider and 65 (92.9%) did not consult a first aider, 4 (5.7%) consulted a physiotherapist and 66 (94.3%) did not consult a physiotherapist and 9 (12.9%) did not consult any health care member and 61 (87.1%) at least consulted a health care member.

Table 16 shows the distribution of the implementation of the discharge plan total scores with the minimum score 15 and the maximum score 44 out of a possible total score 46. The mean was 23. Sixty-two (88.6%) were above the mean and 8 (11.4%) were below the mean.

Relationship of the implementation of the discharge plan and mobilizing

Table 17 shows the results of the Pearson Correlation analysis. To establish that there was a relationship between the implementation of the discharge plan and mobilizing, a Pearson Correlation analysis was done. The result show a weak significant positive ($r = .224^*$, $p<0.05$) of the implementation of the discharge plan and mobilizing of adult clients recovering from fractured tibia and fibula. Implying that as the implementation of the discharge plan increases, the mobilizing status of the adult clients also tends to increase.

Regression analysis of mobilizing

Table 18 shows a significant positive effect ($b=4.31302, p<0.05$) of the implementation of the discharge plan on mobilizing. The significant regression coefficient (b) indicates a change in mobilizing for every unit change in the implementation of the discharge plan. The R-squared of .050 indicates that implementation of the discharge plan explains 5% of the variance in mobilizing. The results support that implementation of the discharge plan has a positive effect on mobilizing in subjects recovering from fractured tibia and fibula.

Table 13:
Implementation of the discharge plan 6
N=70

Variable	Frequency	Percentage
Frequency of taking pain killer		
Four times daily		
No	68	97.1
Yes	2	2.9
Three times daily		
No	45	64.3
Yes	25	35.7
Twice daily		
No	58	82.9
Yes	12	17.1
Once daily		
No	62	88.6
Yes	8	11.4
When in pain		
No	51	72.9
Yes	19	27.1
Another drug antibiotic named		
No	53	75.7
Yes	17	24.3
Another drug muscle relaxant named		
No	69	98.6
Yes	1	1.4
Not on any other drug		
No	30	42.9
Yes	40	57.1
Does not Know the name of another drug		
No	69	98.6
Yes	1	1.4
Purpose of the drug to fight infection		
No	56	80.2
Yes	14	19.8
Purpose of relax muscles		
No	66	94.3
Yes	4	5.7

Table 14:
Implementation of the discharge plan 7
N=70

Variable	Frequency	Percentage
Purpose of another drug not known		
No	66	94.3
Yes	4	5.7
Not on another drug		
No	17	24.3
Yes	53	75.7
Taking another drug 4 times daily		
No	65	92.9
Yes	5	7.1

Taking drug 3 times daily		
No	61	87.1
Yes	9	12.9
Twice daily		
No	69	98.6
Yes	1	1.4
Once daily		
No	69	98.6
Yes	1	1.4
When feeling like		
No	70	100

Table 15:

Implementation of the discharge plan 8

N=70

Variable	Frequency	Percentage
Health care workers consulted		
Doctors		
No	58	82.9
Yes	12	17.1
Nurses		
No	20	28.6
Yes	50	71.4
Physiotherapists		
No	66	94.3
Yes	4	5.7
Environmental Health Technicians		
No	58	82.9
Yes	12	17.1
Community based Health coordinators		
No	55	78.6
Yes	15	21.4
No one consulted		
No	61	87.1
Yes	9	12.9
First Aider		
No	65	92.9
Yes	5	7.1

Table 16: The implementation of the discharge plan Score sheet

N = 70

Totals	Frequency	Percentage
15	1	15.3
17	1	1.3
20	3	4.2
22	1	1.3
23	2	2.8
24	2	2.8
25	4	5.6
26	1	1.3

27	3	4.2
28	1	1.3
29	5	7.0
31	4	5.6
32	6	8.5
33	4	5.6
34	4	5.6
35	3	4.2
36	9	13.4
37	1	1.3
38	5	7.0
39	1	1.3
40	3	4.2
41	1	1.3
42	2	2.8
43	1	1.3
44	2	2.8

Table 17: Pearson Correlation Matrix of the implementation of the discharge plan on mobilizing

	Dependent Y
X Independent	1.0000 .224*

* p< .05 ** p < .01 ***p < .001
N = 70

Y = Mobilizing
X = Implementation of the discharge plan

Table 18:
Regression Analysis of Mobilizing

Variable	b	SEB	Beta
X	4.31302*	.023	.224*
Constant	4.845	.474	
R^2 = .050*		F = 3.579	

p < .05 ** p < .01 *** p < .001

N = 70

X = Implementation of the discharge plan

VII. Discussion, Implication And Recommendation

Summary

The purpose of the study was to describe and examine the relationship between the implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula. Roper, Logan & Tierney Model of living gave the foundation for this study. The study sought to answer the research question 1, "How is the implementation of the discharge plan effected by adult clients recovering from fractured tibia and fibula?" 2, "What is the mobilizing status of the adult clients recovering from fractured tibia and fibula?" 3, "Is there a relationship between the implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula?" A sample size of (N =70) was interviewed using structured interview questionnaires.

Descriptive statistics in the form of frequencies, percentages and means were used to describe the subjects, the independent variable of the implementation of the discharge plan as well as the dependent variable describing mobilizing of subjects recovering from fractured tibia and fibula. The Pearson Correlation Coefficient test was used to examine the relationship between the implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula. The regression analysis was used to determine the changes in mobilizing for every unit change in the implementation of the discharge plan

A sample of 70 adult clients was interviewed. Fifty-two (74.3%) were males and 18 (25.7%) were female. Adult subjects ages ranged between 18 and 50 years of which 25 (35.7%) were between the age category of 18 and 29 years, 22 (31.4%) between 30 and 39 years and 23 (32.9%) between 40 and 50 years.

Subjects implemented the discharge plan well. The minimum total for the implementation of the discharge plan was 15 and the maximum score was 44 out of a possible maximum score of 46. The majority of the clients 62 (88.6%) scored above the mean of 23 with only 8 (11.4%) scoring below the mean.

The mobilizing status of the adult clients was good. The total scores had a minimum of 7 and a maximum of 23 out of the total maximum mobilizing status possible score of 26. The majority of the clients 54 (77.1%) scored above the mean of 15 with only 16 (22.9%) scoring below the mean. The mean score for the mobilizing status was 15.

The Pearson Correlation Coefficient test indicated a positive correlation between implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula ($r = .224$, $p < .05$). this findings means that as the implementation of the discharge plan increase the mobilizing status of the adult clients also tends to increase. The value (r) indicated a very weak degree of association between the implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula. The regression analysis showed a significant positive effect (b= 4.31202) of the implementation of the discharge planning on mobilizing.

Discussion and Implications

Sample Demographics

The study was based on a sample size of 70 subjects. Literature review indicates that studies can use various sizes ranging from a minimum of 65 to more than 600. This means that the sample size used in the study was fairly small.

In terms of gender characteristics of the sample there were more males than females, 52 (74.3%) and 18 (25.7%) respectively. The fact that there were more males than females may be explained by the fact that males are more risk takers than females. The socio-cultural influencing factors such as social roles, tradition, religion, work activities, transport and leisure also interfere with the activity of living of mobilizing (Roper, Logan & Tierney, 1996).

The ages of the respondents ranged from 18 to 50years. This is still an active group which is still in the working class. Twenty-five (35.7%) were between 40 to 50 years and 22 (31.4%) between the age 30 to 39 years. Considering the age group the subjects were more likely to implement the discharge plan since it is an active working group wishing to be back to work soon. The majority, forty-nine (70.0%) of the clients were married, 14 (20.0%) were single, 5 (7.1%) were widowed and 2 (2.9%) were divorced. Hence the family members may have been helpful in the mobilizing of the clients recovering from fractured tibia and fibula.

In terms of educational level the majority of the respondents 48 (68.5%) had attained secondary education, 16 (22.9%) primary education, 4 (5.7%) tertiary education and 2 (2.9%) did not attend any schooling. This suggests that the level of understanding the clients possess in that if these subjects were given information on paper to continue reading at home they would perhaps understand better. Secondary level of education is assumed to be adequate to ensure understanding and comprehension of information necessary to implement the discharge plan. The educational level compliments Cahill, (1996) who indicated that because of the consumer knowledge the concept of the implementation of the discharge plan has become very important in medical surgical nursing. Roper, Logan & Tierney, (1996) also explains that mobilizing in adult clients recovering from fractured tibia and fibula can be affected by psychological influencing factors such as intelligence level of schooling. Hence clients should have knowledge on the benefits of exercise and precautions to take to prevent further injury.

Religion and the number of children did not seem to affect the mobilizing status of the adult clients. Only 2.9% of the subjects were prevented from treatment due to religion. Twenty-two (31.4%) were unskilled workers, 21 (30.0%) were not employed, 19 (27.1%) were skilled workers, 6 (8.6%) students and 2 (2.9%) professional workers. The majority 32 (45.7%) earned less than 5 million monthly, 13 (18.6%) earned between 5-9 million,10 (14.3%) earned between 10-14 million, 8 (11.4%) had no income, 2 (2.9%) earned above 25 million and 1 (1.4%) earned a lot of money and no one earned between 20-25 million monthly. The occupation and the monthly income may indicate that the majority of the adult clients were of the lower socio economic status and this may reflect their dependence level. Dependence affects the role in relation to family work and

ability to purchase resources (Roper, Logan & Tierney, 1996) which concurs with Moyo's (2003) findings that home based care can decongest the hospital by permitting a more appropriate implementation for the discharge plan, thereby reducing hospital costs and re-admissions. Furthermore Lowenstein and Hoff (1994) proclaim that patient education and resources can enable patients to take control of their care.

The residential area may also depict the subjects low socio economic status since 24 (34.3%) stayed in high density area, 19 (27.2%) stayed in the rural areas, 14 (20.0%) stayed in the low density areas, 8 (11.4%) were from farms and 5 (7.1%) were from any other unmentioned areas. Some subjects were helped by colleagues and family members to balance when trying to walk. Some used wheel chairs which provide aided independence for the activity of living of mobilizing (Roper, Logan & Tierney, 1996). The wheelchairs may not be afforded by most subjects because most of them are from a low income group with 45 (64.3%) earning below 9 million dollars. Further sociological factors that can influence the activity of living of mobilizing include participation in sport, relaxation and economics which includes walking, public transport and private transport (Hunt & Sendel, 1987) which most likely would apply to the majority of adult subjects in this study.

The majority of the clients 35 (50.0%) had a plaster of Paris applied, 19 (27.1%) had an operation, 12 (17.1%) had a backslab and 4 (5.8%) once had a skin traction applied at one time. This shows that the most common treatment used in subjects with fractured tibia and fibula is a plaster of Paris and in some cases an operation before the application of leg plaster of Paris. This is supported by Samiento, (1967) who applied plaster of Paris to the clients with fractured tibia and initiated non weight bearing for 24 hours to allow the plaster to dry and thereafter began weight bearing.

The majority of the clients 28 (40.0%0 had a problem of healing which has taken more than ten weeks. Delayed bone healing is one of the influencing factors to mobilizing. Black and Jacobs (1993) cite that permanent callus of the true rigid bone is eventually formed by the deposition of the calcium, salts and during the third to the tenth week of healing, the callus converts into a bone. Phipps, Long and Woods (1987), state that the factors that impede good callus formation are inadequate reduction, excessive oedema at the fracture site which impedes supply of nutrients to the fracture site and too much bone lost at the time of injury to permit bringing of the broken ends together. This might suggest that the subjects in this study suffered the same consequences as findings also show the 23 (32.9%) had infection to the fracture site, 9 (12.9%) had pain on walking, 6 (8.6%) deformity, 2 (2.9%) were barred by their religion to take treatment in hospitals, 1 (1.4%) had household items crowded plus 1 (1.4%) feared to do the exercises in the crowded houses. Furthermore open fractures and soft tissue injuries have a high incidence of infection (Lewis & Collier, 1992). It is therefore important that subjects continue taking prescribed antibiotics on discharge from hospital to combat infection. Clark, (1996) advocates that the responsibility for meeting the client and family needs should be transferred to the client, significant others or to other health care providers since re-admission of subjects to the hospital because of delayed bone healing is quite costly to both the client and hospital (Ozak, Hillman, Wiusman, Winklemann, Acta, Ortho & Sandy, 1997). Clark, (1996) concluded the readmissions o hospital should be concluded as a negative outcome.

Mobilizing

Mobilizing is dependent variable in this study. The study sought to answer the reaserch question, "What is the mobilizing status of the adult clients recovering from fractured tibia and fibula?" The results of mobilizing status of the adult clients show the minority number of the adult clients 22 (31.4%) preferred upright posture, 12 (17.1%) preferred sitting on a chair with affected leg elevated and extended, 10 (14.3%) preferred sitting on a chair with the affected leg bent, 6 (8.6%) preferred leaning away from the fractured leg, 6 (8.6%) stood leaning towards the affected leg, 5 (7.1%) preferred lying down and only 3 (4.3%) preferred leaning forward. Positioning is viewed as a positive effort done by the adult clients to maintain posture. The results portrayed an indication that the adult clients put value on participation in their own care and believed that mobilizing is one of the major activities of living (Roper, Logan & Tierney, 1996). Mobilizing is also defined as to push, to pull and lift, to walk, to jog, run and to maintain a good posture (Roper, Logan & Tierney, 1996). This might signify that mobilizing is not an easy task especially in adult clients recovering from fractured tibia and fibula. Therefore this needed one's effort to maintain good posture.

The results of the walking status of the adult clients recovering from fractured tibia and fibula show that 18 (25.6%) clients limped with moderate pain, 14 (20.0%) limped with no pain, 11 (15.7%) limped with minimal pain 10 (14.3%) limped with severe pain and 7 (10.0%) were immobile.

Findings show that the majority of the clients 56(80.0%) experienced some pain on walking which ranged from minimal to severe and in some cases the clients were immobile. However findings portray a positive attitude towards the activity of mobilizing. Delaune and Ladner (2002) conducted a study on the musculoskeletal system which included movement and gait. It was concluded that the way one walks is assessed to determine a baseline that the normal gait is characterized by smooth rhythmic movement of muscles when walking, a step height and length are symmetrical from foot and the arms swing freely on each side of the torso

in opposite movement of the legs. However the majority of the subjects 18 (25.7%) in this study limped with moderate pain. Findings concur with the definition of mobilizing defined as the ability to move purposefully and quickly within an environment (Lewis & Caller 1992). Subjects recovering from fractured tibia and fibula believe mobilizing is essential for proper functioning of the bones and muscles and is vital for independence (Kozier, Erb, Berman and Burke, 2002). The various muscles surrounding the trunk and limbs are used and other groups of small muscles are constantly in use to bring about movement (Roper, Logan & Tierney, 1996). Findings depict the value that is placed on walking in order to attain independence.

The majority of the clients 56 (80.0%) used crutches to balance, 5 (7.1%) used a walking stick, 4 (5.7%) were helped by other people to balance and 2 (2.9%) used a chair with no one using a walking frame and 3(4,3%) did not use anything to balance. The fact that the majority of the subjects used crutches to balance may illustrate a point that probably crutches were easily available and could be bought at a more affordable price by the subjects classified as mainly from the low socio economic status. Phipps, Long & Woods, (1987) state that when walking assistive devices such as crutches, walkers and wheelchairs may sometimes be used improperly. A walking frame in other words could be a balancing tool mainly used by the elderly. In other words the client's place value on balancing so as to prevent falling which this might worsen the situation. Phipps, Long & Woods, (1999) stated that the principle of leverage and the law of gravity is also useful in understanding the nature of mobilizing. People maintain alignment and balance when the line of gravity passes through the centre of gravity and the base support (Kozier, Erb, Berman & Snyder 2004).

The majority of the adult subjects 49 (57.1%) bent the leg at the knee joint normally, 12 (17.1%) bent the leg slightly and 4 (5.7%) bent the leg only halfway. Thirty-nine (55.7%) extended the leg normally at the knee joint, 15 (21.4%) extended the leg moderately,10(14.3%) were unable to extend the leg because of the plaster of paris , 4(5.7%) were unable to extend the leg at the knee joint because of pain and 3(4.3%) extended their legs minimally at knee joint . The ability of the client to bend and extend the leg at the knee joint might determine the knee stiffness that has occurred in adult client recovering from fractured tibia and fibula due to lack of knee exercises . If a joint can not be moved beyond 30 degrees of flexion the joint is said to be contracted (Phipps , Long &Wood 1997) and failure to conduct range of motion exercises of the knee joint might result in knee joint stiffness and impaired mobility.

In summary, the majority (57.1%) flexed their legs normally at the knee joint and (55.7%) extended their legs normally at the knee joint. Findings portray the effort and value which was put by the adult clients to mobilize. The findings of this study concur with Seam Fyfe who studied the movements in a thoracic spine to be rotation, flexion and extension. It was found that rowers become limited in extension because they have a long time sitting. When they are fatigued with extension stiffness which is associated with limitation of movement into rotation they fall into thoracic spine problems. Wade, Moorcraft and Thomas (2001) did a study on the progression of healing on 103 unstable fractures and concluded that stiffness should be measured in two planes when assessing tibial healing and suggested that values above 15 degrees in two planes gave an indication that it was safe to remove the fixture.

The findings on the movement of the foot at the ankle joint show that a substantial number 25 (35.7%) were unable to move their feet because of pain, 18 (25.7%) did not move their feet because of the plaster of paris, 11 (15.7%) moved their feet normally, 11 (15.7%) moved the feet minimally and 5 (7.1%0 moved the foot moderately. Pain could be the most predictor of depression and this can limit the adult subject to do exercises. Pain may also be immediate, severe and is aggravated by attempted motion and pressure at the site of injury (Phipps, Long & Woods, 1987).

The fact that a substantial number of clients did not do the movement of the foot because of pain might reflect an assumption that the adult clients were not taking pain killers as requested because they did not have the money to buy the drugs because of their low socio economic status.

Briggs and Neans (1998) qualitative analysis of the nursing documentation of the post operative pain management in an orthopedic ward show that the individual assessment of pain was poorly documented and the nurses records of the post operative pain experiences differed from the patients.

The reliance on the pharmacological pain relief was therefore evident. It is imperative that the medical surgical nurse practitioner assesses and continues to assess for pain especially in adult clients recovering from fractured tibia and fibula and give the client relevant information.

Augusto and Samiento (1967), on record of some preliminary observation of the use of the below knee cast for the treatment of the fractured tibia with conceptual feeling that uneventful healing of the fracture will occur in the presence of the motion of the knee joint and early weight bearing concluded that comfort provided by the below knee cast and the ability to retain motion of the knee and foot is of practical significance to the patient in his daily activities such as mobilizing (Roper, Logan & Tierney, 1996).

The findings of the mobilizing status of the subjects recovering from fractured tibia and fibula aged between 18-50years attempted to establish the extent of their mobilizing status .

The findings show that the maximum mobilizing status scores were 23 and the minimum scores was 7. The mean scores was 15 . Forty –five (64,3%) scored above the mean and 25 (35,7%) below the mean . This indicates that the mobilizing status of the adult clients was satisfactory since the majority of the subjects were above the mean .

The implementation of the discharge plan

The implementation of the discharge plan involved knowledge assessment to ascertain how much knowledge subjects had so that they could appreciate implementation the discharge plan . The finding on the signs and symptoms of a fractured leg shows that the majority 58 (82,9%) knew the sign loss of function , 54(77,1%) knew the sign redness , 46(65,7%) knew swelling of the leg , 39(55,7%) knew deformity , 29(41,4%) knew the fainting and 7(10,0%) did not know any sign and symptom of a fractured leg .

This indicates that the subjects were very knowledgeable and support the clients'right to have knowledge so tnhat he can make decisions on the continuity of his own care (Clark, 1996).

Regarding complications of the fracture the majority 58 (82.9%) knew loss of function, 55 (78.6%) knew the swelling of the leg, 39 (55.7%) knew muscle wasting, 5 (7.1%) knew fat embolism and very few 4 (5.7%) knew deep vein thrombosis. It is imperative for the clients to know the complication of deep vein thrombosis and this is supported by literature which states that the veins of the lower extremity are susceptible to thrombus formation (Ignatavicious, Workman & Mishler, 1999). Cahill, (1996) indicates that because of the consumer knowledge and increased care costs, the concept of the implementation of the discharge plan has become very important in medical surgical nursing practice.

The findings for food knowledge show that the majority 66 (94.3%) knew vitamins, 55 (78.6%) knew proteins and 44 (62.9%) knew calcium rich foods. The subjects scored extremely well on the food necessary for the promotion of bone healing. The findings might suggest that the adult clients had basic knowledge either from school since 68.6% of them did secondary education. This, therefore appeared as more of common knowledge. Moffat and Spiegel (1987) allude to the fact that nutritional concerns are crucial for the self care of the persons' with HIV and AIDS because fevers and infections create an increased metabolic rate and thus there is increased need for proteins and caloric intake. Likewise the adult client fractures of the tibia and fibula has increased need for iron, proteins, vitamins and calcium to allow bone repair to progress (Phipps, Long & Woods 1987).

The recommended frequency for bending and strengthening the knee joint is to do it several times with a set of ten daily . The findings pertaining to the bending and straightening of the knee joint showed that half of the sample 35(50,0%) straightened and bent the knee joint several times daily , 14(20,0%) did the exercise three times with a set of ten daily , 11(15,7%) did the exercise twice daily a set of ten each time daily ,7(10,0%) did the exercise once the set of ten daily and only 7(10,0%) did not attempt to do the exercise . This reflects that the majority of the subjects 63(90,0%) attempted to do the knee straightening and bending exercise . This might illustrate the degree of understanding and appreciation of the knee joint exercises the adult client had . Roper , Logan and Tierney (1996) state that the extension and flexion of knee and ankle to its greatest tolerable range is an important component of mobilizing of adult client recovering from fractured tibia and fibula . Kozier ,Erb , Berman and Snyder (2004) state that active range of motion are isotomic exercises in which the adult client moves each joint in the body through its complete range of motion . The exercise maintain and increase muscle strength and endurance and help to maintain cardiorespiratory function in immobilized patients (Kozier, Erd , Berman &Snyder , 2004).

A fair number of adult clients 28(41,4%) did the ankle exercise several times daily , 21(30.0%) did not do the ankles several times , 7(10.0%) did the ankle movement exercises three times a set of ten daily ,7(10.0%) also did the ankle movement exercise twice a set of ten daily and 6(8.6%) did the ankle movement exercise once a set of ten daily . This was a fair finding but could be very much improved .

The walking exercise finding showed that the majority 45(64.3%) walked several times 17(24,3%) walked sometimes and 8(11.4%) did not walk .This showed that the subjects had the zeal to recover quickly because in general most of the subjects 62 (88.6%) did some walking. Probably the subjects did the walking exercise because they knew the complications of not performing exercises. However one might also interpret the findings mainly of the active age group of 18 to 50 years who want to recover early and return to work. The statement that ambulation and walking is an important function that most people accomplish automatically (Kozier, Erb & Wilkinson, 1995) suggests that the clients may be people who believed that the longer they stayed in bed, the more difficult in walking would become (Kozier, Erb & Wilkinson, 1995). One or two days in bed can make the client more weak, unsteady and shaky when first getting out of bed. In order to promote ambulation, Samiento (1967) applied a plaster of paris to the clients with fractured tibia and fibula and initiated a non weight bearing after 24 hours.

The majority of the adult clients 42 (60.0%) repositioned themselves in bed several times, 9 (12.9%) repositioned themselves thrice daily, 8 (11.4%) did the exercise twice daily, 7 (10.0%) did the exercise once

daily and the very few, 3 (4.3%) were unable to reposition themselves. This illustrates a good performance because generally the majority 67 (95.7%) did some activity to reposition themselves in bed. An effective implementation of the discharge plan could be described as a construction and implementation of a planned programme of community care which meets the patients' needs after the discharge from hospital (Dukkers, Van, Emden et al 1999). Jackson (1994) argues that as families and friends provide care, it is essential to assess the family resources, coping strategies and informational needs. It was also necessary that the medical surgical nurse practitioner assessed the subjects capabilities in the activity of living of mobilizing (Roper, Logan & Tierney, 1996) and planned forecasting on the shortfalls of the adult client in which he/she needed help (Orem, 1971).

The majority of the subjects 43 (61.4%) changed position using the assistive device several times daily, 13 (18.6%) used the assistive device three times daily, 8 (11.4%) changed the position using the assistive device once daily, 5 (7.1%) were unable to change position and 1 (1.4%) changed position using the assistive device twice daily. This shows that a significant number of the subjects 65 (92.9%) were able to change their position using an assistive device. This shows the commitment of the subjects to take part in mobilizing. Only 5 (7.1%) failed to change their positions using an assistive device. The assistive devices such as crutches, walkers and wheelchairs are used for walking and change positions and sometimes the devices are used improperly (Phipps, Long & Woods, 1987).

The findings on the tightening and relaxation of the thigh muscles show that the majority of subjects 43 (61.4%) tightened and relaxed their thigh muscles several times daily, 8 (11.4%) tightened and relaxed their thigh muscles three times a set of ten daily, 6 (8.6%) did the exercise once a set of ten daily, 5 (7.1%) tightened and relaxed the thigh muscles twice a set of ten daily and only 5 (7.1%) did not do the exercise. This illustrates that the adult clients were motivated and deeply involved in muscle exercises probably because they knew the complications. Isometric exercise is a static exercise in which the muscle undergoes tension and contraction but there is no change in length and no joint movement and the example is the quadriceps setting to strengthen the quadriceps muscle and endurance training (Craven & Hirnle, 1996). Smith, Dwell and Martin (1985) state that the quadriceps exercises and range of motion are the most common forms of exercise to be implemented by adult clients recovering from fractured tibia and fibula.

The findings on the knowledge and frequency of taking the pain killer show that 39 (55.7%) of the subjects knew the pain killer they were taking, 12 (17.1%) were not on the pain killer 8 (11.4%) had forgotten the name of the pain killer and 6 (8.6%) did not know the name of the pain killer . Twenty-five (35.7%) took the pain killer three times daily, 19 (27.2%) took the pain when they were in pain. 12 (17.1%) took the pain killer twice daily and only 2 (2.9%) took the pain killer four times daily. The frequency of taking the pain killer gradually decreases as the pain threshold decreases. As shown by the findings very few subjects took the drug four times daily. This was not good enough for the subjects to take the pain killers four hourly because it is recommended that pain killers be taken "on the hour."

Briggs and Nean, (1998) found that pain is interpreted differently by different nurses and pain perception is poorly documented. They concluded that orthopedic patients should rely on pharmacological methods of pain relief so that they continue doing some exercises with special attention to the adult clients recovering from fractured tibia and fibula.

The findings of the knowledge of the other drugs the subjects were on, the purpose and frequency of taking this other drug showed that 17 (24.3%) named the antibiotic they were on, 1 (1.4%) named the muscle relaxant, 40 (57.5%) of clients were not on antibiotics and 53 (75.7%) were not on muscle relaxant. Out of 17 (24.3%) clients who knew the antibiotics 14 (20.0%) knew the purpose of the antibiotic and 4 (5.7%) knew the purpose of the muscle relaxant. The frequency of taking the other drug was 9 (12.9%) took the drug three times daily, 5 (7.1%) took the drug four times daily, 1 (1.4%) took the drug once daily and 1 (1.4%) took the drug twice daily and no one took the other drug when feeling like. The fact that no one took the drug the way he/she felt like it signifies the compliance of the clients to treatment. They must have been informed that they should take the antibiotics until completion to prevent resistance to drugs. Continuing care also means continuation of taking some drugs as prescribed by the medical practitioner because the healing process of the bones takes long.

Ignatavicious, Workman and Mishler, (1999) state that a true callus converts into bone from the third week to the tenth week as found in the study. Drugs should be taken as prescribed to prevent complications. This concurs with a study which was done by Hassenhutt (1981) in which he found that the complication rate in closed fractures of the tibia and fibula of 7.1% was mainly due to delayed bone healing and 8.4% of the clients had deep infection with osteomyelitis. Thus to prevent and treat some of these complications the adult client continued taking drugs as prescribed. Hence education concerning medication is necessary from the beginning of the treatment and as a result importance is placed on timing, dosage and possible side effects of the drug so that the client becomes fully educated (Holloway, 1996). Esposito, (1994) conducted a study on the effects of medication and education on adherence to medication regimes in an elderly population and found that the group with medication schedules had a decreased incidence of medication errors compared with a group without

schedule. Medical surgical nurse practitioners should aim to teach, clients about medication so that the client should be able to display full understanding of his/her illness and medication and taking their medication with 100% accuracy.

The findings of the health care members consulted by the subjects show that the majority (71.4%) consulted nurses, 15 (21.4%) consulted the community based health coordinators, 12 (17.1%) consulted the doctors, 12 (17.1%) consulted environmental health technicians, 9 (12.9%) did not consult any health care member 5 (7.1%) consulted first aiders and 4 (5.7%) consulted the physiotherapists. This may reflect the availability, acceptability and approachability of the nurses by the subjects and reflect their willingness to help the subjects. The subjects felt that there was need to have reinforcement for information since there is an element of forgetfulness in some subjects. This is supported by Baumann, Webb and Smith, (2001) study on the discharge information patients had on the day of discharge and the amount of information the patients had two weeks later. It was found that although patients felt well informed about wound care on the day of discharge they did not feel sufficiently informed one or two weeks later after discharge. Hence it is imperative that health care personnel should continuously reinforce the information in particular the medical surgical nurse practitioner.

The Relationship between implementation of the discharge plan and mobilizing.

The Pearson Correlation Matrix analysis was done to determine the relationship between the implementation of the discharge plan and mobilizing. The findings showed (r= .224* p= 0.5) (N=70), very weak positive relationship suggesting that implementation of the discharge plan increases mobilizing in subjects with fractured tibia and fibula . Regression analysis showed that implementation of the discharge plan explains 5% of the variance in mobilizing suggesting that either factors are responsible or that the contents of the discharge plan may need to be strengthened. Armitage, (1981) states that the implementation of the discharge plan refers to the period of preparation necessary for arrangement to be made and embraces adequate notices of discharge, discussion of after hospital care as well as education of patient and care givers.

Theoretical Framework

Roper, Logan and Tierney Model of living guided the conceptualization of this study. The model of living sees the individuals as engaging in 12 basic activities of living (Pearson & Vaughan, 1986) of which mobilizing is a much valued activity of living (Roper, Logan & Tierney, 1996).

In the model of living persons or individuals have a lifespan to live which is full of changes. Individuals move from dependence to independence and their independence reflects their individuality. The influencing factors interfere with subject's ability to mobilize.

The focal stimulus of this study was fractured tibia and fibula. The concepts of the model which were chosen to guide the study were lifespan, individuality, dependence – independence continuum, activity of living of mobilizing and the influencing factors. The lifespan in the study was the period from conception to death which is full of changes such as changes in the subjects recovering from fractured tibia and fibula. One of the changes is that these subjects had attained independence considering their age group 18-50 years, but, illness had moved them back to dependency and mobilizing (Roper, Logan & Tierney, 1996) to attain independence. The individuality of a person was his /her independence. The influencing factors is this study were mainly the biological influencing factors which consisted of the delayed healing as this has taken more than ten weeks, infection to the fracture site, pain experienced on walking, deformity, religion which prevented the clients to take hospital treatment, the crowded household items and the fear to do exercises in a crowded house. The dependence- independence continuum was the gradual change of the mobilizing status from receiving assistance from other people to self care (Orem, 1971). The mobilizing status of the subjects is the health of subjects recovering from fractured tibia and fibula. The ability to mobilize determined his/her ability to perform social roles as expected by the family and this reflected the independence of the subjects.

In the study the scores on the implementation of the discharge plan shows that the majority 62 (88.7%) scored above the mean 23 out of a total possible score of 46. This shows that the subjects were knowledgeable on the signs and symptoms of a fracture, the complications of a fracture, and the food to taken to promote healing of the bone. The findings reflect that the subjects implemented the exercises satisfactorily because of the knowledge they had. This is supported by the information that 7 (10.0%) did not attempt to do the exercises and the majority 63 (90.0%) did the exercises though these were done at different intervals. The age group of between 18-50 years might have contributed to their implementation of the discharge plan because this is an active working class group inspiring to mobilize soon to go back and work for the family. According to Roper, Logan and Tierney the activity of living of mobilizing is a much valued activity of living was the focus of this study. The holistic approach to the activity of living of mobilizing supported by this model enabled the implementation of the discharge plan by the knowledge of signs and symptoms of the fracture, complications of a fracture, food to take to promote healing, the exercises to be done to improve mobilizing and the necessity of

taking the drugs as prescribed by the doctor and the knowledge of the consultation of health care members in their areas of stay if they needed more knowledge. The subjects had a positive attitude to the implementation of the discharge plan and this might have contributed to the successful results of improved mobilizing status of the adult clients recovering from fractured tibia and fibula. Therefore the findings of this study support the premise that as implementation of the discharge plan increases mobilizing increases.

Implications to Medical Surgical Nursing Practice and Research

The findings revealed the low socio economic status of the subjects meaning that most of them needed help from Government to pay their hospital bills. A substantial number of the subjects defaulted coming for review and did not manage to buy relevant drugs to continue with treatment. Some of them failed to go to the local clinic for dressing because they did not have the clinic fees. The majority of the subjects 32 (45.7%) earned below 5 million dollars and 13 (13.6%) between 5-9 million and 38 (54.3%) stayed in Harare suburbs where they are expected to pay rent and rates. The hospital fees at one central hospital have gone up to 1 million dollars per visit which does not cover the other hospital expenses that may be incurred in due course.

The medical surgical nurse practitioner should therefore reinforce implementation of the discharge plan by reinforcing knowledge on signs and symptoms of a fracture, complications of a fracture, food taken to promote healing and probably give more new information on drugs being taken and their side effects and encourage subjects to adhere to taking of drugs as prescribed.

There seemed to be no communication between the hospital and the City Health Department for the discharged subjects so that they could be followed up at home. Thus the communication should be strengthened so that subjects are followed up at home and continuous assessment of the implementation of the discharge plan is done and thereby reduce readmissions and subsequently hospital and family costs. This may help cut the hospital costs for both the hospital and the family and the subject.

The findings of this study may provide the way the implementation of the discharge plan may be improved. If the implementation of the discharge plan is improved the quality of care is improved and the cost effectiveness to both the hospital and the subject is improved. Thus reinforcing and strengthening the knowledge to the subjects recovering from fractured tibia and fibula would also improve their mobilizing status thereby enhancing the activity of living of mobilizing. Cahill, (1996) states that because of the consumer knowledge and increased care costs the concept of the implementation of the discharge plan has become very important in medical surgical nursing practice.Perhaps reinforcing and strengthening the subjects' knowledge might improve the implementation of the discharge plan. The knowledge needing reinforcement should include adherence to drugs and exercises. Then the client would control his own care at a manageable cost and perhaps improve the mobilizing status of the subjects. Furthermore the use of the activity of living model may facilitate medical surgical nursing practitioners to consider use of the care plans in the management of clients with fractured tibia and fibula.Probably there is need to encourage an effective implementation of the discharge plan which could be described as the construction and the implementation of a planned programme of continuing care which meets the subjects' needs after discharge from hospital (Dukkers, Van Emden et al, 1999).

Implementation of the discharge plan has become important in medical surgical nursing practice and should start at the time of admission (Gessner & Phelps, 1998) and thereby improve mobilizing status of the subjects. The findings of this study should provide foundation to generate future researches at larger scale to enhance the understanding of the implementation of the discharge plan and mobilizing in adult clients recovering from fractured tibia and fibula.

Recommendations

1) Medical surgical nursing practice should reinforce and strengthen knowledge of clients on signs and symptoms of a fracture, complications of a fracture especially deep vein thrombosis and fat embolism, food to take, drug adherence and exercises to be done by subjects with fractured tibia and fibula. Health education should be given to the clients whilst still admitted to hospital and the family members who take part in the care should be involved. The adult clients should be referred to the community health workers to ensure continuity of care in the community. Health education should be given to the clients whilst in hospital and this should involve the family in the management of the clients and referring to subordinates in the community setting when the client is discharged in hospital.
2) The medical surgical nursing practice should strengthen communication between the hospital and health care personnel in the clients' community so that continuity of care is monitored. The reintroduction of Community Sister Coordinator and use of referral letter to local clinic is equally important. The discharged client and Community Sister Coordinator should be given a referral letter and referral list respectively from the hospital to insure community care. The respective Community Sisters use the referral list and conduct home visits to assess how clients are coping and advise them respectively. The discharged clients to go home with referral letter to the nearest clinic. The

Community Sister Coordinator to receive a list of all discharged clients from the hospital then liases with the community sisters to follow up all discharged patients from hospital in their home setting.

3) Medical Surgical Nursing practice should also identify the availability of resources for mobilizing in the community that may hinder the implementation of the discharge plan through knowing, producing a booklet of suppliers of walking aids for purchase or hire at minimal charges.
4) The medical surgical nurse practitioner to come up with a discharge plan specifically for clients recovering from fractured tibia and fibula. This plan is disseminated to the community sister so that they have guidelines of what is expected from a client with fractured tibia and fibula.
5) The study could be replicated using different settings and larger samples to enhance generalisability.
6) Medical Surgical Nursing Practitioner needs to strengthen the implementation of the discharge plan by promoting drug adherence and exercises particularly for the knee and ankle to enhance free mobility.
7) Medical Surgical Nurse Practitioner to strengthen nursing care plans in particular the evaluation criteria to ensure that subjects meet the indicators of independence in self care upon discharge from hospital such as return demonstration of exercises and being able to discuss with medical surgical nurse practitioners about self care activities.

Limitations

1) The instrument was developed from literature and reliability was tested through a pilot study. A panel of experts also reviewed the instrument for content validity.
2) The plan used was adopted from the National Aids Coordination Programme and Ministry of Health and Child Welfare (1998). There was no plan specifically for the clients recovering from tibia and fibula.
3) Overall the nature of the instrument required self reporting which may have prompted socially desirable responses.

Summary: Currently the mobilizing status of subjects is an area of concern to medical surgical nursing practice, as mobilizing provides proper functioning of bones and muscles and is vital to independence (Kozier, Erb, Berman & Burke 2000). The purpose of the study was to describe and examine the relationship between the implementation of the discharge plan and mobilizing in subjects recovering from fractured tibia and fibula. Roper, Logan and Tierney (1996) model of living was used to guide the study.

A descriptive correlational design was used for the study and the study was carried out in a natural set up and phenomena were observed as they occurred at one point in time. Seventy subjects for the study were selected using the probability simple random sampling and the ages of the subjects ranged from 18 to 50 years and most of them were males of low socio economic status.

The instrument was compromised of the demographic questionnaire with 12 items, the dependent variable mobilizing questionnaire with 6 items and the independent variable implementation of the discharge plan with 15 items.Mobilizing findings show that the minimum score was '7' and the maximum score was 23. The possible total score was 26. Forty-five (64.3%), scored above the mean of 13 and 25 (35.7%) were below the mean. Then looking at the findings on the implementation of the discharge plan the minimum score was 15 and the maximum score was 44 out of the possible total score of 46. The mean for the possible total score was 23 and the majority 62 (88.6%) scored above the mean of 23, 6 (8.6%) were below the mean and only 2 (2.8%) were on the mean.The highest scores were recorded in the signs and symptoms of the fractured leg, complications of a fracture and the food to be taken that promotes healing of the fracture. Although subjects scored very high on knowledge on these variables they did not score highly on the complications of a fracture such as fat embolism and deep vein thrombosis. Only 5 (7.1%) and 4 (5.7%) knew these complications respectively. Regarding the food to be taken to promote healing of the fracture, 66 (94.3%) knew vitamins, 55 (78.6%) knew proteins and 44 (62.9%) knew calcium rich foods. The knowledge scores on food were quite good.The fact that the subjects portrayed that they were knowledgeable this could have influenced their performance on the exercises where the majority 64 (91.5%) scored above the mean 23.

The Pearson Correlation Analysis results showed that there was a relationship between the implementation of the discharge plan and mobilizing in subjects recovering from fractured tibia and fibula ($r=.224^*$ $p<0.05$). The regression analysis showed a significant positive effect ($b=.224^*$, $p<0.05$) of the implementation. The significant regression coefficient (b) indicates a change in mobilizing for every unit change in the implementation of the discharge plan. The R-squared of .050 indicates that the implementation of the discharge plan explains 5% of the variance in mobilizing. The results support that the implementation of the discharge plan has a positive effect on mobilizing in subjects recovering from fractured tibia and fibula. The study also provides information that can be used by the orthopedic clients recovering from fractured tibia and fibula.

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