Chapter - I

Introduction
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INTRODUCTION

1.1. Concept of health and disease

Health is the precious possession of all human beings as it is an asset for an individual and community as well. Healthy individual or community can carry out daily living activities and life enriching goals. "Health for all" is the global goal to be achieved at the end of 20th century. But often people take health for granted and do not fully appreciates until it is lost. The meaning of health is misunderstood and misinterpreted by many people. This is because of lack of complete scientific information and poor instructions. It is subjective and abstract. Each person perceives health differently and has acquired different meaning and interpretation, e.g. to a lay person it may means absence of sickness, to a school going child it may mean washing of hands, cleaning teeth and taking complete diet for strong and beautiful body; to a housewife it may mean to have a normal family and a happy family living; to an athlete it may mean to have good physique.

It is not very easy to define health. Many definitions have been evolved over the time due to changing conditions in the universe. Historically the term health is derived from an old English word Health means the condition of being Safe and sound or whole'. For many years this meaning of health was lost. Health was considered as freedom from pain, illness and disabilities. Even in present time many people still believe in the same concept of health. There is a change in this belief that in the developed world
and also in the developed areas of developing countries because of research and life experiences. Research has revealed that human organism has remarkable possibilities of development. Experiences of human beings have proved that health is capable of deterioration and enrichment.

In recent years a Fuller and Richer [2006] meaning of health has been evolved. It is much more than mere freedom from illness. It includes normal functioning of all the organs and systems of body, harmonious functioning of both body and mind resulting in physical strength, vigour, mental stability and satisfaction in life. Thus according to modern concepts health implies a sound mind, in a sound body, in a sound family in a sound environment.

1.2 Continuum of health

Health is not only fluctuates depending upon the health equilibrium but also there are variations in the degrees or levels of health. It ranges from optimal health to total disability or death. This range of health refers to continuum of health. There is an centre point which demarcates between health and disease sides of the continuum. There are different levels or degrees of health like there are degree or severity of diseases as in the health side of the continuum is known as health grid and disease side of the continuum is known as disease grid, primary level preventive measures which include health promotion and specific protective measures are implemented to move towards optimal health. Secondary and tertiary level preventive measures which include early diagnosis and treatment, prevention of
disabilities and rehabilitation measures are implemented to recover from
disease and move towards optimal health.

Fig. 1.1 Continuum of health

Source: Gulani, community health nursing (2006)
The continuum of health also reflects time dimension from beginning
of life to death. As we move through various stages of life our health status
fluctuates from optimal health to state of various level of health and degree of
deviations at each stage of life, and finally to death. The level of health and
degrees of deviations vary from individual to individual depending upon
factors from within the individual and his environment including agent
factors.

1.3. Wellness concept of health

According to Dunn, (2006) “Health is defined as a dynamic state of wellness
which exists on a continuum and range from a high level of wellness to high
level of illness”. This concept is comparable to continuum of health which
ranges from optimum health to total disability or death as shown in the figure.
There is increasing or decreasing level of wellness comparable to degree of
health or level of illness comparable to extent of disease as shown in figure
wellness concept implies active participation of individual to develop and
utilize his / her own potentials not only to promote health or regain lost health but achieve a feeling of wellness, self esteem and self actualization. Health is thus an active phenomenon.

Fig. 1.2 Wellness - Illness continuum

1.4. Relative concept of health

Concepts revealed in so far indicate that health is relative and not absolute. It is related to one's environment, life style, physiological changes that take place in various stages of life span and resources etc. it is under the influx of these factors. The individual interacts with these factors and tries to adjust and modify. This causes fluctuating movements on the continuum as shown by arrows in figure. At any given point in time, one can locate any one the continuum according to his / her level of health and that is not a fixed point for that person. He / she may either improve or deteriorate and accordingly he or she will shift on the continuum. The tendency is towards improving and promoting health by taking appropriate preventive measures.
1.5. Holistic concept of health

Optimal health implies wellness in all dimensions of human being. The individual is one whole comprised of body, mind, soul and social entity which are blended together and not in isolated compartments. He / she perform various functions related to physical, mental, social and spiritual aspects. But he / she functions as a whole in relation to himself / herself and his / her environment and attains a certain level of health and well being which promotes quality life, i.e. effective and useful living. This concept of health refers to holistic health as shown in figure the factors which impinge on health and well being of an individual are human biology, life style, environment and health allied resources. Similar model is conceptualized by Blum (2006) and he titles it as “force field and wellbeing paradigm of health” this model highlights the factors which influence and determine the health of an individual, family and people at large. These factors are human biology, life style, environment and health and health allied resources. These are referred to as epidemiological factors which determine health and illness status of people at large.

Similar concept of health is put forward by Webster (2006). He defined “Health as a quality of life resulting from total functioning of the individual that empower him to achieve personally satisfying and socially useful life”. William (2006) defined “Health as quality of life that enables individuals to live and serve best”
Fig. 1.3. Holistic health field

Human Biology

Health and allied Resources

Life style

Environment

Source: Gulani, community health nursing (2006)
Fig. 1.4. Maslow's Hierarchy of needs

**Individual Needs**

1. Self Actualization Needs
2. Self Esteem Needs
3. Love and Belongingness Needs
4. Safety and Security Needs
5. Basic Physiological needs

**Family Needs**

1. Family realization Needs
2. Family Recognition Name probe, regard needs
3. Need for Love and belongingness for Group / Family
4. Family safety and security
5. Family Vitalizing and Life sustaining Needs

Source: J.E Park Preventive and social medicine (2002)

Fig. 1.5. Dimensions of health

1.6. Dimensions of health

The dimensions of health as documented in World health organization (2006) definition of health and endorsed by Blum’s force-field and well-being paradigm are physical, mental, social and spiritual wellbeing. These are related to body, mind, social nature and soul of human being. Although individual functions as a whole with respect to these dimensions one of these can be described to understand its specific nature and impact upon one another.

Health is an essential input for the development of human resources and the quality of life and in term the social and economic development of the nation. According to Chakrabarty (1999). A positive health status is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease of infirmity”. Health is regarding a priority for sustained development interventions both at the individual, community and national levels; improved health is a part of total socio-economic development and is regarded as an index of social development. The health of an individual or of a community as being concerned not only with physical and mental status, but also with social and economic relationships. The concept of disease similarly varies and greatly depends upon the type of society, culture or individual. Usually, it is defined as a deviation form the normal functioning, which may adversely affect the future health status . Since a diseased person is unable to perform his normal social responsibilities, his behavior is viewed as deviant and hence dysfunctional by the society, which
undertakes to cure him as early as possible to make the person normal. Disease can also be explained in terms of an invasion of an organism by germs, bacteria or other pathogenic agent, injury trauma which disturbs the homeostatic base and results in some form of malfunctioning.

1.7. **Musculoskeletal injury**

Musculoskeletal injury is a serious public health problem. It includes injuries like hip fracture, upper limb fracture, rib fracture, sprains etc. It leads to death in some cases and in many others it is associated with such consequences as long term hospitalization, permanent disability and temporary disability.

Among different types of musculoskeletal injuries like fracture is the area of concern for the present study. It results in long term hospitalization and immobilization. Mobilization / movement are essential for performing routine activities of daily life. Secondary it is a source of pleasure. Musculoskeletal injuries in the lower limb fracture affect both the routine activities and pleasure of the victim.

Man is the living era of increasing use of sophisticated machinery and automation. These naturally increase the vulnerability of humans to injuries in general and particularly to musculoskeletal injuries like fracture. As a result, the incidence of musculoskeletal injuries has increased both in developed and developing countries. High incidence of musculoskeletal injury, especially fracture and lack of intervention with regard to socio psychological suffering of the patients and their families are of interest for the present study.
Globally people are suffering from different types of diseases such as malaria, tuberculosis, filarial, leprosy etc. in the world out of 10 major disease musculoskeletal injury also lead to major complications in this 21st century this is grasping the society rapidly as faster as possible. No body knows about the injury and its epicenter, even after the interventions of the different medical research institutes, and other research organization to know about the causes of injury and its prevention.

A musculoskeletal injury is a hazardous health problem very often threatening the life of individuals in addition this musculoskeletal injury can cause deleterious neurologically and psychological sequelae. Since recovery and restitution require a long time the fractures of the victims are also affected to a great extant.

According to standard English dictionary health is a state of being without disease. Among the components of health mentioned by world health organization physical and psychological aspect alone are concerned in the current study. As between, physical and psycho social dimensions the later would be emphasized more.

The present study focuses on emotional aspects of the patients and their families like anxiety, depression and anger and family burden experienced by them. This research also focuses on social support rendered to the patients by the family and friends.

Further the effectiveness of nursing intervention in the form of Jacobson's Relaxation Therapy and counselling is assessed by pre and post
test assessments with regard to anxiety, depression and anger. Thus the study concentrates on social, emotional and therapeutics aspects of musculoskeletal injury patients.

Injury to one part of the musculoskeletal system usually results in injury or dysfunction of adjacent structures and of structures enclosed or supported by them. If the bone is broken, the muscles cannot function, and blood vessels and nerves in the vicinity of the fracture may be injured. If the nerves in the vicinity of the fracture may be injured. If the nerves do not send impulses to the muscles, as in paralysis, the bones cannot move. If the joint surfaces do not articulate normally, neither the bones nor the muscles can function properly.

Treatment of injury of the musculoskeletal system involves providing support to the injured part until healing is complete. Psychological support may be provided by family and also physical supports by therapeutics measures like bandages, adhesive strapping, splints, or casts. Alternatively support may be applied directly to the bone in the form of pins or plates. At times, traction must be applied to correct deformity or shortening.

1.8. Magnitude of the problem

Musculoskeletal injury is a serious public health problem. It is the most prominent killer of Americans between the ages groups of one and forty four and again the most prominent of all Americans. Traumatic injury both accidental and intention is the leading cause of death. It includes injuries like hip fracture, upper limb fracture and lower limb fracture.
A limb fracture injury to a bone in which the continuity of the tissues of the bone is broken. For the study the fracture of bones of lower limbs and fracture in hip, fracture femur, fracture of pelvis, trochantric fracture, fracture of tibia and fibula and fracture of ankle.

According to National Research Council (1985) each year more than 1,50,000 individuals are succumbed to the traumatic injury and permanently disables are 4,00,000. Seventy-five percentages of all traumas involves the extremities. There are over six million fractures or dislocations in the United States each year. This represents over thirty percentages of all days of restricted activity due to injuries of all types.

Movement shows two general purposes. First movement is needed to perform normal activities of daily living. Second, movement in itself is a source of pleasure. Musculoskeletal injuries are common, many result from accident at home such as dropping or lifting heavy objects, slipping on a wet place or highly polished floor, falling from ladder, cot, chairs, stair-case and accidents involving motor-driver-vehicle and automobile occupants and accidents during sports as well.

It is not surprising if a bone breaks but what is surprising is the fact that bone does not break more often considering the amount of forces it is subjected to every day by the muscle action, load transmission, etc. Bone has devised its own mechanism to ward off the unnatural forces and keep itself intact. But only when the force is too large and occurs suddenly or when a force is chronic and repetitive (e.g. prolonged standing as in a policeman.
nurse, etc) or when the natural resistance of the bone is eroded by a disease process (e.g. tumour, infection, etc), that a bone succumbs to the insult and breaks. When it breaks, it is bound to injure the surrounding soft tissues like muscles, ligaments, etc.

1.9. Assessment

Estimation of magnitude or quality of reviewing a situation for the purpose of diagnosing the patient’s problem. Assessment is done by interview, collection of data, which contribute for diagnosis.
Map No. 1.1. Magnitude of the problem in selected states

- Maharashtra
- Karnataka
- Tamil Nadu
Table 1.1.

Statistics on road accident in Chennai city for last 7 years

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Year</th>
<th>No. of Injured persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2006</td>
<td>7400 (Chennai city)</td>
</tr>
<tr>
<td>2.</td>
<td>2005</td>
<td>53866 (Chennai city and other district in Tamil Nadu)</td>
</tr>
<tr>
<td>3.</td>
<td>2004</td>
<td>52508 (Chennai city and other district in Tamil Nadu)</td>
</tr>
<tr>
<td>4.</td>
<td>2003</td>
<td>4243 (Chennai city)</td>
</tr>
<tr>
<td>5.</td>
<td>2002</td>
<td>3682 (Chennai city)</td>
</tr>
<tr>
<td>6.</td>
<td>2001</td>
<td>4370 (Chennai city)</td>
</tr>
<tr>
<td>7.</td>
<td>2000</td>
<td>4445 (Chennai city)</td>
</tr>
</tbody>
</table>

Source: Director General of Police, Chennai.
Map 1.2. Magnitude of the Problem in Selected Places of Tamilnadu
1.10. The present study

Musculoskeletal injury is viewed as a serious medical problem but its socio-psychological consequences are not paid due attention. Though expert medical care enables the earliest recovery the socio-psychological sufferings sufficiently disturb the patients and their respective families. The sufferings of the patients and their families at the psychological level are notable. Psychological reactions of the patients and their families are mostly in the form of affective symptoms like anxiety, and depression. It is quite nature that any injury or illness predisposes the victim to such reactions. Anxiety may be about the recovery and social, vocational, economical and moral responsibilities, which are disturbed by musculoskeletal injury.

Families of patients are burdened in various aspects. Financial burden, due to loss of income and expenditure on the medical treatment. The functional aspect of the family is also disturbed. As the members divert their time, energy and attention towards the care of the patient’s family interaction is strained often. As the families are preoccupied and occupied with the care of the patients and their families they are unable to carry out their routine activities properly and their leisure activities are disturbed. Family members are also physically strained and mentally disturbed.

As man is a part of his social group, in times of his crisis, his group generally supports him. The distress of the patients and their families are not only determined by the injury / illness but also by the level; of social support that they receive in the form of provision of information, comfort, emotional
supports material aid etc. Social support enables the patient and their families to cope up with their stress.

Usually families and friends provide the social support. The modes of social support provided by them in the form of emotional support, socialization, practical assistance, financial assistance and advice/hindrance are important aspects. Deficiency in these aspects leaves the patients and their families in distress.

The present study aims to understand social, emotional and nursing needs of patients with musculoskeletal injuries. An attempt is made to understand the role of socio-demographic factors in determining the social and emotional outcome of patients. The extent of emotional disturbances in the form of anxiety and depression is the major concern of the present study. The level of burden experienced by the families in the areas of finance, routine activities, family leisure, family interaction and health are identified by the present study.

The social support level of the present study. Nursing needs of the patient of this study, this is concerned about the care of patients. Thus the present study concentrates on social, emotional and nursing aspects of musculoskeletal injury.

1.11. Approaches to fracture patients

This is a mentioned in the approach to a fracture. Speed is the watchword in the approach towards a multiple trauma case and should proceed in the following lines:
1.11.1. Initial evaluation

The A B C D Es of initial examination of a polytrauma case are as follows A – airway, B – Breathing, C – circulation, D – disability (neurologic examination), E – exposure, F – fracture examination, G – Go back to the beginning for a secondary survey and H – help.

1.11.2. Secondary evaluation

After the initial evaluation and resuscitation, a more systematic and detailed evaluation of the injuries mentioned above is done. Fractures are splinted externally and managed at a later date. But in few cases primary internalization is recommended in ipsilateral fractures, multisystem injuries, etc. for faster rehabilitation. Dislocations are promptly reduced.

1.11.3. Fracture examination

This is done systematically as mentioned in the previous discussions.

1.11.4. Investigation

This includes routine blood examinations, radiographs of head, neck, chest, spine and affected parts. CT scan and MRI of injured structures are mandatory.
1.12. Showing common fracture dislocations

Area involved

1. Spine
2. Upper limb
    ➢ Acromioclavicular joint
    ➢ Sternoclavicular joint
    ➢ Shoulder joint
    ➢ Elbow joint
    ➢ Isolated dislocation of superior radioulnar joint
    ➢ Fracture dislocation of superior radioulnar joint
    ➢ Fracture head of radius and dislocation of inferior radioulnar joint.
    ➢ Wrist dislocations.
    ➢ Kaplan’s injury.
3. Lower limb
    ➢ Hip dislocations.
    ➢ Knee joint.
    ➢ Patella.
    ➢ Ankle.
    ➢ Foot
Table No. 1.2.
Mechanism of injury Showing the relationship of age, types of fractures and mode of injuries

<table>
<thead>
<tr>
<th>Age</th>
<th>Common mode of injury</th>
<th>Type of fractures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>► Fall on the outstretched hands usually while on play or from a height.</td>
<td>► Fracture clavicle, fracture and dislocations of any upper limb bones.</td>
</tr>
<tr>
<td></td>
<td>► Fall from height.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>► Diving injuries.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>► Road Traffic Accidents.</td>
<td></td>
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<tr>
<td></td>
<td>► Sports injuries.</td>
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<tr>
<td>Elderly</td>
<td>► Assaults</td>
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<tr>
<td></td>
<td>► Trivial fall</td>
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<tr>
<td></td>
<td></td>
<td>► Upper limb injuries, spine injuries, etc.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>► Cervical spine injuries.</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>► Any combination of injuries.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>► Whiplash injury.</td>
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<tr>
<td></td>
<td></td>
<td>► Dashboard injuries like fracture patella, posterior hip dislocation, etc.</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>► Ankle and shoulder, elbow and knee joint injuries.</td>
</tr>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>► Long bone fractures (e.g. night stick fracture of ulna).</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>► Colles' fracture.</td>
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<tr>
<td></td>
<td></td>
<td>► Fracture neck femur, etc.</td>
</tr>
</tbody>
</table>

21
Because of its location in the lower extremity and the stresses placed upon the knee joint during athletic activities, knee injuries in athletes are common. The force applied to the knee to cause the injury, as well as the direction from which the force comes all contribute to the type and severity of the resulting injury. In contact sports, application of force to the outer side of the knee joint as might occur during a tackle in football can result in a threecomponent injury to the knee (the so-called "unholy trinity") involving the medial collateral ligament, the anterior cruciate ligament and the medial semilunette cartilage.

1.13. View this type of injuries in action

With increasing forces applied, increasing degrees of injury occur in the knee. Mild injury may present as local swelling with pain (but without significant alteration of knee mobility). With application of larger forces during the injury, the presenting manifestations may progress to include loss of normal knee movement and/or instability of the knee along with local pain and swelling.
Immediate care after the injury should follow the RICE principle: Rest, Ice (cold application), Compression and Elevation. The aim of this management is to minimize inflammation, hemorrhage, pain and cellular metabolism during the acute post-injury.

**1.14. Phase, to optimize the potential for subsequent recovery**

Protection of the injured ligaments by immobilization for 1-3 weeks after injury has 2 objectives. Immobilization allows healing to begin and...
proceed undisturbed. This is important for development of strong new collagen fibers across the area of injury, as mobilization of the injured ligament too early may result in weaker collagen fiber formation. Secondly, immobilization prevents re-injury of the ligament which is likely to result in new pain and cause distention and/or lengthening/stretching of the injured ligament. This predictably results in longer recovery times and may have long term effects of permanent ankle laxity (giving way under stress), loss of strength, ankle stiffness or chronic pain.

Introduction of controlled mobilization once ligament us healing and scar tissue formation is well advanced (about 3 weeks post injury) begins rehabilitation of the injury and helps avoid the negative effects of prolonged immobilization (muscle atrophy, loss of joint flexibility). Movement of the healing ligament also helps align newly formed collagen fibers to parallel the lines of stress in the ligament, which will improve the mechanical and structural properties of the healing ligament.

Beyond 4-8 weeks post injury, the newly formed collagen that repairs the injury should be able to withstand close to normal stresses on the ligament, and so rehabilitation efforts can focus on regaining full joint and muscle functions. It must be remembered, however, that full recovery of the injured ligaments takes from 6-12 months.

Orthopedic repair of severe injuries is often done as soon as the acute swelling and hemorrhage of the injury subsides, and although these are actually procedures that repair damage, for purposes of recovery and
rehabilitation, they should be considered new injuries to the joint and the 4 components of recovery described above should be applied even after surgical repair to increase the likelihood of full recovery as much as possible.

1.15. Initial assessment of skeletal injury

1. Stop the bleeding
2. Decrease swelling
3. Reduce pain
4. Try to get a history of the mechanism of injury
5. Did the person continue with activities after the accident?
6. When did the swelling begin? Acute swelling more likely associated with fracture, dislocation, or ligament tears.
7. History of previous fractures or similar injury
8. First Aid- RICE

➢ Rest - all activities are allowed if they are not painful if the child cannot bear weight, crutches should be used. If extremity hurts, splint or sling should be used.

➢ Ice - Ice application will decrease swelling and help alleviate pain. Should use for 20 minutes at a time every couple of hours.

➢ Compression - This will increase resorption of edema. Application should be from distal to proximal making sure that venous return is not compromised.
Elevation - This will enhance venous return and reduce swelling. Suggest to individual that after activities resume, keeping elevated will prevent reaccumulation

Initial treatment

- RICE
- Bear weight as tolerated
- May require air stirrup
- Analgesia
- Begin stretching the gastronomies muscle and encourage toe and heel walking
- If fracture present or suspicion of fracture, may cast. With open growth plate, radiograph may not show fracture. Repeat radiograph may indicate healing fracture.
- May start running when able to hop on the injured leg for 5 minutes.

1.16. Nursing process for emotional needs of immobilized patients and their families

The main goal of the study is reduction of stress of long term hospitalization and immobility. First attempt is to assess the emotional changes of the families of immobilized patients. Then diagnosing and planning for nursing intervention in the form of relaxation technique, counseling therapy and supporting services. Later on evaluate the impact of
intervention of social and emotional status of the family of immobilized patient.

1.17. Statement of the problem


1.18. Objectives of the study

➢ to assess the emotional problems of the immobilized patients.

➢ to understand the impact of musculoskeletal injury on the family.

➢ to study the pattern of socio economic status of the immobilized patients families receive.

➢ to study the efficacy of nursing intervention.

1.19. Operational definitions

1.19.1. Social aspects

Social aspects are the complex of major institutions and groups in the society

1.19.2. Emotion aspects

Emotion refers to the pattern of reactions that includes physiological changes, expressive and/or goal oriented behaviour and subjective experiences like fear, anxiety, depression and family burden.
1.19.3. *Nursing needs*

Nursing is an art and science and a profession by which we render service to human beings to help him get relief from physical as well as psychological and sociological discomfort.

1.19.4. *Family*

Family is a socially recognized unit of people related to each other by kinship, marital and legal ties.

1.19.5. *Musculoskeletal injury*

An injury to a bone, break the continuity of the tissues of the bone.

1.20. *Limitations*

- The present study is limited to Adhiparasakthi Hospital and Research Institute, Melmaruvathur, Kancheepuram Dist.

- Patients with fracture hospitalized at least for one month are taken up for the present study.

- Those patients aged 20 and above were only considered for the investigation.

- Those patients who are living with their families were only selected for the study.

- The influence of other health team members on the patients and their families is not assessed in the study. Hence specifically the changes, which were observed in the patient, couldn’t be contributed only to the care given by the scholar.
1.21. Research design

The present study has the characteristic of exploratory and quasi-experimental research designs. Systematic studies related to musculoskeletal injuries covering emotional aspects of patients, family burden and social support are sparse. Further nursing care aspects related to musculoskeletal injuries mostly include physical care with little attention on emotional aspects in most of the medical settings. The present study gave due attention to emotional aspects of the patients and the effectiveness of therapeutic techniques like relaxation therapy, meditation and counselling was tested through pre and post assessment without control group. Hence the present study possesses the characteristics of exploratory and quasi experimental design.

The need for research design, because it facilitates the smooth sending of the several of research operational, thereby making research or efficient as possible yielding maximum information with minimal expenditure of effort, time and money. Research design stands for advance planning of the method to be used in their analysis, keeping in this view, the object of the research and the availabilities of staff, time and money.

1.22. Quasi–experimental research design

In a quasi-experimental study, atleast one characteristic of a true experimental design is missing either randomization or the use of a separate control group. A quasi-experimental study however always includes manipulation of an independent variable that serves as the intervention.
Quasi-experimental design often looks like an experiment. Quasi-
experiment, however, lacks at least one of the three properties. The missing
property is either randomization or control group. Quasi-experiment does
involve the manipulation of an independent variable that is the institution of a
treatment.

All the steps are as per the norms of the design; the population
studied is only one group. Separate control group is excluded from the study;
therefore the particular research design adopted is designated as quasi-
experimental design.

1.23. Advantage of quasi-experimental design

The great strength of quasi-experimental design lies in their
practicality, feasibility and to a certain extent, their generalizations. In the
real “word” it is often quite impracticable to conduct true experiments.

A good deal of research that is of interest to nurses occurs in natural
setting. Frequently, it is difficult to deliver an innovate treatment to only half
of a group and randomization may be even more unmanageable. The inability
to randomize or even to secure a control group need not force a researcher to
abandon all hopes of conducting an investigation. Quasi-experimental design
are research plans that introduction some control when full experimental rigor
lacking. Hence, the quasi-experimental design is adopted in the study.
1.24. Principles of randomization

This principle of the design is maintained by repeatedly assessing the emotional needs of the same patient and all the patients through same tool. Similarly, counselling therapy, relaxation technique and supporting services are given to patients and their families repeatedly with interrupted time intervals.

Randomization of replication is adopted as per the need of the patient. Reputation of assessment and interventions were not fixed before study. Hence, the number of times the services rendered varied from patient to patient.

1.25. Principles of manipulation

The principles of manipulation of variables being that the levels of emotional status range between mild to moderate, moderate to severe. The emotional status is also assessed through physical gestures like pallor of the face, rapid eye movements (etc) associated with immobilization and monotonous exposure to same environment.

Another significant manipulation of the variables is that if emotional status of a patient is treated all other changes in a patient also occurs.

The composite designs under Quasi-experimental design adopted are

- One group pretest - post test design
- Repeated treatment design
- Simple interrupted time serious

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Interrupted time serious with removed treatment

Interrupted time serious with multiple replication

Menninger’s approach to indirect action in response to emotional distress. The essence of Menninger’s approach to stress and reduction, only through a reduction of tension balance can be regained. Great amounts of time and energy are necessary to cope with the disorganization as well as to work towards restoration of the balance.

Many events cause pain, fear, anger, boredom, depression and anxiety the person institutes restorative maneuvers. If direct coping strategies, mental mechanisms are used, when a normal walking person suddenly meets with an accident immediately the lifestyle is changed. He / she should expect others help for all their needs. Here long-term hospitalization and immobility gives a monotonous way of life. It is very difficult to cope up with the real situation. Hence Menninger has described five levels of progressive disintegration of the ‘vital balance’ that occur as tension increases.

The first level is internal and external nervousness. The second level is a syndrome that harasses the individual. Third level is regressive disequilibria the fourth level is imbalance and disorganization; fifth level is abandoning the will to live. As the level of tension rises, greater measures are necessary to cope and maintain functioning.

As the link between stress, adaptability and preventive health become well understood, direct nursing intervention like relaxation, technique,
spiritual therapy and supporting services, for assisting the client to adjust to
ever-changing life situations may become a unique framework.

In assessing the stress state, evaluating the stress and investigating
ensuing behaviours the scholar develops the plan of care based on client's
needs. Through careful observation, the scholar can compare the individual’s
behaviour with previous levels of functioning and with a bio-psychosocial
norm.

In this study the attractive goal may be family, job, social inter-
actions, healthy environment, and brisk movements. When these are blocked
by long-term hospitalization, because of musculoskeletal injury, which leads
to immobility and monotonous environment clients and their families,
becomes frustrated, shows anger, fear, boredom, depression and anxiety.

This occurs when a person is both immobilized and suffers with pain. The
way in which this conflict can be settled is either to choose the relinquished one goal
and fulfill the other or to satisfy the first goal and then the other, better practically
this approach.

1.26. Population of the study

The long term hospitalized patients with musculoskeletal injury were
admitted during the period from 2002 to 2003 at Adhiparasakthi Hospital and
Research Institute, Melmaruvathur with immobilization formed the
population for the present study.
1.27. Sampling techniques and sample size

All the patients and their families fulfilling the selection criteria were included in the present study based on convenient sampling method.

The sample size for the pilot study was fifty (50) which included both male and female patients with musculoskeletal inquiries and their families. In the main study a total of 500 samples that fulfilled the inclusion criteria were included.

1.28. Criteria for selection of samples

➢ Patients hospitalized for musculoskeletal injury with fractures.
➢ Patients who have completed 20 years of age
➢ Those patients who are living with their families
➢ Those patients who do not have head injury
➢ Patients who are hospitalized at least for one month.

1.29. Method of data collection

Patients with musculoskeletal injuries admitted to Adhiparasakthi Hospital and Research Institute were listed out every day. Socio demographic factors, clinical details of the patients’ emotional aspects like anxiety, depression and anger of the patients were assessed one week after their admission. After those patients were trained to practice Jacobson’s Relaxation Therapy, they were asked to practice it two times daily for one month. After one month patients, emotional aspects were again assessed. Families of patients were interviewed at that time to collect data regarding the
burden experienced by them and the social support received both by the patients and their families. Family burden and social support were assessed after one month because both the areas can be assessed only, some considerable time after the injury after undergoing some experience. The interviews were conducted in a congenial atmosphere. Before beginning the interview the patients and the significant family members were assured of absolute confidentiality of their information. Wherever patient and family members had difficulty in understanding the questions clarifications, were made and they were encouraged to give maximum information possible or to answer the questions truth fully.

The data were scored, and it has been fed in excels master sheets. Data analysis includes both descriptive and inferential statistics and also compared the both pre and post test values of patients with musculoskeletal injury. Test of scores and results were tabulated, the statistical procedure were used for the raw data and to find out Mean value of the raw data, standard deviation, correlation coefficient, paired comparison test, 't' test and one way ANOVA.

1.30. Technique of data collection

The time of data collection was 08.00 am. To 04.00 pm each interview took about 30 to 45 minutes. The investigator first introduced herself to the patient and established rapport with them. The investigator explained the purpose of the study and gained her confidence and then introduced to the patient.
The data was collected regarding demographic variables, social support behavior scale, family burden interview schedule, self analysis questionnaire – anger scale, self analysis questionnaire – anxiety scale, max Hamilton’s depression scale.

Data collecting was done in both English and Tamil and also used questionnaire for each patient. At the end of the session the doubts were cleared then 10 minutes was allotted for discussion.

All patients utilized with great interest that the same procedure was adopted after one month. They were cooperative and attentive. Each 10 week patient was selected after seven days the counselling and relaxation therapy were given to the patient. For the convenient of the researcher, the subject was divided into 250 males and 250 females respectively

1.31. Report of the pilot study

The pilot study was conducted to test the reliability, content validity and practicability of the tool. Pilot study was conducted for 30 days, after getting prior permission form Dr. T Ramesh, M.D., Managing Director, Adhiparasakthi Hospital and Research Institute, Melmaruvathur. Fifty samples of patient with musculoskeletal injury were selected for the pilot study, who met the inclusion criteria and exclusion criteria by convenient sampling techniques. Patients were assessed using standardized questionnaire. The result of the pilot study showed that the counselling and relaxation therapy were positive correlation with patients with musculoskeletal injury and this study was found to be feasible.
1.32. Hypotheses

Based on the review of the past research literature hypotheses were formulated for the study. Cumming and Henry (1996) Salmela and Ndoyte (1986), Williams (1988), Kavitha (1998) reported significant relationship between emotional problems and certain demographic variables such as age, marital status, educational level, occupational level, family monthly income of the family, family history of physical and psychological problems, residential locality like whether urban or rural have been reported to contribute significantly to depression. Similarly Nursing intervention in the form of counselling and relaxation therapy was associated with reduction in the severity of emotional problems viz anger, anxiety and depression. The family burden and social support to the family could also contribute to musculoskeletal injuries.

Based on the above preamble the following, hypotheses were formulated for the present study.

➤ Musculoskeletal injury of patients would be function of age, marital status, educational level, occupational level, family monthly income, anger, anxiety, depression, family burden and social support of patients.

➤ Anxiety of musculoskeletal injury patients would be function of the demographic variables such as age, socio economic status, type of family, family history of physical and mental health problems.
> Personal factors like negative attitude, history of chronic physical ailment would significantly relate to anxiety of musculoskeletal injury patients.

> Anger and depression would significant be related to anxiety of musculoskeletal injury patients.

> Based on the pilot study it was hypothesized that counselling and relaxation therapy would have significant positive effect on anger, anxiety, depression, family burden and social support of patients.

1.33. Tools used in this study

The following tools were used in this study, for collecting data from the sample described. After the Interview Schedule were administered Spielberger’s State and Trait Anxiety Scale, Spielberger’s Anger Scale and Max Hamilton Depression Rating Scale were given to the musculoskeletal injury patients in the sample and their responses were scored according to the instructions given in the respective manuals of the scales.

1.33.1. Schedule for socio demographic factors

It consists of details of patients and their families.

1.33.2. Spielberger’s state and trait anxiety scale

This scale was constructed by Spielberger et.al., (1970). It measures both state anxiety and trait anxiety levels of the individuals. In the present study state anxiety is taken into account. It consists of 20 questions. Some of these questions are positive and others are negative. This questionnaire
assesses how a person or group feels right now or present condition, that is at this moment. This scale is used worldwide. This is also widely used in India.

1.33.3. Spielberger's anger scale

This scale was constructed by Spielberger, et al., (1983). It measures anger level of the individuals. It consists of 20 questions. Some of these questions are positive and others are negative. This questionnaire assesses how a person or group exhibits angry or furious condition right now. This scale is used worldwide. This is also widely used in India.

1.33.4. Max Hamilton depression rating scale

This scale was constructed by Max Hamilton (1967) and it was ensured reliability and validity of this scale by Karthikeyan (1994). This scale consists of 21 statements. Each statement assesses some aspect of depression.

1.33.5. Family burden interview schedule

This scale was developed by Pai and Kapur (1981) in national institute of mental health and neurosciences, Bangalore. It was used by Sabhesan and Athiappan (1988) and Ramasamy, P (1994). It is widely used in India. This scale consists of various aspects like financial burden, disruption of routine family activities, disruption of family leisure, disruption of family interaction, effect on physical health of others and effect on mental health of others.
1.33.6. Social support behaviour scale

It was developed by Vaux et al.,(1987). This scale is widely used in India. The scale consists of aspects like emotional, socializing, practical assistance, financial assistance and advice or hindrance. The social support behavior scale is designed to assess available supportive behavior and to do so separately for family and friends.

1.34. Pattern of analysis

The data were collected and entered in the master sheet. The data were then fed into the computer and appropriate techniques were used in analyzing the data. The data were presented in the following pattern.

The frequency (descriptive) data of musculoskeletal injury patients regarding socio-demographic factors, clinical factors, anxiety, depression and anger, family burden and social support were presented.

Patients and their families were divided into different groups according to the age, level of education, type of occupation and the level of the income of the families. Anxiety, depression, anger, family burden and social support were compared based on the groupings using analysis of variance. Patients and their families were grouped according to their sex; domicile and social support were compared by using 't' test.

Patients and their families were divided into different groups based on the type of musculoskeletal injuries that they suffered and their anxiety, depression, anger, family burden and social support were compared by using
analysis of variance. Emotional disturbances like anxiety, depression and anger assessed one week after the admission of the patients were compared with those assessed at the end of one month using paired ‘t’ test. Emotional aspects viz anxiety, depression and anger were correlated with family burden and various aspects of social support using Pearson’s Product Moment Correlation.

1.35. Conceptual framework

This study is intended to evaluate the stressors and coping methods for musculoskeletal injury patients and their families. The conceptual framework related to this study is based on Roy’s adaptation model. Callista Roy (1986). Modified Roy’s Adaptation Conceptual Model –2002. Melanie McEwen, “Theoretical Basis for Nursing”, Copy right – 2002.

Lippincott Company, London) described theory construction in nursing, a system involves input, output and a feed back process Roy refers the stimuli that represent the input. The change is the process experienced by a living system and the output and feedback mechanism related to adaptation within the living system. The regulator relates to physiological needs and the cognate to self concept role cues and interdependence.

Her mode contains five essential elements.

➤ Patient (the person receiving nursing care) and family
➤ goal of nursing (adapting to change)
➤ health
environment and

direction on nursing activities (facilitating adaptation)

All of these elements are interrelated systems. Coping mechanism and adaptive models are used to address these elements.

1.35.1. Input

➢ In Roy's system input is identified as stimuli which can come from the environment or from within the person
➢ Stimuli are classified as focal, contextual or residual
➢ Input also includes a person's, adaptation level
➢ Each person’s adaptation level is unique and constantly changing.

In this conceptual framework according to the model input is described as physical stress, counselling technique, emotional, vocational, social and economic stress.

1.35.2. Throughput

➢ Throughput makes use of a person’s process and effectors
➢ Processor refers to the control mechanism that a person uses as an adaptive system.
➢ Effectors refers to the physiological function self concept and role function involved in adoption.

Throughput of this study is by using Roy’s model. Physiologic aspects include pain, food and fluid restriction, fatigue and sleep disturbance. Interdependency is impairment of body function more dependent of wife and
Family members. Self-concept includes depression, anger, fear, feeling of loss of independence, self-doubts and worry about body reaction and health. Role functions related to change in family responsibility are separation from friends. It involves adoption, change in behaviour, supporting protective mechanism, providing structure, promoting exploration of feeling, facilitating problem solving and teaching relaxation technique.

1.35.3. Output

Output is the outcome of the system. When the system is a person output refers to the person's behaviours. Roy's adaptation used in this study categorizes output as adaptive responses (these that promote a person's integrity) maladaptive or ineffective responses (these that do not promote goal achievement). Adaptive responses are used when a person demonstrates behaviours that achieve the goals. Maladaptive responses of output provide feedback for the system.
Fig 18 Modified Roy's adaptation conceptual model - 2002

Input

Throughput

Output

Patient & Family

Coping Mechanism

Change in Behaviour

1. Supporting
2. Protective mechanism
3. Relaxation technique
4. Counseling

Social support by family and friends

Maladaptation

Feedback
36. Scoring procedure

1.36.1. Family burden interview schedule

This schedule was developed by Pai and Kapur (1981). While reconstructing this tool, the authors conducted a free unstructured interview with one relative of each of 40 patients coming to the outpatient clinic. The interview focused on various areas of burden that the families were encouraged to be objective and concrete in their responses. For instance, if they said they had experienced financial burden they were asked to give details of expenses on drugs and travel, or loss of pay and so on. If they said their leisure was curtailed they were asked how they spent it previously and in what manner and to what extent a particular leisure activity was now curtailed. These interviews were recorded verbatim. Subsequently their content was analyzed in terms of the various categories of burden experienced.

Twenty-four new interviews were then recorded and the records were distributed among six colleagues working in the psychiatric field. These six people were asked to pick out items of burden and to group them into general categories identified by them. The categorization thus collected was compared with the categorization prepared by the investigator earlier. It was found that both categorizations were broadly similar, although different terms were used, e.g., the area of financial burden was variously termed economic difficulties, Expenses, and financial burden similarly, the area of burden in leisure activities was termed recreational handicap, leisure time curtailment, etc. Apart from such terminological difference, three colleagues had defined some items of burdensome
behaviours, which had not been noted by the investigator or by the other three colleagues.

The 24 possible items thus picked out were arranged in six different categories, making use of the common item wording noted in the interview records. Each item was then converted into a question for the definitive interview schedule. Guidelines for assessment of the level of burden for that particular item were provided. Each item could be recorded as absent (Score 1) Moderate (score 2) or Severe (score 3). This constituted the semi-structured interview schedule.

The reliability of the interview schedule was examined by the following method. One relative of each of 20 patients was interviewed by three raters who sat together, with one of them putting the questions to the relative. Each rater scored every answer individually without consulting the others, making his or her own assessment of the burden felt by the relative. The ratings were then compared and the differences were examined for statistical significance by determining a reliability coefficient, the method being based on the two-way analysis of variance.

The reliability score was above 90 per cent for 20 items, and between 87 per cent and 89 per cent for the other four. As can be seen, this is extremely high. The sample of relatives found that their heaviest burdens were financial loss, disruption of normal family activities and the production of stress symptoms in family members, in that order of intensity.

In order to test the validity of the instrument, the subjective burden as reported by each relative was scored on a similar three-point scale. It was
considered that if the overall objective burden assessed by the rater was highly correlated with the subjective burden as reported by the relative, it would be measuring the validity of the instrument. In fact, the correlation coefficient between the mean total scores on each item as assessed by the professional raters and by the relatives was 0.72 (df = 7), which was considered sufficiently high.

**1.36.2. Social support behaviors scale (SSB)**

This scale was used in the current study to measure modes of social support of the subjects Vaux et al develop it in 1987. The original scale is a 45 item instrument designed to assess five modes of social support as given below.

- emotional (items 3, 8, 12, 16, 20, 23, 27, 30, 31, 36)
- socializing (items 1, 2, 5, 9, 13, 18, 24)
- practical assistance (items 4, 6, 7, 11, 34, 37, 40, 43)
- financial assistance (items 14, 21, 26, 29, 32, 38, 41, 45)
- advice hindrance (items 10, 15, 17, 19, 22, 25, 28, 33, 35, 39, 42, 44)

The social support behavior scale is designed to assess available supportive behavior and to do so separately for family and friends The five subscales have been confirmed through factor analysis This is an important measure not only for the study of social support networks, but for use in clinical practice as a way of understanding real and potential supports available for clients Scores for the subscales and total scales are simply computed by summing individual item score on the 5-point scale (possible range of 45 - 225). The scale reportedly has very good internal consistency and concurrent validity.
(Vaux, 1987). During the pilot study, it was found that some of the items of the scale are not culturally appropriate. Hence the items 4, 7, 21, 32 and 34 were removed from the scale, and the score ranged between 40 and 220.

**Social support behaviour scale**

<table>
<thead>
<tr>
<th>Emotional items</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score range</td>
<td>10 to 50</td>
</tr>
<tr>
<td>Socializing</td>
<td>7</td>
</tr>
<tr>
<td>Score range</td>
<td>7 to 35</td>
</tr>
<tr>
<td>Practical Assistance</td>
<td>5</td>
</tr>
<tr>
<td>Score range</td>
<td>5 to 25</td>
</tr>
<tr>
<td>Financial Assistance</td>
<td>6</td>
</tr>
<tr>
<td>Score range</td>
<td>6 to 30</td>
</tr>
<tr>
<td>Advice / Hindrance</td>
<td>12</td>
</tr>
<tr>
<td>Score range</td>
<td>12 to 60</td>
</tr>
</tbody>
</table>

1. I to Patient family and friends support
2. I to Family friend’s support
3. Higher score indicates better support

1. Nobody does
2. Someone sometimes will do this
3. Most of them sometimes will do this
4. Someone most of the time will do this
5. Most of them will always do this
1.36.3 Scoring procedure for self - analysis questionnaire - Trait Anxiety Scale

- Total No. of questions 20
- Minimum score is 20
- Maximum score is 80
- The psychometric reliability and validity about the questionnaire on only the post test
- Less than 36 score is normal level of trait anxiety
- The score from 36 to 40 mild level of anxiety
- The score from 41 to 60 moderate level of anxiety
- The score from 61 to 80 severe level of anxiety

1.36.4 Scoring procedure for anger scale

- Total No. of questions 20
- Minimum score is 20
- Maximum score is 80
- The psychometric reliability and validity about the questionnaire on only the post test
- Less than 36 score is normal level of anger
- The score from 36 to 40 mild level anger
- The score from 41 to 60 moderate level anger
- The score from 61 to 80 severe level anger

1.36.5 Scoring procedure for depression scale

- Total No. of questions 21
- Minimum score is 21
- Maximum score is 60
The psychometric reliability and validity about the questionnaire on only the post test

The score from 21 to 30 mild level of depression

The score from 31 to 50 moderate level of depression

The score from 51 to 60 severe level of depression

1.37. Statistical methods

The statistical methods used for analysis were number, percentage, mean, standard deviation, paired t test, ANOVA and correlation coefficient.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Data analysis</th>
<th>Methods</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Descriptive statistics</td>
<td>Number, percentage, mean and standard deviation</td>
<td>Describes the demographic variables and correlates with other criterion variables</td>
</tr>
<tr>
<td>2</td>
<td>Inferential statistics</td>
<td>Paired t test</td>
<td>To assess the psychosocial factors in pre and post test levels</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>ANOVA</td>
<td>The association between demographic variables and psychosocial factors of patients with musculoskeletal injury</td>
</tr>
<tr>
<td>4</td>
<td>Correlation coefficient</td>
<td></td>
<td>A. Analyzing the correlation between social factors and demographic factors of patients with musculoskeletal injury</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B. Analyzing the correlation between psychological factors of patients with musculoskeletal injury</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>C. Analyzing the effectiveness of counseling therapy and relaxation therapy for patients with musculoskeletal injury</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.38. Need for the study

Healthy people who are exposed to periods of immobility or prolonged hospitalization suffer from physiological and psychosocial problems. Injury to the human body has been a challenging situation even to the pre-historic man; musculoskeletal injuries are becoming an epidemic of modern times causing an enormous toll of mortality, morbidity and disability particularly among the younger age group. So it is very important and very essential that nurses should play a vital role in caring for the immobilization patients and their families in order to provide holistic approach and this depends upon physiological and psychosocial readiness of patients for early mobilization and rehabilitation process.

- Musculoskeletal complaints account for more than 31, 50, 00,000 outpatient’s visits per year. Many of the musculoskeletal complaints that cause patients to seek medical attention are related to self-limited conditions requiring minimal evaluation and only symptomatic therapy and reassurance. The data on musculoskeletal injuries in Tamilnadu shows that there is a steady increase in the injuries. The rate of accidents are also increasing every year. The review of literature also shows that we have very few studies on the emotional aspects and nursing needs of families. So there is a need to understand the problem and issues related to the musculoskeletal injuries patients.
1.39. Plan of the thesis

The present study "social and emotional aspects and nursing needs of families of musculoskeletal injury patients" were described under the following chapters

Chapter - I

The first chapter is introduction. It deals with the general concept of musculoskeletal injury, improving the status of musculoskeletal injury. And also in this chapter consists of statement of problems, objective of the present study, operational definitions of musculoskeletal injury, nursing care and socio-emotional factors were mentioned. In this chapter represented the need for the study, limitations of the study, explain about the main objective of the study, research design, setting area's population of the study, size of the sample, method of sample selection, both inclusion as well as exclusion criteria of the sample, description of the tool for the study, core interpretation of the questionnaires report of the pilot study, techniques of data collection statistical procedures used for the study.

Chapter - II

In this chapter an attempt in made to review the literature, about the nature, cause, treatment, prevention and control of the musculoskeletal injury. Brief reports of various

Chapter - III

The chapter deals with the epidemiology, definition, types of musculoskeletal injuries, prevention and management of musculoskeletal injuries.
Chapter – IV

The chapter deals with the types of needs for the patients and family, role of nurses, patient and family teaching, family and social support, psychological support.

Chapter – V

The fifth chapter deals with the demographic and social condition of the patients.

Chapter – VI

In this chapter deals with the inferential analysis. Classification of the data, tabulating of the data, interpretation of the data, finally using standard statistical procedures like ANOVA, ‘T’ test for testing the hypothesis.

Chapter – VII

Result and discussions explains about the effectiveness of counseling and relaxation therapy regarding patients and their families with musculoskeletal injuries especially fractures. Implication for counselling techniques, implication for Jacobson’s relaxation techniques, implication for psychosocial research, implication for nursing needs, implication for proper nursing administration, implication for health education and practices were discussed.