SOCIAL SUPPORT, STRESS AND COPING STYLES AMONG WOMEN WITH PAIN DISORDERS: EFFICACY OF PSYCHOLOGICAL INTERVENTION

THESIS SUBMITTED FOR THE DEGREE OF
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This is to certify that the thesis entitled "**SOCIAL SUPPORT, STRESS AND COPING STYLES AMONG WOMEN WITH PAIN DISORDERS: EFFICACY OF PSYCHOLOGICAL INTERVENTION**", submitted by **Ms. NITA JOSEPH**, to the Department of Psychology, University of Calicut, is a record of bonafide research work carried out by her under my supervision and guidance. The results embodied in the thesis have not been submitted to any other University or Institution for the award of any degree or diploma.

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DECLARATION

I, **NITA JOSEPH**, do hereby declare that this work reported in the thesis entitled, "**SOCIAL SUPPORT, STRESS AND COPING STYLES AMONG WOMEN WITH PAIN DISORDERS: EFFICACY OF PSYCHOLOGICAL INTERVENTION**" is original and carried out by me in the Department of Psychology, University of Calicut, under the guidance and supervision of **Prof: (Dr.) C.B. Asha**. I further declare that this thesis or any part of this has not been submitted for any degree, diploma, recognition or title in this or any other University or Institution.

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.04.2009 **NITA JOSEPH**

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"The evidence for mental state as a cause and cure for today's scourges is not much better than it was for the afflictions of earlier centuries. The literature consists of few scientifically sound studies of the relation, if there is one, between mental state and disease" (Angell 1985, c.f. Krantz and McCeney, 2002). Contrary to this statement there is an extensive accumulated behaviour science literature in health psychology and related fields that suggests the opposite conclusions, at least in the terms of psychological factors on physical symptoms (Baum and Posluszny, 1999; Cohen and Herbert, 1996).

Psychological factors like stress, depression, fatigue, frustration etc. trigger many health related problems like skin disorders (acne, hives, rashes), musculoskeletal disorders (back pain, rheumatoid arthritis, tension headaches), cardiovascular disorders (hypertension, heart attacks, strokes, migraine headaches) and respiratory disorders (asthma, hiccups). Other disorders have also been related to psychological factors like anemia, weakening of the immune system, ulcers and constipation. Any of the above mentioned disease or any disease for that matter, has physical pain either as a symptom or cause or a by product and this pain brings discomfort to any mentally sound individual.

Pain is not bad always, in many ways pain is good for us. Over millions of years the nervous system has developed the ability to experience pain as a protective system to warn us of imminent dangers and to keep us

out of trouble. Indeed any injury or serious illness creates painful emotions for the patient, and physicians routinely use the experience of pain to their advantage. The localization of pain and how it is perceived reveals a lot about the nature of the disease.

The incidence of pain is surprisingly enormous. Estimates in the U.S.A. put the number of Americans suffering from chronic pain between 30 and 50 million which not only causes major problems for these victims but also has economic and social implications. The cost of treatment and lost productivity total an estimated loss of U.S. dollar 10 million for the U.S. economy (Flor, 2002).

PAIN

According to Dobrev (1999), pain is a disagreeable subjective sensation. It is an emotional experience, related to actual or potential damage of the tissues and is a phenomenon which is perceived unconsciously. As a frequently encountered suffering, it has definite social and economic significance. The International Journal Association for the study of pain has defined pain as an "unpleasant sensory and emotional experience associated with actual or potential damage or described in terms of such damage" (Russo and Brose, 1998). This definition is surprising to many practitioners as it recognizes pain not as a sensation but as an experience. Truly we recognize that virtually all human beings are endowed with 5 senses: sight, smell, hearing touch and taste. The importance of recognizing pain as an experience rather than as a sensation is to recognize first that sensations

neuroanatomically have discrete pathways with specific receptors to allow detection and measurement of a stimulus. In contrast an experience incorporates sensory components with important personality and environmental influences.

Pain is a complex experience consisting of a physiological and emotional response to a noxious stimulus. Pain is subjective and difficult to quantify because it has both an affective and a sensory component. Although neuro anatomic basis of pain responses are learned in early childhood and are affected by social, cultural, psychological, cognitive and genetic factors, among others.

Theories of Pain

Specificity of Pain

Specificity theory suggested by Von Frey in 1894 describes a direct causal relationship between pain stimulus and pain experience. Stimulation of specific pain receptors throughout the body sends impulses along specific pain pathways through the spinal cord to specific areas of the sensory cortex of the brain. Stimulus intensity correlates with pain intensity, with higher stimulus intensity and pain pathway activation resulting in a more intense pain experience. Failure to identify a specific cortical location for pain, realization that pain fibers do not respond exclusively to pain but also pressure and temperature and the disproportional relationship between stimulus intensity and reported pain intensity led to specificity theory loosing favour.

Pattern Theory

Pattern theorists proposed that stimulation of nociceptors produces a pattern of impulses that are summated in the dorsal horn of the spinal cord. Only if the level of the summated output exceeds a certain threshold is pain information transmitted onward to the cortex resulting in pain perception. Evidence of differed pain perception, intact pain transmission systems, where pain is perceived without (ongoing) injury, and without pain perception, raised questions concerning the comprehensiveness of pattern theories. In addition there was growing evidence for mediating role of psychosocial factors in the experience of pain including cross cultural differences in pain perception and expression.

Gate Control Theory

Gate control theory views pain as a multidimensional and perceptual experience in which ascending physiological inputs and descending psychological inputs are equally involved. This theory proposes that there is a gating mechanism in the dorsal horn of pain impulses.

The dorsal horn receives inputs from nociceptors which it transmits to the brain via a neural gate. The dorsal horn receives information from the brain about the psychological and emotional state of the individual. This information can act as an inhibitory control that closes the neural gate that preventing the transmission of the nociceptive impulses and thus modifying the perception of pain. The mechanism operates based on the relative activity of the peripheral nociceptor fibres and the descending fibres. Pain impulses

must reach conscious awareness before pain is experienced. If awareness can be prevented, the experience of pain is decreased, eliminated or differed.

This being the most influential theory of pain is not free from criticism. The most significant being the absence of direct evidence of a 'gate' in the spinal cord. The updating of Melzack (1965) stating that the gate is replaced by a neuro matrix is subjected to testing and mapping which will determine the theories potential to further understanding of pain.

The latest understanding is that the experience of pain is related not only to tissue damage and physical illness, but also to mental phenomena including depression, anxiety and somatisation (Smith, 2001).

SOMATOFORM DISORDERS

Somatoform disorders encompass several mental health disorders in which people report physical symptoms or concerns that suggest but are not explained by physical disorders or report as perceived defect in appearance. These symptoms or concerns cause significant distress or interfere with daily functioning.

Somatoform disorders are a relatively new term for what many people used to refer to as psychosomatic disorder. In somatoform disorders the physical symptoms can be explained by any underlying physical disease. In some cases of somatoform disorders a physical disease is present that might explain the occurrence but not the severity and duration of the physical symptoms. People with somatoform disorders are not faking illness they sincerely believe that they have a serious physical problem.

The term 'somatoform' derives from the Greek 'soma' for body and somatoform disorders are a broad group of illnesses that have bodily signs and symptoms as a major component. These disorders encompass mind - body interactions in which the brain, in ways not well understood sends various signals that impinge on the patient's awareness indicating a serious problem in the body.

Types of Somatoform Disorders

The text revision of the IVth edition of DSM-IV-TR recognizes 5 specific somatoform disorders:

1. Somatisation disorder: Characterized by many physical conditions affecting many organ systems.
2. Conversion disorder: Characterized by one or two neurological complaints.
3. Hypochondriasis: Characterized less by a focus on symptoms than by patients' belief that they have a specific disease.
4. Body dismorphic disorder: Characterised by a false belief or exaggerated perception that a body part is defective.
5. Pain disorder: Charecterised by symptoms of pain that are either solely related to or significantly exacerbated by psychological factors. In these conditions the physical pain of the person suggests the presence of organic disease but no such organic disorder can be found upon physical examination and investigation, and instead there is positive evidence that the pain is caused by psychological factors. The production of these symptoms is not under voluntary control.

Somatoform patients are often given inappropriate diagnosis, treated for non-existent depressive disorders and exposed to multiple superfluous investigations (Smith, 2001).

Types of Pain

Pain is classified into 2 according to the Encyclopaedia Britannica, 2006. The classifications are:

1. Acute pain: this type of pain can arise from breaking a bone or touching a hot surface. During acute pain an immediate intense feeling of short duration sometimes described as pricking sensation that is followed by dull throbbing sensation. Acute pain serves a useful function as a protective mechanism that leads to removal of the source of pain whether it can be localized injury or infection.
2. Chronic pain: this is associated with diseases like cancer or arthritis and is more difficult to locate or treat. If pain cannot be alleviated psychological factors such as depression and anxiety can intensify the condition. This type of pain serves a less useful function and is more vague and difficult to isolate.

Diagnosis of Pain Disorder

DSM-IV-TR defines pain disorder as the presence of pain that is the predominant focus of clinical attention. Psychological factors play an important role in the disorder. The primary symptom is pain in one or more sites that is not fully accounted for by a non psychiatric, medical or neurological condition. The pain is associated with emotional distress and functional impairment. The disorder has been called somatoform pain

disorder, psychogenic pain disorder, idiopathic pain disorder and atypical pain disorder.

Epidemiology

Pain is perhaps the most frequent complaint in medical practice and intractable pain syndromes are common. This disorder is diagnosed twice as in women than in men. The peak ages of onset are in the fourth and fifth decades, perhaps because of the tolerance for pain declines with age. Depressive disorders, anxiety disorders and substance abuse are also more common in the families of patients with pain disorder (Sadock and Sadock, 2002).

Etiology

1. Psychodynamic factors: patients who experience bodily aches and pains without identifiable and adequate physical causes maybe symbolically expressing an intrapsychic conflict through the body. Patients suffering from alexithymia who are unable to articulate these feelings with their bodies. Other patients may unconsciously regard emotional pain as weak and somehow lacking emotional legitimacy. By displacing the problem to the body, they may feel that they have legitimate claim to the fulfillment of their dependency needs. The symbolic meaning of body disturbances may also relate to atonement for perceived sin, to expiation of guilt, to suppressed aggression or to obtain love. Many patients have intractable and unresponsive pain because they are convinced that they deserve to suffer. Pain can function as a method of obtaining love and care. Among

the defense mechanisms used by patients with pain disorders are displacement, substitution and repression.

2. Behavioural factors: pain behaviours are reinforced when rewarded and are inhibited when ignored or punished.
3. Interpersonal factors: intractable pain has been conceptualized as a means of manipulation and gaining advantage in interpersonal relation ships.
4. Biological factors: the cerebral cortex can inhibit the firing of afferent pain fibres serotonin is probably the main neurotransmitter in the descending. Inhibitory pathways and endorphins also play a role in the central nervous system modulation of pain. Endorphin deficiency seems to correlate with augmentation of upcoming sensory stimuli. Some patients may have pain disorder than other mental disorder, because of sensory and limbic structural or chemical abnormalities that predispose them to experience.

Pain and Emotion

Pain stimulates both a sensory pathway to the somato sensory cortex an a path to the hypothalamus, amygdala and cingulated cortex areas known to be important for emotional responses (Hunt and Mantyh, 2001). Surgeons recording activity from the human brain have found that painful stimulation of the same brain area produces no reports of pain (Hutchinson, Davis, Lozano, Tasker and Dostrovsky, 1999). At most it elicits or deepens a distressed mood. When people are hypnotised and told that a needle prick or a similar stimulus "will not hurt", it evokes the usual response in the somatosensory cortex but little response in the cingulated cortex (Rainville,

Duncan, Price, Carrier and Bushnell, 1997). In contrast if people have been conditioned to expect sharp pain and they receive a moderately warm stimulus instead, their cingulated cortex reacts as if it were painful (Sawamoto, Honda, Okada, Hanakawa, Kanda, Fukuyama, Kanishi and Shibasaki, 2000). Rats with damage to the cingulated cortex react to pain on their feet by flinching and licking their feet but they do not learn to avoid the location where they got the pain (Johansen, Fields and Manning, 2001). In short the cingulated cortex responds to emotional aspect of pain and not the sensation as such.

PAIN AND PSYCHOLOGICAL FACTORS

A traditional biomedical model has long dominated the understanding of disease related pain. This model is not only prevalent among health professionals but also among patients who seek their help. It views pain as a symptom of underlying disease activity or tissue damage. Thus a patient who experiences severe pain in the arthritic knee assumes that he/she might have a high level of disease activity. Second it assumes that interventions to reduce disease activity or tissue damage will abolish or significantly reduce pain. Thus a patient who has pain related to malignant tumour assumes that the removal of his tumour will eliminate pain. Finally the traditional model ignores or minimizes the role psychological factors play as far as pain is concerned.

This model has a number of important limitations. First research has shown that the amount of pain reported is very often not proportionate to underlying evidence of disease activity. Secondly, coping variables are much more important predictors of pain and adjustment to pain. There is evidence

that medical or surgical interventions designed to eliminate underlying disease activity does not eliminate pain (Kroner, Krebs, Skov and Jorgensen, 1989).

Diagnostic Criteria

Diagnosis of pain disorder is the most important part of treatment. If correctly diagnosed the lion share of the treatment is complete. The diagnosis criterion cited in The Synopsis of Psychiatry is as follows:

1. Pain in one or more anatomical cites is predominant focus of the clinical presentation and is of sufficient severity to warrant clinical pattern.
2. The pain causes clinically significant distress or impairment i.e. social, occupational or other important areas of functioning.
3. Psychological factors have to have an important role in the onset, severity, exacerbation or maintenance of pain.
4. The symptom or deficit is not intentionally produced or feigned (as in factitious disorder or malingering).
5. The pain is not better accounted for a mood, anxiety, psychotic disorder or malingering and does not meet the criterion for dysparenuria.

Symptoms

Preoccupation with pain for at least 6 months

Chronic, consistent complaints of pain

Numerous evaluations with little pain relief

Unusual or extreme familiarity with pain and medications

(Sadock and Sadock, 2002).

Clinical Features

The normal course is for pain to appear suddenly and increase in severity over a few weeks to months. Such pain is inconsistent with the anatomical distribution of the nervous system. Characteristically it is continuous for much of the day, may cause difficulty in getting off to sleep but does not cause wakening and has symbolic significance e.g. chest pain in an individual who had a relative die from a heart attack.

The common sites for pain are:

Head, neck, chest, lower back, abdomen and genitals.

Patients lack insight into associated psychological factors and they respond less well to analgesics.

The pain solves a psychological problem for the patient and may be ameliorated by psychological and environmental changes. It also corresponds to ideas held by the patient about his condition. The degree of resulting disability reflects these beliefs rather than the severity of any previous injury or organic disease. The more uncertain the patient is about his pain, or the more he believes the pain will endure, the worse the disability and associated demoralisation. Persistent pain disorder is characterised on examination by over reaction to the examination itself, diffuse superficial tenderness and weakness of all muscle groups in the region. (Puri, Laking and Treasaden, 1996).

Differential Diagnosis

- Physical pain described as sore, boring, nagging, or waking at night might have a physical cause
- Schizophrenic patients may have delusional pain syndrome
- Generalised anxiety disorder may be present with muscle pain and tension headaches
- Malingering should be excluded.

Treatment of Pain

There are a wide range of treatments offered for pain relief. These treatments can be broadly classified into conventional treatments, complementary therapy and psychological interventions.

Conventional Therapy

The use of cold and hot compresses though not scientifically proven may help reduce pain and inflammation and allow greater mobility for some individuals. Bed rest for a day or two is also found to be helpful however patients are advised to resume activities as soon as possible. Exercise is probably the most effective way to speed recovery from pain as it helps strengthen muscles and increase blood flow. Medications are often used to treat acute and chronic pain.

Complementary therapy

This therapy incorporates a wide range of practices that are thought to prompt the body's release of pain relieving substances. This includes acupuncture, massage, meditation, etc.

Psychological Intervention

These interventions usually include cognitive and behavioural therapies. Cognitive strategies include biofeedback, relaxation and imagery. Some psychological interventions such as relaxation techniques are simple to be taught and are effective too. Psychological interventions are most appropriate for patients who express interest in modality, express anxiety or inordinate fears about their pain, have inadequate relief after appropriate pharmacologic intervention, or experience persistent or recurrent pain that may benefit from a combined pharmacologic and non pharmacologic approach. Psychological therapies like counselling by multidisciplinary pain centres may be best for undiagnosable pain (www.stoppain.org, 2000). The research on purely psychological approaches to treating chronic pain has sometimes reached contradictory conclusions, but in 2003 Lin and her colleagues concluded through a study using medications and psychotherapy as interventions that "in a large and diverse population of older adults with arthritis (mostly osteoarthritis) and comorbid depression, benefits of improved depression care extended beyond reduced depressive symptoms and included decreased pain as well as improved functional status and quality of life".

PAIN AND GENDER DIFFERENCES

How individuals relate to pain and express pain may be affected by their upbringing and culture. For e.g. in the Western society, men were raised to endure mild pain such as an athletic injuries while women were asked to rest upon the slightest suggestion of pain. At the same time men were told

that uncomplaining endurance of pain was 'manly'.

SOCIAL SUPPORT

Even in monkeys stress leads to an increase in affiliative behaviour and affiliation in turn enhances the immune system. In general people who interact closely with others are better able to avoid illness than those who remain isolated from interpersonal contact (Baron ands Byrne, 1997).When illness does occur people who receive social support recover more quickly than those who do not. One of the reasons for positive effects of interpersonal support is that talking to some one else reduces stress and the incidence of both major and minor health problems.

Social support is best understood in the context of social comparison theory first presented by Leon Festinger in 1954. People have a need to be 'correct' to do the right thing and behave in a socially appropriate manner. When an individual expresses an idea or behaviour which is consistent with the ideas or behaviours of others, then the social group accepts him as he follows the group norms. When people turn to others for *informational social support* they are often looking for guidance to help fit the social norm to do or think the 'right thing'. *Emotional social support* tells that one is like others and that one is valued and accepted by others. *Tangible social support* tells one that other people will perform behaviours similar to meet those needs. In other words there is strength in numbers.

Social support has many meanings. Sometimes it is defined simply as information one receives from others. For social scientists social support is

something defined as the possibility of human interactions. Cobb (1976) indicated that social support should be viewed as the receipt of information that one is cared for, is valued and belongs to a mutually supportive social network. This multidimensional view of social support has gained acceptance. In this view there are 5 major outcomes contributing to social support:

1. The perception of a positive emotion towards oneself from another.
2. Having another person agree with ones beliefs or feelings.
3. Encouragement by another person to express ones feelings of beliefs in a non threatening environment.
4. The receipt of needed goals or services.
5. Confirmation that one does not have to face events alone.

These perceptions serve an important function in maintaining a positive sense of wellbeing by enabling one to cope with and adapt to stress.

Operational Models of Social Support and Stress

Two general models of influence of social support on stress have been proposed, each representing a different process through which social support can affect wellbeing.

Direct Effect Model

The direct (main) effect of model of social support can prevent exposure to certain stressors, induce more benign appraisals of threat and or boost morale and sense of well being (Gottlieb, 1981). This model contends that social support is important regardless of the pressure of a stressor. Here it is seen as providing a generally positive effect on the individual which

would incidentally provide the individual with resources that can be called in to play when one is faced with stress. This effect influences the well being in ways that do not necessarily involve improved means of coping with actual stressor or stressful events. In the model social support is seen on its own as an important etiological variable and is "conceptualised as a basic human need that must be satisfied in order for an individual to enjoy a sense of well being" (Shumaker and Brownell, 1984). Social support bears a direct relationship to measures of psychological disorders in this model and is a means of primary prevention

Buffering Model

According to the buffering model social support is important when one is faced with a stressor because it comes in between the individual and the source of stress thus acting as a shield between the individual and the stressor and protecting the individual from the negative effects of the stressor. The buffering (interaction) effect model hypothesises that social support mediates or 'buffers' the adverse effects of chronic adverse life stressors (Cohen and Willis, 1985). This is the most widely researched theory of social support (buffering effect) and it is claimed to offer a social model of mental disorder.

The following figure shows that social support may play a role at 2 different points in the causal chain linking stress to illness.

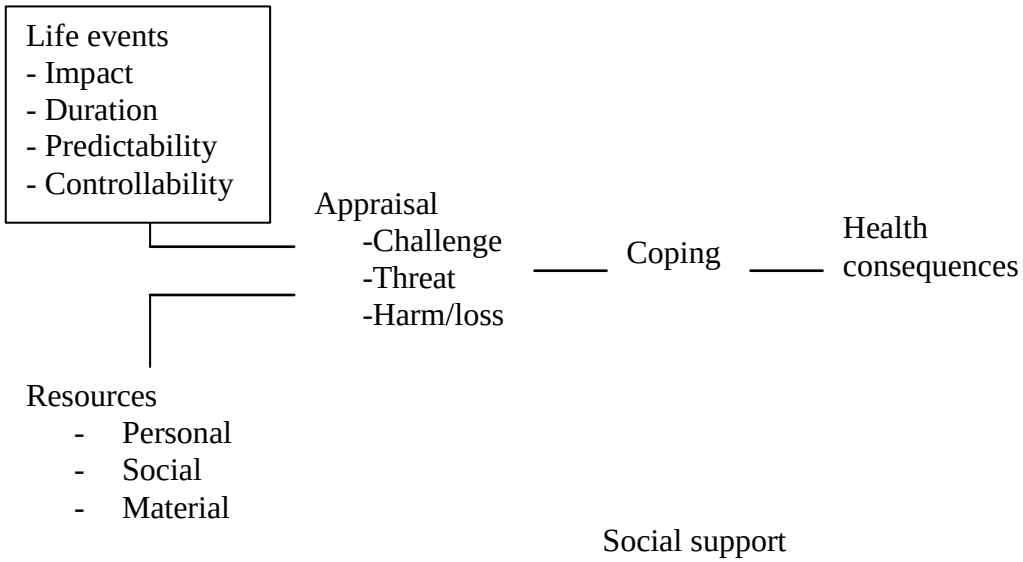

Figure 1.1: ***Role of Social Support in the Causal Chain Linking Stress to Illness***

First support may intervene between the stressful event (or expectation of that event) and a stress appraisal response. That is the perception that others can and will provide necessary resources may redefine the potential for harm posed by a situation and bolster once perceived ability to cope with opposed demands and hence prevent a particular situation from being appraised as highly stressful. Second, adequate support may intervene between the experience of stress and the onset of pathological outcome by reducing or eliminating the stress reaction or by directly influencing the physiological processes. Support may alleviate the impact of stress appraisal by providing a solution to the problem by reducing the neuro-endocrine system so that people are less reactive to the perceived stress or by facilitating healthy behaviours (Cohen and Willis, 1985).

Gender Differences in Sources of Social Support

Men rely more heavily on their spouses for social support than do women. Where as men depend primarily on their spouses for support, women depend on a variety of sources, including friends, relatives and neighbours (Antonucci and Akiyama, 1987 and Kohen, 1983). Of the men 74% said they talk to their wife when upset but only 48% of the women said they talk to their husbands.

STRESS

Psychological stress means much more than just sweaty palms, headaches and a queasy stomach. Stress can contribute to all sorts of serious health problems including insomnia, chronic diarrhoea, constipation, high blood pressure, stroke, heart disease and cancer.

A decade ago scientists believed that the most harmful form of stress was the result of major life crisis-the death of a spouse, the loss of a job, divorce, etc. Now it is clear that while stress associated with these events is quite severe it is usually short lived. Consequently it had little time to cause damage to our bodies.

Far worse, scientists now theorise that it is the every day stress to which all of us are routinely subjected- being late for work, arguing with a loved one, etc. each little frustration that occurs throughout the day speeds the heart rate, dilates the pupils, and floods the blood stream with powerful hormones setting the stage for stress related problems affects us a lot (Lichstein, 2000).

The word stress has a long pedigree. It is a term of Latin which was first used in the 15th century as a shortened form of 'distress' to denote

obnoxious human experience. Later during the 18th and 19th century the term meant force, pressure, strain or strong effort exerted upon object, person's organ or mental powers.

There is no agreement among researchers about the definition of stress. In biomedical sciences, stress is mainly understood as an organism's response to adverse stimulation. In psychology stress is understood as the process where the person and the environment interact. In health psychology, joint effects of the person and environment on pathology have been the focus of research, along with mediating and moderating factors such as coping and social support. Basically 3 broad perspectives can be chosen when studying stress:

a) The response based perspective

b) The stimulus based perspective

c) The cognitive transactional perspective

(Schwarzer, 2003).

The Response Based Perspective

The response based perspective focuses on the way the organism reacts. As propounded by Selye the response to a stimulus follows the same atypical 3-stage pattern in humans and animals called the General Adaptation Syndrome (GAS). The first stage- the 'alarm reaction' mobilises the body for the fight or flight response, which can be phylogenetically seen as a short term reaction to emergency situations. If the stress is a longer encounter the organism moves to the 'resistance stage' in which it adapts more or less successfully to the stressor. According to Selye the immune system is compromised and some typical 'diseases of adaptation' develop under

persistent stress such as ulcer and cardiovascular diseases. Finally in the 'exhaustion stage' the organism's adaptation resources are depleted.

This perception is still dominant in the biomedical science, but not in psychology. The main reason for this is that Selye neglected the role of emotions and cognition and focused solely on the physiological reactions of animals.

The Stimulus Based Perspective

The stimulus based perspective pays more attention to the particular characteristics of the stressor. The research question establishes relationships between a variety of distinct stressors and outcomes including illnesses.

This line of research emerged when Holmes and Rahe (1967) attempted to measure life stress by assigning numbers called life change units, to 43 critical life events. They assumed that the average amount of adaptive effort necessary to cope with an event would be a useful indicator of the severity of such an event.

The Cognitive- Transactional Process Perspective

Lazarus conceives stress as an active, unfolding process that is composed of causal antecedents, mediating processes and events. Antecedents are personal variables such as commitments or beliefs and environmental variables such as demands or situational constraints. Me
re g and of de es. Ex
ar bring about both immediate effects such
physiological changes and long term effects concerning psychological well being, somatic health and social functioning.

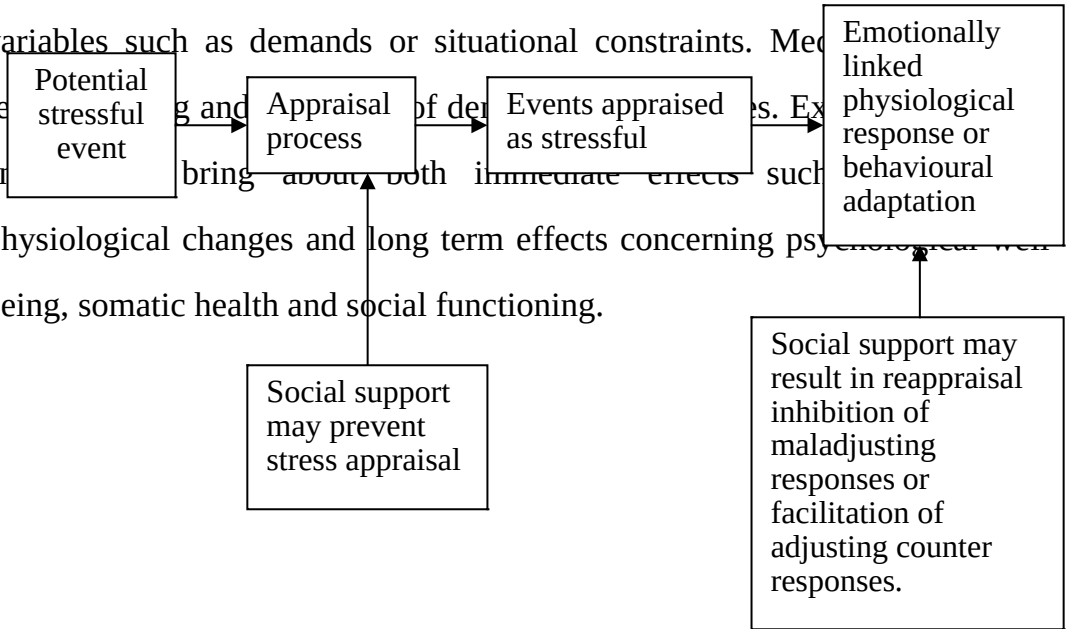

Figure 1.2: ***Process model of the stress/ health relationship based on the Transactional Stress Theory by Lazarus (Schwarzer, 2003)***

Causes of Stress

Psychosocial stressors are numerous and can be classified in a number of different ways. It is possible to distinguish between external objective events such as natural disasters and internal subjective ones like role conflict, etc. Then there are interpersonal stressors such as conflict at work and macro social stressors like unemployment, socioeconomic inequality and war. Stressors vary on many dimensions including duration and severity.

A common distinction is drawn between acute life events such as death of a relative or job loss, chronic stressors such as family conflict or looking after a disabled relative and severe daily hassles. One of the advantages of identifying acute life events is that they can be pinpointed in time and are relatively easy to define. This makes it possible to analyse the temporal sequence between life experience and illness onset and life methods have proved especially useful in psychiatric research. Chronic stressors are frequently more important since they elicit long term disturbances in

behavioural and biological processes that contribute to development of a disease. (Steptoe and Ayers, 2005).

Stress and Illness

An Evolutionary Perspective

The sympathetic branch of the ANS responds as a unit, causing a state of generalised, undifferentiated arousal. This was probably of crucial importance in the evolutionary past of human beings when ancestors were frequently confronted by life threatening dangers. While an increase in heart rate is necessary to supply more blood to the muscles when facing a danger, it may be quite relevant to most of the stressors we face today which involve a higher psychological element. Most commonly encountered stressors do not pose physical threat, but our nervous and endocrine systems have evolved in such a way that we typically react to stressors as if they did. What may have been adaptive responses for our ancestors, have become maladaptive today.

In the case of heart rate and blood pressure, chronic stress will involve repeated episodes of increases in heart rate and blood pressure, which in turn produces increases in plaque formation within the cardiovascular system.

Stress also produces an increase in blood cholesterol levels through the action of adrenaline and non adrenaline on the release of free fatty acids. This produces a clumping together of cholesterol particles, leading to clots in the artery walls and occlusion of the arteries. In turn raised heart rate is related to a more rapid build up of cholesterol on artery walls. High BP results in small lesions on the artery walls and cholesterol tends to get

trapped in these lesions (Holmes, 1994 c.f. Gross, 2005).

Mental Stress and Cardiovascular Diseases

States of fear, excitement and acute anger reduce blood flow through the arterio sclerotic coronary segments and provoke coronary spasm, thus causing abnormal left ventricular wall motion and electrocardiograph evidence of myocardial infarction. Acute mental stress may cause angina in the presence of normal coronary arteries as a result of coronary artery spasm.

Mental Stress and Hypertension

Hypertension is a disease characterised by an elevated blood pressure of 160/95 mm Hg or above. The psychoanalyst Otto Fenichel observe that the increase in essential hypertension is probably connected to the mental situation of persons who have learned that aggressiveness is bad and must live in a world in which an enormous amount of aggressiveness is called for.

Mental Stress and Asthma

Asthma, a chronic, episodic illness characterised by extensive narrowing of tracheal bronchial tree, is an illness commonly seen in patients characterised as excessively dependent.

Stress and Low Back Pain

Although low back pain may be caused by a ruptured invertebral disc, a fracture of the back, congenital defects of the lower spine or a ligamentous muscle sprain, many instances are psychosomatic. The reaction to pain is disproportionately emotional, with excessive anxiety and depression.

Mental Stress and Rheumatoid Arthritis

Rheumatoid arthritis is a disease characterised by chronic

musculoskeletal pain arising from inflammation of joints. The disorder's significant causative factors are heredity, allergic, immunological and psychological. Stress may dispose patients to rheumatoid arthritis and also responsible to make them report more painful joints, more pronounced experience of pain, more health care use and more inability to work than patients with less stress.

Mental Stress and Pain Experience

People who are stressed are more likely to interpret pain as more serious than those who feel good about themselves and their life situations while feelings of anxiety, frustration, and loss of control and confidence can amplify the experience of pain. It does not mean that the pain is not 'real' it just means that these emotions make it worse.

COPING STYLES

Coping includes all the possible responses to stressors in one's environment as a stressor makes demands on an organism and initiates a stress response, the organism initiates behaviours and thoughts which attempt to remove the stress or reinterpret its effects.

The word coping has 2 connotations in stress literature. It has been used to denote the ways of dealing with stress or the effort to master conditions of harm, threat or challenge when a routine or automatic response is not readily available (Lazarus, 1974).Coping behaviours or things people do to reduce the stress has recently become the focus of research for many psychologists.

Hamburg and Adams (1967) defined coping as the "seeking and utilisation of information". Lazarus (1974) has emphasised the key role of

cognitive processes in coping activity and the importance of coping in determining the quality and intensity of emotional reactions to stress. Freedman, Kaplan and Sadock (1979) described coping as a 'conscious and unconscious way of dealing with stress and without changing one's goal'. Pearlin and Schooler (1978) conceptualised it as "any response to situational life stressors that serve to prevent, avoid or control emotional distress". All these definitions imply that coping means active engagement in thoughts and behaviours to mitigate and avoid the impact a stress creates or poses.

Coping strategies may attempt to eliminate or moderate the initial source of the stress reaction (stimulus-directed coping), reduce the magnitude of stress response (response directed coping) or change the way the stressor is perceived (cognitive coping). There is no right or wrong coping style, but one or the other way can be more effective in certain situations.

Coping Strategies

Individuals show consistent individual differences in the coping strategies they used to handle stressful situations. Endler and Parker (1990) devised the Multidimensional Coping Inventory to assess three major coping strategies.

- Task-oriented strategy: This involves obtaining information about the stressful situation and about alternative courses of action and their and their probable outcome; it also involves deciding priorities and acting so as to deal directly with the stressful situation.
- Emotion-oriented strategy: This can involve denying or minimising the seriousness of the situation, it also involves conscious suppression

of stressful thoughts.

Individuals who are high in the personality dimension of trait anxiety, and thus experience much stress and anxiety tend to use the emotion-oriented and avoidance-oriented strategies rather than the task-oriented strategy (Endler and Parker, 1990).

The situation is very different in those with type 'A' behaviour pattern. They have a strong tendency to use the task-oriented strategy even when it is not appropriate (Eyesenck, 1994).

There is no simple answer to which type of coping strategy is most effective in reducing stress, because the effectiveness of any coping strategy depends on the nature of the stressful situation. In general terms, task-oriented coping tends to be the most effective when the individual has the resources to sort out the stressful situation. On the other hand emotion–oriented coping is preferable when the individual cannot resolve the situation (Eysenck, 1994).

Psychoanalytic Background of Coping

Theoretical antecedents of coping can be traced back to psychoanalytic and ego psychology. Freud (1937) postulated that the ego mechanisms of defence described as habitual unconscious and sometimes pathological processes that are employed to resolve conflicts between individual's impulses and the constraints of the external reality. Both these mechanisms (defences) are accepted as some of the coping styles. Erickson (1963) described eight life stages, each representing a new challenge that must be negotiated successfully in order that the individuals cope with the

next stage of development.

Coping Outcomes

Coping can have an effect on three kinds of outcomes- psychological, social and physiological (Pestonjee, 1999). From a psychological perspective coping can have an effect on the person's morale (how the person feels about one's life or oneself), emotional reaction (level of depression or anxiety or the balance between positive and negative feelings), the incidence of psychiatric disorder and even performance. From a social perspective one can measure its impact on functional effectiveness such as employability, community, involvement and sociability. The effectiveness of interpersonal relationships or the degree to which social roles are filled (acting out, anti-social behaviour, etc are avoided). From a physiological perspective, outcomes include short term consequences, such as the development and progression of a particular disease.

Gender and Coping Styles

According to Cannon (1932) our physiological stress response equips us for fight or flight. This view remains popular. However Taylor, Klein, Lewis, Gruenwald, Gurung, and Updgraff (2000) argued that there are important differences between men and women in their reaction to stress. Men are more likely than women to respond to stressful situation with a "fight or flight" response where as women generally respond to stressful situation with a 'tend and befriend' response .Thus women respond to stressors by protecting and looking after their children (the tend response) and by actively seeking social support from stress (the befriend response).

Some of these effects are found across cultures. Edwards (1993) found that in 12 cultures that girls are much more likely than boys to provide help and support to infants.

Taylor, et al (2000) emphasised the role of oxytoxin which is a hormone secreted by men and women as a part of stress response. Oxytoxin makes people less anxious and more sociable and so is associated with the tend and befriend response. Its effects are reduced by male sex hormones and increased by female sex hormone-oestrogen.

But perhaps the most consistent gender related difference in coping behaviours is the greater tendency of women than men to seek social support from others. This pattern has been found among undergraduate students, adults and workplace samples equated for status and access to resources (Rosario, Shinn, March, and Huckabee, 1988, Stone and Neale, 1984 and Thoits, 1991).Women more frequently seek both counsel and comfort when they are stressed than do men.

RELEVANCE OF THE PRESENT STUDY

Stress is a significant threat to the overall mental, physical and spiritual wellness. Some obvious signs of stress may be irritability, fatigue, restlessness, depression and feeling of being overwhelmed, even by a minor task. Globally women face the life stressors of parenting, working in and outside home, poverty, marriage, divorce, infertility, sexual abuse, sexual harassment, pregnancy, violence, caring for elderly, loss of loved one and many, many others. Since the modern woman has to juggle between the roles

of a wife, daughter, mother, colleague, and many more, she is likely to experience greater mental stress, considerable unhappiness and psychological disorders, etc. The burden is heavier when she is not given recognition and on the contrary more is expected.

A study by W.H.O. in 2001 found that in Kerala women are highly prone to mental illnesses. Five years later a study by Vanitha women's magazine has revealed that the situation has worsened. Situational stress, alcoholism, unhealthy, social anarchy, fear and many other factors were seen to explain the decline of mental health in the women in Kerala. Mental health is also affected by awareness of frequent kidnappings, robbery, murder and such insecure stimuli. According to the study women below the age of twenty five are seen to have anxieties about employment, establishment of personal relation ships, family problems and attainment of respect from society. Where as women above the age of twenty five are more stressed about whether their husbands are unfaithful, bodily changes, greying of hair, financial problems, daughters marriages, children's education and the rising price of gold. Women above the age of fifty are more stressed about abandonment, loneliness and illnesses. These stressors later cause certain illnesses of which pain disorder is one of the most commonly seen ailment in women. The misunderstandings while diagnosing pain disorder makes the treatment difficult and sometimes even dangerous.

There needs to be a revolution in the day to day management of musculoskeletal pain. Not only do we need to abandon prolonged rest and enforced inactivity as a form of treatment, but we also need to appreciate that addressing the patients' beliefs, distress, and coping strategies must be an integral part of management if it is to be effective. Lessons learnt in the

management of chronic low back pain have direct relevance to the early and specialist management of musculoskeletal pain in general.

Against the aforementioned the present study tries to examine a few variables and their contribution to pain frequency and pain experience in women with pain disorder. The study also intends to test the efficacy of certain psychological intervention in reducing the amount of distress and thereby assessing whether it results in reduction in pain experience and frequency.

The study reads as “Social Support, Stress and Coping Styles among Women with Pain Disorders: Efficacy of Psychological Intervention”.

DEFINITION OF KEY TERMS

Pain Disorder

A pain disorder is characterised by the presence of and focus of pain in one or more body sites and is severe enough to come to clinical attention. Psychological factors are necessary in the onset, severity or maintenance of the pain which may cause both significant distress and impairment.

Social Support

Emotional, instrumental, informational companionship and validation support enjoyed by an individual.

Stress

A condition of mental strain, which produces changes in the autonomous nervous system.

Coping

Cognitive and behavioural efforts to manage events that tax the

person’s ability to adjust.

CHAPTER II

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REVIEW OF RELATED LITERATURE

Research projects do not develop in a vacuum. The psychologists involved in a program of research are thoroughly familiar, not just in their own lab, but also with the work done in other labs doing similar research. Those deriving experiments from theory are likewise familiar with the research concerning the theory in question. This is possible through examination of the related literature concerning the area involved.

The literature reviewed for the present study has been presented under the following divisions according to the variables in the study:

1) Social Support
2) Stress
   - Stress and women
   - Stress and health
   - Stress and pain
3) Coping Styles
4) Psychological Interventions

SOCIAL SUPPORT

Social support issues have their permanent position in the studies of socio-psychological changes influencing people's health. Social support has been treated as one of the factors guarding against disease symptoms occurrence and supporting the stable health state.

The importance of social support was shown by a study by Brown and Harris (1978). They found that 61% of severely depressed women had experienced a very stressful life event in the previous nine months compared with only 25% of non-depressed women. However many women managed to cope with the life stress without becoming depressed, of those women who experienced a serious life event, 37% of those without an intimate friend became depressed against only 10% of those who did had a very close friend.

Hodnett (2007) in his study reveals that continuous support during labour from caregivers (nurses, midwives or lay people) appears to have a number of benefits for mothers and their babies and there do not appear to be any harmful effects.

The finding of a study by Tsai in 2005 revealed that elders with higher levels of disability, financial hardships and less social support are found to have higher levels of depressive symptoms. Solomon in 1985 stated through his study that women with less adequate social support were more at risk for psychiatric disorder. A similar sample was studied by Yali and Lobel in 2002 and they found that greater social support resulted in less frequency of higher emotional distress.

The purpose of a study by Tomczak-Witych (2006) was to determine how female patients suffering from depression function in society in relation to the social support they receive. The social support aspects such as the sense of security, sense of closeness, stability and self-confidence were analysed. The participants of the analysis were both women with diagnosed depression and women without any indicators of a depression. The analysis

of the result indicated the existence of differences in the intensity of all the social support parameters in both studied groups of women. Women with depression are characterised by a lower sense of closeness, lower stability and lower self-confidence. Among the female patients with depression, there is a lower level of the need of safety and this is the symptom characteristic for the individuals not properly adjusted to social conditions. Lower sense of security staunches and deteriorates the perception of social support, both perceived and expected.

Another study by Tomczak-Witych (2006) was to determine the relationship between the social functioning of female patients suffering from depression with their coping style. 60 female patients with a diagnosed depression and 60 mentally ordered female patients were tested with the use of Endler's and Parker's Coping Inventory for Stressful Situations Questionnaire (CISS). The analysis of the results indicated the existence of differences in choosing coping strategies (task-aimed strategies) in both the studied groups of women. The study shows that female patients with depression cope with stress mostly using emotional strategies and the avoidance strategies are used the least often. Mentally ordered women however, most commonly use problem (task)-focused strategies.

The relationship among stress, age and social support was explored Seckel and Birney (1996) in 30 women scheduled for a breast biopsy. Stress was determined using the State Trait Anxiety Inventory. Social support strength and network size were measured using the Norbeck Social Support Questionnaire in this correlational study. Findings demonstrated that women do experience stress before their biopsies. Stress was also found to have a

negative correlation with social support strength. Moreover, although statistically insignificant, these women tended to have increased stress with aging until age 40, then stress decreased with increasing age.

An analysis done on pregnant women by Nuckolls, Cassel and Kaplan (1972) using of general measures of psychosocial assets including social network and perceived support, revealed that women exposed to many stressful life events were much more likely to have medical complications during pregnancy if they had low psychosocial assets.

A conceptual model of the stress process has been useful in examining relationships between numerous social determinants (e.g., chronic stress), protective factors (e.g., social support) and health status. In this article, the authors examine multiple sources of chronic stress, instrumental and emotional support and health outcomes among a random sample of predominantly low-income African American women who reside on Detroit's east side. The findings of Israel, Farquhar, Schulz , James and Parker (2002) suggest that a number of chronic stressors have an impact on depressive symptoms and general health and that even though instrumental and emotional supports each have a significant effect over and above the effects of the stressors, when both are included in the model, instrumental support and not emotional support, remains as a significant predictor of health outcomes. These findings suggest the need for health education interventions and policy strategies that strengthen social support and aim at macro-level changes necessary to reduce chronic stressful conditions.

A study by Coyne and De Longes in 1883 established that social

support and physical well-being were connected but these connections are complex, reciprocal and contingent. Negative correlation between stress and social support was pointed out by Hendrix, Cantell and Steel in 1988.

Kim and Shin's (2004) study examined the relationship among Depression, Stress and Social support in Korean Adult Women. The subjects of this study consisted of 2,503 Korean Adult Women from 20 to 64 years. There was a significant positive correlation between stress and depression, a significant negative correlation between stress and social support and social support and depression. They reached the conclusion that stress and social support were significant predictors (29.6%) of depression.

Shields' (2004) article describes stress exposure among Canadians aged 18 or older and analyzes short- and long-term associations with psychological distress and chronic conditions. The buffering role of emotional support is also explored. Exposure rates to stress were calculated by sex, age group and socio-economic characteristics. Women reported more stress than did men. For both sexes, stress levels were higher among the less educated, less affluent and previously married. The level of psychological distress in 1994/95 and the prevalence of chronic conditions were related to stress, as were increases in distress over the next six years and the likelihood of having been diagnosed with chronic conditions.

The purpose of a study by Cheryl, Hermanson, Diamond, Angell and Spiegel, (1998) was to examine the relationship between emotional adjustment to advanced breast cancer, pain, social support and life stress. It was found that having more people in the patient support system was associated with less mood disturbance. More aversive social contact resulted

in total mood disturbance and pain intensity was associated with greater stress. These results were consistent with the buffering model that social support shielded individuals from previous life stress. In addition, pain was found to be greater in women with greater life stress, regardless of social support. Social stress, psychological distress and psychosocial support effect the adjustment of breast cancer patient and their and influence their adherence and experience to medical treatment. (Spiegel, 1997). Social support was found to reduce patient distress among breast cancer patients in sexual minority women (lesbian or bisexual women) (Bechmer, Freund and Linde, 2005).

An article by Lopez-Martinez, Esteve-Zarazaga and Ramirez-Maestre (2008) tested a hypothetical model of the relationships between social support, pain coping and chronic pain adjustment by using Structural Equation Modeling. The results indicate that perceived social support and pain coping are independent predictors of chronic pain adjustment, providing support for a biopsychosocial model of pain.

Raichle, Hanley, Jensen and Cardenas (2007) examined the utility of a biopsychosocial model of chronic pain and the associations between specific pain-related beliefs, coping and social support and both mental health and pain interference, in persons with Spinal Cord Injury (SCI) and pain. Their findings point toward greater catastrophizing and pain-related beliefs (e.g., the belief that pain signals damage) to be related with increased pain interference and poorer mental health, while coping styles (e.g., resting, asking for assistance) were related only with pain interference. Alternatively, greater perceived social support was related with better mental health. The

findings are consistent with a biopsychosocial model, implicating the need to consider the impact of process and clinical variables on adjustment to chronic pain in persons with SCI.

The purpose of a study by Buys, Roberto, Miller and Blieszner (2008) was to examine the predictors of depressive symptoms among older married rural Australian and American men and women, using comparable measures from two separate studies. Their main outcome measures whether predictors of depressive symptoms, specifically demographic factors, health, pain, functional limitations and social networks, differed according to nationality or sex. Their results indicated that approximately one-third of older rural Australian and Americans reported recently experiencing depressive symptoms. For Australian men and women, pain was the strongest predictor of depressive symptoms. For American women, dissatisfaction with social support predicted depressive symptoms, whereas no variable predicted depressive symptoms in American men.

Thus as Ferreira and Sherman (2007) suggest it could be concluded that greater optimism and support are significantly related to both greater life satisfaction and lower depressive symptoms in pain experience.

STRESS

It is an established fact that stress is harmful physically and psychologically. Stress is drastic and dangerous to life as it may lead from anxiety states to suicides (Guha, Basu, Banerjee and Das, 2006) to sleeplessness (Cohen, Patel, Khetpal, Peterson and Kimmel, 2007).

Stress and Women

There is ample evidence for gender differences in responses to stressful life events. For e.g. Karanski, Alkan, Balta, Sucuoglu and Aksit (1999) found greater levels of distress and more negative life events in men after 1995 earthquake in Dinal, Turkey. Benzur and Zeindner (1991) found women reporting more anxiety and bodily symptoms than men, as well as higher tension, fear and depression during the Gulf war. Bar-Tal, Lurie and Glick (1994) came to a similar conclusion when they investigated the effects of stress on Israeli soldiers. Women soldier's situational stress assessment as well as stress experiences were higher than those of men were.

Although women often report more distress and bodily symptoms than men do, it cannot be concluded that women generally lack appropriate coping skills for e.g. women are found to overcome the loss of a loved one.

Since a vast majority of studies rely on self-report inventories or scales, it is presupposed that women have a greater tendency to admit symptoms such as pain, depression or negative mood. In western societies men are commonly expected to be psychologically and physiologically more resilient than women. Admitting pain or depression would be contradictory to the desired male picture. Women have a tendency to rate events in their daily life as more severe than men do and they more often blame themselves for their problems (Ptacek, Smith and Zanas, 1992).Psychologically harmful conditions like depression, (Oltmann and Emery, 1995; and Boutin-Foster and Charlson, 2007)and essentially all anxiety disorders (Bland, Newmann, anD Orn, 1998; Wittchen and Kendler, 1994; and Robins and Regier, 1991)

are mostly more prone in women than men.

A study by Soares, Grossi and Sundin (2007) examined the occurrence of low/high burnout among women and the demographic/socio-economic, work, life-style and health "correlates" of high burnout The analyses showed that about 21% of the women had high burnout and compared to those with low burnout, they were more often younger, divorced, blue-collar workers, lower educated, foreigners, on unemployment/ retirement/ sick-leave, financially strained, used more medication and cigarettes, reported higher work demands and lower control/social support at work, more somatic problems (e.g. pain) and depression. Thus, women with high burnout were apparently faring poorly financially, emotionally and physically.

Another factor is the support system available to women to help them face stress. Women tend to have larger and tighter networks that enable them to seek support from many sources, where as men often solely rely on their spouses as support providers (Greenglass, 1982; Hobfoll, 1986; Simon, 1995).

Socioeconomic status (SES) is an important predictor of a range of health and illness outcomes. Research seeking to identify the extent to which this often-reported effect is due to protective benefits of higher SES or to toxic elements of lower social status has not yielded consistent or conclusive findings. A relatively novel hypothesis is that these effects are due to chronic stress that is associated with SES; lower SES is reliably associated with a number of important social and environmental conditions that contribute to

chronic stress burden, including crowding, crime, noise pollution, discrimination and other hazards or stressors. In other words, chronic stress may capture much of the variance in health and social outcomes associated with harmful aspects of lower social status. Low SES is generally associated with distress, prevalence of mental health problems and with health-impairing behaviours that are also related to stress (Baum, Garofalo and Yali, 1999).

Stress and Health

No theory adequately explicates the relationships between stress, social support and health. The recently developed Stress Process Model incorporates multiple levels of support and stress at the individual, family and community level, with a focus on predicting mental health outcomes.

Experiments conducted on laboratory animals in the late 1950's and the early 1960's indicated that a wide variety of stressors including isolation, rotation, exposure to predator and electric shock increased morbidity and mortality responses to several types of tumours and infectious diseases caused by viruses and parasites. Evidence indicates that stress is capable of increasing susceptibility to disease in humans too. Studies have focused that HIV positive patients who experienced severe stress had relevant changes in immune parameters including lower CD8+ natural killer cell count (Sadock and Sadock, 2002).

The review by Kessler, Price and Wortman (1985) has focused centrally on the etiologic significance of social factors in the development of psychopathology. Their implicit assumption has been that social factors in

general and stressors in particular, may play a causal role in the development of psychopathology. Yet the evidence is clear that the vast majority of people who are exposed to stressful life events or to chronic stress situations, do not develop significant psychiatric impairments. For this reason, research interest over the past decade has shifted to factors like social support and coping strategies that may ameliorate the impact of stress. They have examined some of the important empirical results from recent studies of stress, support and coping and have discussed ways in which these new understandings have informed long-standing attempts to explain group differences in emotional functioning. It is important to recognize that the contributors to the work reviewed in their review do not all share a common research agenda. Some of them are primarily committed to unravelling the psychosocial determinants of a particular clinical disorder. Others are mainly concerned with the effects of a particular stressor. Still others are interested in the processes that link stress to health across a broad array of stress situations and health outcomes. In the face of these diverse interests, it is little wonder that their understanding of social factors in psychopathology is uneven. There is good reason to believe, however that these diverse strands of research are beginning to converge on a common conception of the stress process and on a common research design. At its centre is the notion that stress exposure sets off a process of adaptation. It recognizes that this process unfolds over time and it acknowledges that this process is modified by structural factors as well as by personal dispositions and vulnerabilities. There is growing recognition that the analysis of this process requires longitudinal methods. In addition, it

is becoming increasingly clear that experimental interventions are required to unravel the parts of this process that link stress and health.

Within an interactive model of schizophrenia, social support was postulated to serve as a protective factor that facilitates coping and competence, thus modulating the deleterious effects of social and environmental stressors. Although there is growing evidence of the importance of social support in influencing the course of schizophrenia, the evidence suffers from many methodological weaknesses including vagueness in the conceptualization, operations and measurement of the construct. Buchnan in 1995 discussed the perspective of the social support research in general and from the social support-schizophrenia perspective. Despite the wide range of research approaches and methodological problems encountered, common threads in respect to social support were found.

A longitudinal study by Choenarom, Williams and Hagerty (2005) examined the role of sense of belonging, social support and spousal support on the relationship between perceived stress and symptoms of depression in 90 men and women who had a history of depression and who did not have a history of depression. Data were obtained at 3, 6 and 9 months after initial entry into the study. A series of regression analysis procedures revealed a mediation effect, but not a moderation effect, of sense of belonging and perceived social support on the relationship between perceived stress and depression in only the depressed group. Spousal support had neither a direct effect nor an interaction effect on the perceived stress-depression relationship in the depressed group. For the comparison group, perceived stress did not correlate significantly with the symptoms of depression. Repeated measures analysis of variance showed that increased perceived stress and lower sense

of belonging had significant direct effects on the severity of depression and the effects were consistent over the period of 9 months. Social support and spousal support had only indirect effects that fluctuated over time. The results emphasize that interventions geared toward stress reappraisal and promotion of sense of belonging should yield direct and stable effects of decreasing depression.

Roberts, Matecjyck and Anthony (1996) assessed the effects of social support on the relationship of functional impairments and pain to depression. The modified Inventory of Socially Supportive Behaviours was used to assess four types of social support (emotional, informational, tangible and integrative). Contrary to the moderator model of social support, only low tangible support attenuated the adverse effects of functional impairments on depression, while other levels of this type and three other types of support either had no effect or enhanced the deleterious effects of functional impairments. Social support did not attenuate the relationship between pain and depression. The findings suggest that certain types and levels of social support may reduce the effects of functional limitation and pain on depression, while other types and levels may increase their adverse effects.

Koopman, Nouriani, Erickson, Anupindi, Butler, Bachmann , Sephton and Spiegel (2002) examined sleeping problems in women with metastatic breast cancer in relation to depression, social support and salivary cortisol. This study was based on the baseline assessments conducted prior to randomization into treatment conditions. Sleep, depression symptoms and social support were assessed by self-reporting. Cortisol was assessed from saliva samples taken over a 3-day period. Problems with falling to sleep were

significantly related to greater pain and depressive symptoms. Problems of waking during the night were significantly associated with greater depression and less education. Problems in waking/getting up were significantly associated with greater depressive symptoms and less social support. Sleepiness during the day was not significantly related to the variables in the regression model. Fewer hours of sleep were significantly associated with metastases to the bone, higher depressive symptoms and more social support. Use of sleeping pills was more frequent among women reporting greater pain and depressive symptoms. These results suggest that women with metastatic breast cancer who were at higher risk for having sleeping problems are those who were less educated, in pain, depressed, have bone metastases, or lack social support.

The aim of the study by Villeneuve, Lebel and Lambert (1992) was to quantify the degree of association that selected psycho-social and health variables have with psychological distress in the elderly. In order to estimate the level of association, data previously obtained from the "Enquêre Santé Québec" (1987) were entered into a multiple regression analysis with psychological distress as the dependent variable. The results indicated that psychological distress is significantly related to the following variables: the interaction "stress events X perceived social support", physical health, functional health and sex. The results of the present study consequently support previous reports relating psychological distress to physical health, social support, stress and sex with a predominant effect on women. Finally, the results gave further support to the "buffering effect" of social support on stress.

In a study by Hough, Brumitt and Templin (1999) they used structural equation analysis to examine the relationship between chronic illness and depression among urban women. The model included the number of chronic illnesses reported, the demands of illness, perceived social support and salient demographic variables as predictors of depression. The number of chronic illnesses had no direct effect on depression but had a direct impact on the demands of illness which led to decreased social support and increased depression. Being married played a protective role by reducing depression both directly and indirectly through increased social support.

A model of occupational stress, social support, locus of control and depression among family physicians was developed by Revicki and May (1985) . Two hundred and ten family physicians were administered measures of occupational stress, social support, locus of control and depression. Results indicated that occupational stress exerts a direct effect on depression. This relationship is moderated directly by family social and emotional support and indirectly by the influence of locus of control on family social support. Support from peers was not significantly related to depression. Their findings suggest that individuals with a strong sense of personal control also possess beneficial support systems in the presence of stressful situations.

A paper by Larocco, House and French (1980) concerned with the buffering hypothesis that social support ameliorates the impact of occupational stress on job-related strain and health. Their review and findings support the buffering hypothesis for mental and physical health variables (anxiety, depression, irritation and somatic symptoms).

Stress and Pain

There are a number studies which indicate patients with pain in certain body parts visiting doctors one after another and not finding any permanent solution or convincing diagnosis.(Mc Phillips- Tangum, Cheskin, Rhodes and Markham, 1998). The association of mental disorders with back/neck pain shows a consistent pattern across both developed and developing countries (Demyttenaere et al. 2007).

Linton (2000) has concluded through a review that the available literature indicated a clear link between psychological variables and neck and back pain. The prospective studies reviewed by him indicated that psychological variables were related to the onset of pain and to acute, sub acute and chronic pain. Stress, distress, or anxiety as well as mood and emotions, cognitive functioning and pain behaviour all were found to be significant factors. Personality factors produced mixed results. Although the level of evidence was low, abuse also was found to be a potentially significant factor. Thus, it can be concluded that Psychological factors play a significant role not only in chronic pain, but also in the etiology of acute pain, particularly in the transition to chronic problems. Specific types of psychological variables emerge and may be important in distinct developmental time frames, also implying that assessment and intervention need to reflect these variables. Still, psychological factors account for only a portion of the variance, thereby highlighting the multidimensional view.

Lueboonthavatchai (2007) found that anxiety and depressive disorders

are two common psychiatric disorders in breast cancer from a study in female breast cancer patients. The results indicated that strong predictors of anxiety and depression in breast cancer patients were poor family relationship and functioning, maladaptive problem and conflict solving and presence of pain and fatigue. This indicates the need to promote patients' social support, especially emotional support from family and enhancing patient's coping skills may reduce the patients' psychological stress

Women are at greater risk than men for both pain and depression, yet little is known about the frequency and implications of co morbid pain and depression among women in women's health settings. This study by Poleshuck, Giles and Tu (2006) aimed to determine the frequency of comorbid depressive symptoms and pain among a sample of gynaecology outpatients and to evaluate the associations of co morbid pain and depressive symptoms with physical, emotional and social functioning and abuse experiences. The study was conducted on a total of 242 low-income, primarily African American women presenting at an urban women's health clinic for routine gynecological care. Nearly 20% of participants reported comorbid high depressive symptoms and pain. Both depressive symptoms and pain were independently associated with emotional, physical and social functioning domains. Depressive symptoms, but not pain, were associated with increased likelihood of history of abuse. Comorbid depressive symptoms and pain are a substantial problem, with pervasive implications among financially disadvantaged women seeking routine gynaecological care.

Hughes, Taylor, Robinson-Whelen and Nosek (2005) examined correlates of perceived stress among women with physical disabilities to identify variables that may be amenable to change through psychosocial interventions. Based on multiple regression analyses, the findings indicate that demographic (age, income) and disability (mobility, level of assistance needed) variables explained a small but significant proportion of the variance in perceived stress. Variables judged to be potentially amenable to change through psychosocial interventions (i.e., social support, pain interference and abuse) contributed significantly to stress over and above the demographic and disability variables. Women with physical disabilities reported high levels of perceived stress. Particularly at high risk are women who are limited by pain, lack social support and/or have experience with recent abuse. The authors suggest that stress management interventions for this population of women should consider incorporating components addressing pain, social support and abuse.

A significant relationship was noticed between stressful life events and chronic low back pain of uncertain origin but not chronic low back pain with a well defined cause in a few studies on back pain patients (Lampe, Soellner Kriesmer, Rumpold, Kantmer- Rumplmair, Ogon and Rathner, 2001; Crauford, Creed and Jayson, 1990; and Creed, Craig and Farmer, 2001).

Brage, Sandanger and Nygard (2007) studied associations between emotional distress and long-term low back disability in a general population. In primary and hospital care studies, emotional, cognitive and personality factors have been associated with low back disability, while the association

between distress and novel back pain episodes has been uncertain. A randomly drawn cohort of 1152 occupationally active persons aged 20-55 years was interviewed with a comprehensive psychosocial questionnaire in 1990 and was followed for 12 years in national registers over sickness, rehabilitation and disability benefits. In multivariate analysis, earlier LBP, emotional distress, low grade of education and high physical job stress were associated with low back disability. Persons with both emotional distress and earlier back pain were most at risk for disability. Persons with emotional distress but no earlier episodes of LBP had no increased risk for low back disability. Emotional distress is a predictor for low back disability in persons with earlier LBP, but not in persons without. To prevent low back disability, emotional distress should be considered and treated in persons with LBP.

The objective of a survey by Strine and Hootman (2007) was to estimate the US prevalence and psychological and health behaviour correlates of low back pain and/or neck pain. Their results were that the 3-month US prevalence of back and/or neck pain was 31% (low back pain: 34 million, neck pain: 9 million both back and neck pain: 19 million). Generally, adults with low back and/or neck pain reported more co morbid conditions, exhibited more psychological distress (including serious mental illness) and engaged in more risky health behaviours than adults without either condition. They reached the conclusion that low back and neck pain are critical public health problems. Their study supports the idea of a multidimensional approach to examining low back and neck problems and suggests the need for further research to address potentially modifiable psychological factors

and health behaviours in these populations.

Low back pain is a costly and incapacitating musculoskeletal disorder. Prospective studies documenting the capacity of work-related factors to predict chronicity are few in number, the methodology Soucy, Truchon, Cote (2006) used is very diversified and the results obtained diverge. The aim of the present study was to investigate the capacity of work-related objective (non-psychosocial) and psychosocial factors to predict chronic disability related to low back pain. A longitudinal prospective study with two measurement times was carried out. The sample (N = 258) consisted of workers with sub acute low back pain who were on sick leave and receiving compensation from the CSST (Quebec Workers' Compensation Board). Of all the work-related variables measured, perceived stress and fears and beliefs about work were associated with return to work status at the six-month follow-up. The results obtained show the importance of considering fears and beliefs about work when identifying people in the sub acute phase of low back pain who are at risk of developing chronic disability.

COPING STYLES

Mental health generally has been repeatedly shown to vary in relation to gender, socioeconomic status, marital status and age. These status differences may be linked to mental health because they tend to define important differences in stress exposure and in the availability of coping resources.

The purpose of a study by Strickland , Giger, Nelson and Davis in

2007 was to determine the nature of the relationships among stress, coping, social support and weight class in pre-menopausal African American women as risk factors for coronary heart disease. Confrontive coping was the only independent predictor of weight class in a regression model that included perceived stress, life events, social support and optimistic, self-reliant and evasive coping strategies. Therefore, African American women who use confrontive coping to a high degree were more likely to confront problems, such as weight control issues, than those who use this coping strategy to a low or medium degree.

Emotional distress in women during pregnancy has been shown to increase the risk of adverse outcomes for women and newborns. Increasingly, assessment and management of mood and anxiety problems during pregnancy entail consideration of life stress and interpersonal relationships with partners, friends and family members. A study by Glazier, Elgar , Goel and Holzapfel in 2004, describes cross-sectional relations between life stress, perceived social support and symptoms of depression and anxiety as well as the mediating influence of social support on relations between stress and symptoms in pregnant women. A community sample of women provided self-report data during their second trimester of pregnancy. Women who reported low levels of social support showed stronger relations between stress and symptoms than women who reported high levels of social support--indicative of a mediating effect of social support. Consistent with previous studies, results suggest that dyadic psychosocial assessment of pregnant women and their partners may facilitate interventions to augment support networks, thereby reducing the risk of emotional distress.

Research by Grossi, Soares, Angelesleva and Perski (1999) on association between psychosocial variables among patients with musculoskeletal pain revealed that the patients who have been on sick leave for more than 30 days were significantly more often divorced, immigrants, blue collar workers and less educated than the rest of the sample. Compared to the rest of the patients they rated their pain as more severe, frequent and complex. They reported using more pain killers and tranquilizers and having undergone somatic treatments. They also showed high scores on stress, depression and burnout. Their results confirmed that emotional distress, coping styles and perceived disability are associated with sick leave.

An exploration by Mitchell , Hargrove , Collins , Thompson, Reddick and Kaslow (2006) studied coping variables that mediate the relation between intimate partner violence (IPV) and mental health outcomes among African American women were investigated. Results indicated that (a) the IPV status-depressive symptoms link was mediated by multiple ways of coping, spiritual well-being and social support; (b) the IPV status-anxiety symptoms link was mediated by multiple ways of coping, social support and ability to access resources; and (c) the IPV status-parenting stress link was mediated by multiple ways of coping, spiritual well-being and social support.

A study by Byrant, Marosszeky, Crooks, Baguley and Gurka in 2005 found that more persons with chronic pain reported more Post Traumatic Stress Disorder than those without pain. The severity of pain in these patients was also associated with an avoidant coping style.

The purpose of a study by Truchon, Cote, Fillion, Arsenault and Dionne (2007) was to verify the usefulness of an adaptation of the stress

process model in organizing the psychological variables associated with the development of low-back-pain related disability. During the sub-acute stage, path analyses revealed a satisfactory fit of the following model (the following coefficients were standardized):

a). Life events and cognitive appraisal explained emotional distress

b). Emotional distress and cognitive appraisal explained the use of avoidance coping and

c). Emotional distress and avoidance coping explained functional disability.

This adaptation of the stress model makes it possible to integrate risk factors into a reduced set of meaningful factors and proposes a more general adaptation explanation of disability than the specific fear- avoidance model.

Curtis, Groarke, Coughlan and Gsel's study in 2004 examined the extent to which perceived stress, social support, coping and clinical disease indicators predict physical, psychological and social adjustment in patients with rheumatoid arthritis. The findings revealed that perceived stress was a better predictor than disease severity of positive and negative emotionality. Coping explained variability on positive and negative affect. Social support was linked to level of social activity. Results demonstrated that disease status predicted illness related functioning but did not predict emotional or social adjustment. This suggests that a cognitive behavioural intervention to facilitate patient adjustment could usefully include management of stress and its appraisal, the fostering of adaptive coping strategies and utilization of social support resources.

Heiman (2004) investigated the concept of the sense of coherence (SOC) in relation to social support, coping styles and the stress experiences of college students. Results of a multivariate analysis of variance revealed that younger students used more emotional strategies and perceived having greater social support from friends than did older students. Students who did not work reported experiencing higher levels of stress associated with daily life and work-related issues. Women used more emotional and avoidance coping strategies. The findings of the regression analysis demonstrated that task-oriented and emotional coping modes, work stress and family support explained 30% of the variance of SOC.

In a study adult lung transplant candidates participated in semi structured interviews that included questions regarding global and domain-specific quality of life and a multidimensional assessment of coping with health-related problems. Demographic characteristics, health status and other psychosocial variables were also assessed and their effects were examined and controlled in multivariate analyses of the coping-quality-of-life relationship. The results showed that respondents were most likely to use active, acceptance and support-seeking strategies to cope with health problems. Self-blame or avoidance was rarely used. Although used least often, avoidant coping was the most strongly and consistently related to quality of life. With demographic and psychosocial variables controlled, higher avoidant coping remained associated with significantly poorer global quality of life, bodily pain, difficulty with daily work or activities as a function of emotional problems and depressive symptomatology. Avoidant

coping accentuated the association of poor health status and lower quality of life. Among respondents with lower health status, using more avoidant coping was associated with greater difficulty functioning in daily activities as a result of emotional problems. Those with higher health status had less difficulty functioning in daily activities as a result of emotional problems (Myaskovsky, Dew , Switzer , Hall , Kormos , Goycoolea , DiMartini , Manzetti and McCurry, 2003).

Using the transactional model of stress and coping, the present study investigated whether specific coping resources act as buffers of the relationship between perceived stress and psychological well-being among rheumatoid arthritis (RA) patients. It was seen that perceived stress had the strongest relationship with psychological well-being at baseline and affected anxiety after 6 months. Optimism and pessimism predicted psychological well-being across 1 year. Active behavioural coping buffered an association of stress with depression at baseline, while baseline active cognitive coping buffered the effect of baseline stress on life satisfaction after 6 months. Patients with RA under greater perceived stress who do not use active coping strategies appear to be at risk of psychological co morbidity and may therefore benefit from interventions teaching specific active coping strategies. (Treharne, Lyons, Booth and Kitas, 2007).

Thirty-five years ago, when coping research was just emerging, the concept of coping was still somewhat akin to a black box in the stress process. Over subsequent years, we have begun to see what’s inside the black box. Throughout this period, there has also been extensive and sometimes

contentious debate about the merits of coping research. Healthy debate and thoughtful criticism are signs that a field is maturing. At the same time, new methodologies and new ways of thinking about coping are emerging. Despite the complexities inherent in the study of coping, the area continues to hold great promise for explaining who thrives under stress and who does not and it continues to hold great promise for informing effective interventions to help people better handle both acute and chronic stress.

INTERVENTION

Studies into the development of pain prove that psychogenic and psychosocial factors are far more significant than organically determined phenomena and additional medical findings made using technical equipment. As well as the patient's history and early stress factors, other issues play a major role, such as workplace, job satisfaction and the individual's ability to handle conflict. Among other factors, life style is seen as a major factor relating to stress (Gulrez and Masih, 2006; Schneider, Schmitt, Zoller and Schiltenwolf, 2005).

The duration of the patient's inability to work and the use of purely somatically oriented, passive therapies are also of particular significance. In practice, there is a huge discrepancy between guideline-based knowledge and actual treatment measures.

According to the pathogenesis, the pain also could be somatogenic, neurogenic and psychogenic. It has different site of occurrence: somatic (internal or external) and visceral. It evolves acutely or chronically. Clinically it is expressed as headache-primary (migraine or of straining type) and

secondary (symptom of a definite illness). The cause of the pain could be inflammation (of the teeth, back pain, distortion, etc.), elevated temperature, etc. The convulsive pains could be related to menstruation. The modern treatment of the pain is carried out with nonsteroid antiinflammatory agents, which possess marked to different degree analgetic, temperature lowering and antiinflammatory action (aspirin, paracetamol, ibuprofen, etc.). For exerting influence upon the pain relaxation programs have been created, physical therapy and training for mastering the stress are seen to be effective (Hasenbring, Hallner and Klasen, 2001).

Psychologic based programs as cognitive-behavioural techniques and operant conditioning are seen to be valid procedures in rehabilitation of chronic pain patients (Berker and Dincer , 2005).

Although stress is a natural part of life, research indicates that prolonged or extreme stress can have a negative effect on a woman's health. A number of studies have used relaxation as an intervention for pain relief and found it effective in management of pain related distress (Arnette, 1996; Glombiewski, Tersek and Rief, 2008; Kaapa, Frantsi, Sarna and Malmivaara, 2006, Yip, 2004; Gura, 2002).

In his paper, Austin (2004) reviews the evidence for mind-body therapies (eg, relaxation, meditation, imagery, cognitive-behavioural therapy) in the treatment of pain-related medical conditions and suggests directions for future research in these areas. Based on evidence from randomized controlled trials and in many cases, systematic reviews of the literature, the following recommendations can be made:

1) Multi-component mind-body approaches that include some combination of stress management, coping skills training, cognitive restructuring and relaxation therapy may be an appropriate adjunctive treatment for chronic low back pain;
2) Multimodal mind-body approaches such as cognitive-behavioural therapy, particularly when combined with an educational/ informational component, can be an effective adjunct in the management of rheumatoid and osteoarthritis;
3) Relaxation and thermal biofeedback may be considered as a treatment for recurrent migraine while relaxation and muscle biofeedback can be an effective adjunct or stand-alone therapy for recurrent tension headache;
4) An array of mind-body therapies (e.g., imagery, hypnosis, relaxation) when employed pre-surgically, can improve recovery time and reduce pain following surgical procedures;
5) Mind-body approaches may be considered as adjunctive therapies to help ameliorate pain during invasive medical procedures.

Deckro, Domar and Deckro (1993) took nurses as their subjects because of they value holistic approaches and so are ideally suited to use interventions that empower women to deal effectively with stress. They found a relationship between the mind and body and they describe the relaxation response as a counterbalance to the deleterious effects of stress.

Chronic pelvic pain is one of the most difficult conditions encountered

by health professionals working with women both in primary and secondary care. The cause is variable and for some women a diagnosis is never determined. While it is acknowledged that it is a symptom and not a condition, many women and professionals continue to seek a cause and cure. It is contended that this client group is best supported by a multidisciplinary approach to symptom control that incorporates the skills of the gynaecologist, physiotherapist, nurse, psychologist and pain management specialist. This is often difficult to achieve within a resource-limited environment (Pearce and Curtis, 2007).

A study by Nicholas, Wilson and Goyen (1991) proved that psychological intervention and physiotherapy treatment conditions showed more improvement than only physiotherapy condition for patients with chronic low back pain.

Jarvikoski and colleagues in 1986 also emphasized that outpatient treatment is suitable for patients with less distress whereas inpatient programs may be needed for those with serious psychosocial distress and those who require a more structured environment.

Chesney, Folkman and Chamber (1996) reported the effects of a 3-month Coping Effectiveness Training (CET) intervention for HIV positive gay men who had some symptoms of depression. Participants were randomly assigned to CET, an HIV education group or waiting list group. The CET approach taught participants to match appropriately their coping strategies to particular stressors. Both problem focused (communication negotiating skills) and emotion focused (relaxation and distancing) approaches were

taught in the intervention groups. Those in the CET condition showed significant increases in self-efficacy and decreases in perceived stress as compared with either the HIV information or waiting list control group.

Masters, Stillman and Spielmans' study in 2007 examined low back pain patients' (N=50) perceptions of what they considered to be helpful and unhelpful social support from various sources over the previous six months. Among types of social support, tangible support was most likely to be rated as helpful, whereas emotional support was the type of support most likely to be rated as unhelpful. Patients reported only rare instances of dissatisfaction with tangible support across various providers. Among support sources, instances of tangible support from physicians and emotional support from friends, family and spouses were recalled as most helpful.

There are few studies on strategies in coping with fibromyalgia (FM). The aim of the study of Garcia-Campayo, Pascual, Alda and Gonzalez Ramirez (2007) was to assess the usefulness of a Spanish version of the Chronic Pain Coping Inventory- 42 (CPCI-42) in patients with FM. Their results supported the eight-factor structure described in patients with chronic pain. Illness-focused coping strategies (i.e., guarding, resting and asking for assistance) were strongly correlated with each other, positively correlated with disability and depression and negatively correlated with quality of life, indicating construct validity. Seeking social support was weakly correlated with any other scale or outcome, confirming it belongs to a different group of coping strategies. The wellness-focused group of coping strategies was the most incoherent group. Task persistence correlated with illness-focused

strategies and negative outcomes, indicating that it should be included in the illness-focused group. However, other wellness-focused strategies, including relaxation, exercise and coping self-statements, were correlated with each other, negatively correlated with depression and positively correlated with quality of life.

Studies have found that cognitive behaviour therapy, relaxation training and operant behaviour therapy effective in significantly reducing chronic low back pain (Turner and Jenson, 1993; and Theime, Flor and Turk, 2006). A study by Newton-John, Spence and Schotte (1993) found similar results for biofeedback for the same problem. In 1988 a study was done by Turner and Clancy among 81 mildly dysfunctional chronic low back pain patients. They were assigned randomly to operant behavioural, cognitive behavioural and a waiting list group. At 12- month follow up patients in both treatments remained significantly improved with no significant differences between conditions.

Hughes, Robinson-Whelen, Taylor and Hall (2006) found through a study that group differences in changes over time on measures of perceived stress and mental health offer support for the efficacy of the Group Stress Management intervention. At the 3-month follow-up assessment, the Group Stress Management intervention group also showed greater improvement on measures of pain and role limitations owing to physical health when compared the wait-listed control group. Perceived stress was supported as a mediator of the effect of the intervention on mental health. They found support for social connectedness and self-efficacy as mediators of the relation

between the intervention and perceived stress; however, there was relatively weak evidence for differential change over time in those proposed mediators.

An article by Ulman in 2000 proposes an integrative model for stress management groups for women, representing a biopsychosocial point of view and drawing on theories of psychodynamic group psychotherapy, self-psychology, female development and stress management. The basis of the model is an eight-week traditional stress management group. The novel aspects of this integrative model are that it aims to increase the power of stress management groups for women by providing an articulated frame, attending to group process, promoting curiosity regarding resistance to behaviour changes, encouraging the elaboration of affect and giving importance to the role of relationships in each member's quest for self care and healthy entitlement.

Misconceived and maladaptive beliefs about disease states are associated with reduction in both functional and psychological stress (Furze, Lewin, Murberg, Bull and Thompson, 2005). The researchers found that immediate detection and correction of these improved the condition of these patients.

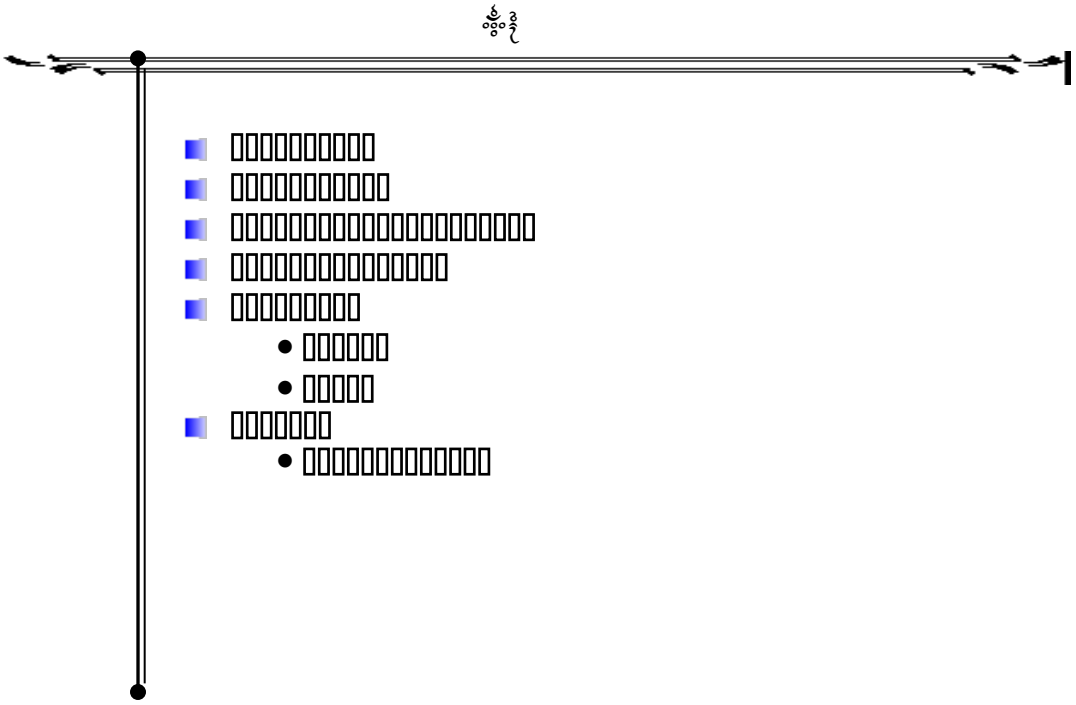
One study showed that breast cancer patients receiving two, 90 minutes sessions of information, problem solving, relaxation and social support showed a tendency toward lower declines in gamma interferon (proteins that are produced by the body as a defensive response to viruses) production as compared with those receiving standard care (Larson, Duberstein, Talbot, Caldwell and Moynihan, 2000).

A randomized between-groups design by Hernandez-Reif, Field, Krasnegor and Theakston (2001) evaluated massage therapy versus relaxation for chronic low back pain. Treatment effects were evaluated for reducing pain, depression, anxiety and stress hormones and sleeplessness and for improving trunk range of motion associated with chronic low back pain. By the end of the study, the massage therapy group, as compared to the relaxation group, reported experiencing less pain, depression, anxiety and improved sleep. They also showed improved trunk and pain flexion performance and their serotonin and dopamine levels were higher.

An examination of the work done in the field of physiological pain related or caused by psychological reasons, reveal that there are a number of studies linking stress and pain. However, world wide, there is a dearth of studies exploring the relationship of pain disorder to other potent factors like coping mechanisms, social support, rearing background, age, socio-economic status, etc. Studies of this nature carried out in Indian conditions are even meagre. This may be due to a gross negligence, on our part, of women issues and tendency to overlook the problems, both psychological and physical, women encounter while fulfilling their multiple roles.

So many risk factors can mediate pain disorder commonly found among women and many conditions can improve their well being as well. The main focus of the study is the investigation of selected factors namely social support, stress, coping styles and socio-demographic status as will as testing the efficacy of psychological strategies to reduce or alleviate pain and related problems.

CHAPTER III



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METHOD

Research in psychology has four interrelated goals. Researchers hope to have complete descriptions of behaviours, to be able to make predictions about future behaviour and to be able to provide reasonable explanations of behaviour and these put together is supposed to be helpful in applying to the benefit of people eventually. A successful and valid research must adopt a sound method. Method refers to all the aspects of the study including the logic of the design and the steps for carrying it out. This chapter describes the methods adopted for collecting data and analysing data, which consequently leads to fulfilling the goals of the study.

OBJECTIVES

The present study is planned with the following objectives to

1. examine the relationship of pain disorder, symptom intensity and frequency to social support, stress and coping styles.
2. examine the effect of age, socials support, stress and coping styles on pain disorder, symptom intensity and symptom frequency.
3. study the effect of pain disorder, symptom intensity and symptom frequency on social support, stress and coping styles (reverse analysis).
4. see whether or not young, mid transition and elder groups of women differ among themselves in severity of pain disorder, symptom intensity , symptom frequency, social support, stress and coping styles and

5. study the effect of socio-demographic variables namely educational qualification, marital status, employment, family income, family type and birth order.

HYPOTHESES

In order to achieve the above objectives the following hypotheses are formulated.

1. Social support is related to pain disorder, symptom intensity and symptom frequency
2. There is association between stress and pain disorder, symptom intensity as well as symptom frequency.
3. Coping styles of minimization, suppression, seeking succourances, repression, blame, substitution, mapping and reversal relate to pain disorder, intensity of pain symptoms and frequency of pain symptoms.
4. Young, mid transition and elder groups of women differ among themselves in social support received.
5. Groups of women with severe moderate and less disability caused by pain differ among themselves in social support received.
6. Young, mid transition and elder groups of women differ in stress experienced.
7. Groups of women with severe, moderate and less disability caused by pain disorder differ with respect to stress experienced.
8. Young, mid transition and elderly women differ in the coping styles they use to deal with problems.

9. Groups of women with severe, moderate and less disability caused by pain disorder differ among themselves in the coping styles used to deal with problems.
10. Groups of women with high, moderate and less intense symptoms of pain differ in social support they receive.
11. Groups of women with high, moderate and less intense symptoms of pain differ among themselves in stress experienced.
12. Women with high, moderate and less intense symptoms of pain differ in coping styles they use to deal with problems.
13. Women with more frequent, moderately frequent and less frequent symptoms of pain differ in social support.
14. Groups of women with more, moderate and less frequent pain symptoms differ in stress experienced.
15. Groups of women with more, moderate and less frequent symptoms of pain differ in coping strategies used.
16. Young, mid transition and elder women differ in disability caused by pain disorder.
17. Women who receive better social support, moderate social support and less social support differ among themselves in the disability caused by pain disorder.
18. Highly stressed, moderately stressed and less stressed women differ among themselves in disability caused by pain disorder.
19. Type and level of coping strategies used by women result in the difference in disability caused by pain disorder.

20. Young, mid transition and elder women differ in their experience of symptom intensity.
21. Groups of women with better, moderate and less social support differ in their experience of symptom intensity.
22. Highly stressed moderately stressed and less stressed women differ in the intensity of symptoms.
23. Type and level of coping styles results in the difference in intensity of pain symptoms.
24. Young, mid transition and elder groups of women differ in the frequency of symptom experienced.
25. Groups of women who are better supported, moderately supported and less supported differ among themselves in the frequency of symptom experienced.
26. Groups of highly stressed, moderately stressed and less stressed women differ among themselves in the frequency of pain symptoms.
27. Type and level of coping used by women results in the difference in frequency of symptoms experienced by them.
28. Highly educated, moderately educated, less educated and barely literate women differ among themselves in the disability caused by pain, symptom intensity and symptom frequency.
29. There is difference between married and unmarried women in the disability caused by pain, symptom intensity and symptom frequency.

30. Groups of employed women, unemployed women and women students differ among themselves in the disability caused by pain, intensity of pain symptoms and frequency of pain symptoms.
31. Disability caused by pain disorder, intensity of pain symptoms and frequency of pain symptom differ for women from different income groups.
32. Groups of women from joint and nuclear families differ with respect to disability caused by pain, intensity as well as frequency of pain symptoms.
33. Disability caused by pain disorder, intensity of symptoms and frequency of symptoms differ for women with respect to their birth order.
34. Psychological intervention is effective in reducing stress.
35. Psychological intervention is effective in reducing disabilities caused by pain disorder, intensity and frequency of pain symptoms.

STATISTICAL ANALYSES

The statistical techniques used to test the hypotheses formulated include Correlational analysis, Analysis of variance, Multiple comparison (Scheffe) and t-test.

RESEARCH DESIGN

A research design comprises of the researcher's plan to go about the procedure of the study taking into account the data collection, sampling and

analysis of data. This design would help answer the problems posed in the study and save energy, time and other useful resources.

The present study was conducted in two parts:

PART A

Part A of this research used a quantitative descriptive design in order to examine the relationship of pain symptom intensity and frequency as well as severity of pain disorder to social support, stress and coping styles.

SAMPLE

Sample is a group of elements selected from a large well-defined pool of elements. The present investigation made use of purposive sampling, criterion sampling in particular.

The sample of the study was collected from two women's hostels in Kannur district. The sample also included women who sought counselling from the researcher. From among the 123 subjects who participated in the study 3 subjects dropped out during the course of training. Thus the final sample consisted of 123 women with pain disorder.

Age of the subjects ranged from 21-52 years. All the subjects belonged to middle socio-economic status and urban background. Educational status varied from barely literate to highly educated category. There were women from different religious group.

Inclusion Criteria

The subjects for the study were selected based on these criteria:

1. Women who had pain in the areas like knee, or back or abdominal pain or general body pain since 4 years.
2. Women who had availed at least two medical interventions from at least two different fields of medicine but have not received any long term relief.
3. Women with no convincing physical evidence to explain their pain through routine physical check ups with the help of scans, x-rays, blood tests, etc.

Exclusion Criteria

1. Women who suffered from pain for less than 4 years.
2. Women who had pain after some crucial accident or child delivery.
3. Women who had some explanation of pain revealed through their physical examination.

Selection of the Sample

The subjects were asked to sign an informed consent to be a participant in the study. Then, a personal data sheet was distributed and the details of the subjects were collected. The selected sample was assured that the collected information would be used only for research purposes and that the data would be kept confidential. They were also told that they are free to terminate participation if and when they felt the need. Then the tests were distributed and they were asked to answer them and the answer sheets were collected back.

DESCRIPTION OF THE TOOLS

The following tools were used in the present study.

1. AECOM Coping Scale
2. The S.S. Inventory
3. Social Support Scale
4. Pain Symptom-Rating Scale.

1) AECOM Coping Scale

The AECOM (Albert Einstein College of Medicine) Coping Scale for the measurement of coping styles is a questionnaire based on the psycho-evolutionary theory of emotion developed by Plutchik in 1980, which postulates systematic connection between 8 basic emotions and 8 coping styles. This consists of 87 items each rated by the subject on a 4-point scale ranging from 'never' to 'often' weighted 0-3. It is based on the expressed opinion that the way each individual copes with successful life events is relatively independent on his or her emotional or psychopathological state and is characteristic of him or her. This model assumes that there are 8 basic coping styles that may be used by an individual in his or her attempt to reduce stress or cope with life problems. These coping styles defined by the author are:

Minimisation:

Minimising the importance of the problem or solution.

Suppression:

Avoiding the problem or situation.

Seeking succourance:

Asking others for help.

Replacement:

Dealing with problems by finding alternative solutions.

Blame:

Blaming others or the 'system' for his or her problem.

Substitution:

Engaging in tension reducing activities such as sports.

Mapping:

Collecting information about the situation or problem.

Reversal:

Acting the opposite of the way he or she feels.

Reliability and Validity

The internal reliability of AECOM scale questionnaire was quite high. Coefficient alphas ranged from +0.62 to 0.83 for the individual scales with an average of +0.70 for the 8 scales.

Though the validity of the scale is not mentioned by the author, a number of studies have used the scale successfully. In one, prisoners were found to be lower on the coping styles of minimisation and replacement and higher on suppression and help seeking than controls (Plutchik, 1980).

Administration and Scoring

The subjects were told to fill the questionnaire that would be distributed and they were also told that there would be no time restriction but they would have to finish it as soon as they can. The questionnaires were

distributed and once completed were taken back. The scoring was done as per given in the manual.

2) The S.S. Inventory (Shibu and Dharmangadan, 1993)

At moments of comfort and convenience stress may not be a problem. But when confronted with challenge and controversy, the way in which people react (physically, emotionally and spiritually) is an index of their success in dealing with stress. Stress is a part of everyday life, and human body's responses to stressful stimuli seem to play a key role in mankind's survival. So it is quite difficult to measure the level of stress in individuals.

The S.S. inventory is prepared and standardised in order to measure the level of stress in individuals. It has three subscales namely,

a) Family stress

b) Social stress

c) Environmental stress

The S.S. Inventory contains 30 items capable of eliciting stress with regard to the above mentioned areas. There are 10 items in each of the subscales.

Reliability and Validity

The split half method was used to establish the reliability of the test. For this the scores of 50 subjects have been split into odd and even halves and the correlation between them is calculated using Pearson's- r. The correlation thus obtained for the S.S. Inventory is +0.79. Using Spearman-

Brown correlation formula the correlation for the whole test is then calculated and this is found to be +0.89 (N=50).

An examination of the items shows that the different scales of the test possess face validity and content validity.

Administration and Scoring

The questionnaire was distributed and after the completion they were collected back. The scoring was done as given in the manual.

3) Social Support Scale (Asha, 1998)

Social Support Scale is used to measure perceived social support. It assesses seven relational provisions, namely, attachment, social integration, reassurance, reliable alliance, guidance and opportunity for nurturance as identified by Weiss (1974) and provision for psychological safety.

All these provisions are needed for individuals to feel adequately supported and to avoid loneliness, although different provisions may be most crucial at different stages of life cycle. Each of these provisions may be obtained from a particular kind of relationship, but multiple provisions may be obtained from the same source. The seven relational provisions in Social Support Scale are:

1. Attachment: A sense of emotional closeness and security usually provided by a spouse or lever.
2. Social integration: A sense of belonging to a group of people who share common interests and recreational activities- usually obtained from friends.

3. Reassurance of worth: Acknowledgement of one's competence and skill- usually obtained from co-workers.
4. Reliable alliance: The assurance that one can count on others for assistance under any circumstances usually obtained from family members.
5. Guidance: Advice and information usually obtained from teachers, masters, or parent figures.
6. Opportunity for nurturance: A sense of responsibility for the wellbeing of another- usually obtained from one's children.
7. Psychological safety: A sense of belief in God or divine power.

Reliability and Validity

The internal consistency for the total score was fairly high ranging from 0.81 to 0.90 across a variety of samples tested.

Odd-even reliability of the full scale was established as 0.86.

Validity co-efficient of the full scale was assessed by correlating the scores on the Social Support Scale with those on Perception of Community Support Inventory (Subrahmanian and Asha, 1989). The correlation co-efficient was found as 0.90.

Administration and Scoring

The Social Support Scale can be administered individually or in group. The measure asks the subject to rate the degree to which they perceive their social relationships are currently supplying each of the provisions. Each provision is assessed by four items, two that describe the presence and two

that describe the absence of the provisions. The subjects are to indicate on a four point scale, ranging from 'completely true' to 'not at all true', the extent to which each statement describes their current relationships.

For the scoring purposes the negative items are reversed and summed together with the positive items to form a score for each social provision. Total social support perception score is derived by summing the seven individual provision score.

4) Pain Symptom Rating Scale

The Pain Symptom Rating Scale was developed by the researcher for the study. The scale consisted of 5 items namely, neck, back, abdomen, joint and general body pain. Each item was rated for intensity and frequency of symptoms. The intensity varied from unbearable to negligible and the frequency varied form often to never.

Reliability and Validity

Inter rater reliability has been estimated at 0.96 for the present study.

Administration and Scoring

The subjects were given the scale containing five areas of pain. They were asked to put a [✓] mark against the area of pain they suffered from. Then the subjects were asked to mark the columns that rated their pain experience in terms of intensity and frequency.

The scoring was done by providing a score with in the range 5 to 1 for intensity (unbearable to negligible) and the same for frequency (often to never). The sum of the scores of intensity and frequency was taken to assess

severity of disability caused by pain disorder. There were 5 such types of pain that were assessed viz. neck pain, back pain, abdomen pain, joint pain and general body pain.

PART B

INTERVENTION

This part of the research i.e. intervention, was for testing the efficacy of the intervention and only women found as experiencing severe pain were selected for the intervention phase. The subjects were briefed on the results of testing (Part A) and they were given a brief account of the intervention. They were 30 subjects who were grouped randomly in to two: the experimental and control group which consisted of 15 subjects each. The experimental group was given the intervention package. They were tested after one month of training with the intervention (post-test) and after one month of termination of the intervention (follow up).

Objective of the Intervention

The objective of this part of the research was to test the efficacy of the psychological intervention designed for women with pain disorder.

DESIGN

A pre-post experimental-control design was used for the intervention purpose.

Efficacy of the package to reduce stress as well as reduce intensity and frequency of symptoms and severity of pain was examined at end of the first

month (after training) and also at the end of the second month (after termination of the training) selection of the sample. Purposive sampling technique was used to select the sample. Women who scored high on the Pain-Rating Scale and the S.S. Inventory were included in intervention sample after getting their written consent.

Rationale for the Intervention

Pain disorder is an ailment which remains misdiagnosed or undiagnosed in most of the fields of medicine. As psychological factors play an important role in the onset and maintenance of the painful condition, it is supposed that psychological intervention may provide considerable relief to the pain experienced.

Women who were diagnosed with pain disorder need to understand more about their condition. To make this possible counselling was included as one of the intervention as it makes the subject aware of her problems and to materialize strategies to overcome it.

Psychological test scores showed the subjects with severe pain as highly stressed. So it is considered important to help them reduce their stress. Distressing condition is likely to add to stress and stress in turn may lower the pain thresholds and this becomes a cyclical process. Relaxation is proved to be an effective psychological tool to reduce stress. It ensures both physical and mental reduction of stress. Intervention was aimed at reducing stress and thereby reducing pain.

Pain imagery was included to reduce the sensitivity to pain and to let the subject manipulate and control her pain. It helps to relieve pain with the use of imagination.

INTERVENTION PACKAGE

The components of intervention package used with the experimental group are:

1) General counselling 2) Relaxation and 3) Pain imagery.

The strategies and their procedures are given below.

1) General Counselling

General counselling is a major component of all self-help programmes (Erdman and Lampe, 1996). There is good evidence that the more the people understand about their illness and treatment the better they adhere to treatment plans.

Counselling was provided to make the clients aware of their problems to gain knowledge about their symptoms, to change their attitude towards illness, to think positively, to help them believe that they could control their problems and engage in normal activities.

The general counselling was done with an objective to help the subjects to enhance problem solving habits, to improve self esteem and learning how to manage stress as well as pain.

2) Relaxation

Relaxation is done in order to train the subject to relax her body muscle groups which eventually leads to the relaxation of the mind and this will help her to overcome the ill effects of stress. The relaxation of muscles are done step by step and the muscle groups generally focused upon are: toes and feet, lower leg, upper leg, hip, abdomen, lower back, chest, upper back, fingers and hands, wrist and lower arm, upper arm or biceps, shoulders, front and back of neck, jaws, lips, cheeks, eyes, eye brows and fore head and scalp. In this study the relaxation procedure used is the one formulated by Dr. Krishna Prasad Sridhar (1996). This relaxation includes 5 basic steps.

1) Drawing the subjects attention to the appropriate muscle group
2) Asking them to tense the muscle group
3) Asking them to feel the tension
4) Teaching them to relax
5) And finally directing the subjects to feel the comfort and pleasant feelings of the relaxed state which would help them to relax their minds.

This relaxation training takes 21 days to be completed. And the duration is for 40-45 minutes in the initial sessions and then it comes down to about 10 minutes in the advanced stages.

3) Pain Imagery

Imagery is the use of one's imagination to relieve pain. It is best used with other therapeutic techniques such as relaxation or distraction or it can be used independently for pain control or pain modification. This can also be used to change the intensity or nature of pain for e.g. from burning pain to coolness in the painful area. Catalano and Hardin (1996) outline a four-step

procedure for effective pain relief using imagery which was used for this study:

1) Relax deeply by regularly practising relaxation exercises for at least 10 minutes.
2) When relaxed visualise some image that represents pain.
3) Visualise or image the process chosen to reduce or release the pain for e.g. if muscle tension is imaged as knotted rope image the ropes going slack.
4) Visualise positive effects of pain control. Image oneself as coping, feeling strong, being active and in good health.

The control group of subjects were given some general instructions, not related to intervention procedures. And they were instructed to contact the researcher in crisis situation only or else to meet her at the end of the first month and also at the end of the second month for further testing.

ETHICAL CONCERNS

After testing the efficacy of the intervention the control group was administered the package to abide by the ethics of conducting research.

CHAPTER IV

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RESULTS AND DISCUSSION

The present chapter is an attempt to discuss and interpret the results obtained in the study. There are two parts in this chapter: Part A, discusses the results obtained on pain disorder in relation to social support, stress, coping styles of minimisation, suppression, seeking succourance, replacement, blame, substitution, mapping and reversal and selected socio-demographic factors such as educational qualification, marital status, employment, family income, family type and birth order. Part B deals with the outcomes of psychological intervention among women with pain disorder.

PART A - I

As a first step in the analysis the relation of dependent variables namely severity of pain disability, symptom intensity and symptom frequency with independent variables of social support, stress and coping styles are tested through correlation. For the purpose of correlation analysis the data collected from a sample of 120 women identified as having pain disorder are used. The results are presented in Table 4.1.

TABLE 4.1: Correlation Coefficient of Pain Disorder, Symptom Intensity and Symptom Frequency to Social Support, Stress and Coping Styles

Independent Variables			Pain Disorder	Symptom Intensity	Symptom Frequency
selbairaVtnednepednI	Social Support		-0.41**	-0.34**	-0.29**
	Stress		0.62**	0.55**	0.41**
	Coping Styles	Minimisation	0.08	0.03	0.09
		Suppression	-0.10	-0.01	-0.14
		Seeking Succourance	-0.08	-0.01	-0.11
		Replacement	0.13	0.18*	0.02
		Blame	0.23*	0.12	0.21*
		Substitution	-0.21*	-0.37**	-0.03
		Mapping	-0.08	-0.05	-0.08
		Reversal	-0.04	-0.26**	-1.17

**significant at 0.01 level
* significant at 0.05 level

The results in Table 4.1 suggest highly significant negative correlation of social support with disability caused by pain disorder. The results point out that women who receive poor social support are more affected by pain disorder and the disability caused by pain is severe in their cases. On the other hand, those with better social support are found as reporting less disability when compared to those with severe pain.

Social support seems to have highly significant negative correlation with pain symptom intensity. The results show that poor social support tends

to increase the intensity of pain symptoms. It is likely that better social support helps in reducing the intensity of pain symptoms.

The results in Table 4.1 also indicate that social support has significant high negative correlation with symptom frequency. This suggests that poor social support leads to more frequent pain symptoms. Where as better support is more likely to reduce the frequency of occurrence of pain symptoms.

The results reveal high positive correlation between stress and disability caused by pain disorder. This shows that women who are more stressed are more disabled by pain disorder. Less the stress, less is the disability caused by pain disorder.

Again the correlation between stress and intensity of pain symptoms is found highly significant and positive. The results suggest that as stress increases, intensity of symptoms also increases.

Further, the results show a very high, significant and positive correlation between stress and symptom frequency. This implies that high stress is a factor that leads to more frequent symptoms of pain and low stress reduces the frequency of occurrence of the symptoms of pain.

The results with respect to coping styles show positive correlations (significant at 0.05 level) between replacement and symptom intensity coping style of blame is found to have high positive correlations with disability caused by pain disorder and pain symptom frequency. Significant negative correlations are observed between the coping method of substitution and

disability as well as substitution and symptom intensity. The coping style of reversal is correlated negatively and significantly to symptom intensity.

The correlation coefficients with respect to different coping styles to disability by pain disorder, symptom intensity and symptom frequency (Table 4.1) reveal that the coping style of replacement is frequently used by women having more intense symptoms. However, blame is used predominantly by those who are severely disabled by pain disorder and those with more frequent symptoms. The negative correlation of substitution to pain disorder and symptom intensity show that this style of coping is frequently used by women who are less disabled by pain and those with less intense symptoms. Women with less intense symptoms of pain are also found to use reversal as a viable coping method to deal with problems of life than those with more intense symptoms.

Hypotheses 1 and 2 are accepted.

Hypothesis 3 is partially accepted.

An examination of the results indicate that better social support helps women improve feeling of well being and may thereby reduce pain in general, intensity and frequency of pain. On the contrary stress is found as leading to severe consequences like frequent pain experiences as well as intense symptom experiences leading to maximizing pain disorder.

It is also revealed that women with pain disorders predominantly use the coping styles of a blame, substitution and reversal to solve the problems of day to day life. The results also suggest that women who report intense

symptoms use the coping styles of blame, substitution and reversal more in dealing with problems. Women who report frequent pain symptoms are seen as using blame as significantly less than those who report pain occasionally. However, women identified as severely affected are found to use substitution more and blame less than those who are regarded as mildly affected.

II

After establishing the association of pain disorder, symptom intensity and frequency to social support, stress and coping styles, an attempt was made to examine the effect of age and severity of the disorder on social support, stress and coping styles. Effects of interaction between age and pain disorder in terms of disability caused by pain, intensity and frequency of symptoms were also examined. For this purpose the total sample of 120 women were first classified into 3 groups, viz., young adults, mid transition adults and elder adults based on their age. In order to group women in terms of severity, intensity and frequency of symptoms the total sample was classified based on the quartile deviations of the respective total scores obtained. In all the three instances the scores were arranged in descending order and those who fall above 1st quartile were considered as severe cases and those who fall below as mild cases. Analysis of Variance (two-way) was used to examine the data. In cases where F-ratios were significant multiple comparisons-Scheffe was applied to compare the mean scores of the groups studied.

Interaction effects were explained using graphs.

Table 4.2: Break-up of the Sample

Variable	Group	Age Category	Description	N
Age	1	Below 25 years	Young adulthood	52
	2	25-40 years	Mid transition	36
	3.	40 and above	Elder adulthood	32
Pain Disorder	1	Above 1st Quartile	Severely disabled	39
	2	Between 1st and 3rd Quartile	Moderately disabled	33
	3.	Below 3rd Quartile	Less disabled	48
Symptom Intensity	1	Above 1st Quartile	More Symptom Intensity	40
	2	Between 1st and 3rd Quartile	Moderate Symptom Intensity	31
	3.	Below 3rd Quartile	Less Symptom Intensity	39
Symptom frequency	1	Above 1st Quartile	More frequent	40
	2	Between 1st and 3rd Quartile	Moderately frequent	34
	3.	Below 3rd Quartile	Less frequent	46

In ANOVA (2-way) social support, stress and the 8 types of coping styles were taken as the dependent variables whereas, pain disorder, symptom intensity and symptom frequency were taken as independent variables. Age was also treated as an independent variable. The results of the ANOVA are given below.

Table 4.3: Analysis of Variance (2-way) of the Scores of Social Support by Age and Pain Disorder

Source	Sum of squares	Df	Mean Squares	F	Sig.
Age	229.74	2	114.87	11.91	0.000
Pain Disorder	437.22	2	218.61	22.67	0.000
Age x Pain Disorder	324.88	4	81.22	8.42	0.000
Error	1070.62	111	9.65	- -	- -
Total	1775.59	119	- -	- -	- -

Table 4.3 presents the results of ANOVA (2-way) on the scores of social support. The results reveal that age and disability caused by pain disorder have significant effects (0.01 level) on social support. The interaction effect of age and disability by pain disorder is also seen significant on social support.

Table 4.4: Multiple Comparisons-Scheffe of the Scores on Social Support in Relation to Age and Pain Disorder

Independent Variables			Mean difference	Std. Error	Sig.
Age	1) Young	2	2.92	0.67	0.000
		3	1.63	0.69	0.071
	2) Mid Transition	1	-2.92	0.67	0.000
		3	-1.29	0.75	0.235
	3) Elder	1	-1.63	0.69	0.071
		2	1.29	0.75	0.235
Pain Disorder	1) Severely disabled	2	2.85	0.73	0.001
		3	1.58	0.67	0.066
	2) Moderately disabled	1	-2.85	0.73	0.001
		3	-1.27	0.70	0.001
	3) Less disabled	1	-1.58	0.67	0.066
		2	1.27	0.70	0.001

The results of multiple comparisons-Scheffe given in Table 4.4 reveal that young and mid transition adults differ significantly from each other in terms of social support they enjoy. These two groups also differ from each other significantly on disability caused by pain disorder.

Table 4.5: Scheffe -Homogenous Subsets

Independent Variables		N	Subset	
			1	2
Age	1) Young	52		21.75
	2) Mid transition	36	18.83	
	3) Elder	32	20.13	20.13
	Sig.		0.195	0.077
Pain Disorder	1) Severely disabled	39	19.03	
	2) Moderately disabled	33	20.60	20.60
	3) Less disabled	48		21.88
	Sig.		0.085	0.198

Table 4.5 reveal the means obtained through subsets. The results reveal that women who are severely disabled by pain scored low on social support indicating that these women were less socially supported than the other two groups. Women who were less disabled by pain received more social support.

It is seen that young and mid transition women differ significantly in social support-received. However no significant difference is noted between young and elder women as well as between mid transition and elder adult women. The results suggest that young adults receive better social support than the other two groups of women.

Table 4.6: 3 x 3 Mean Contingency Table of Scores for Social Support

Age Group	Severe	Moderate	Low
Young	19.00	21.86	24.39
Mid transition	16.00	18.32	20.67
Elder	14.00	21.50	24.88

Figure 4.1: Graph Showing Scores for Social Support

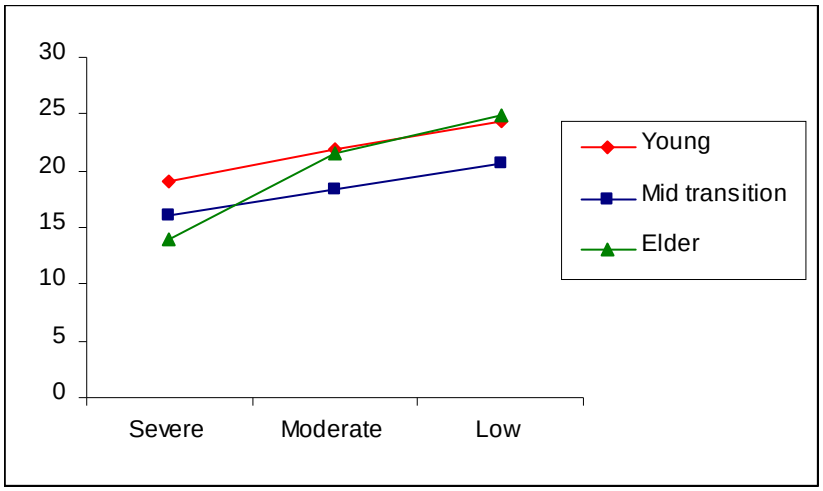


Table 4.6 and Figure 4.1 show that elderly women who are less disabled by pain are the better socially supported group than all others elderly groups. A similar trend is visible among mid transition and young adult women. Less disabled women in both these categories are found as better socially supported than moderately disabled and severely disabled women groups.

The results suggest that better socially supported women are less affected by pain disorder and hence less disabled than the moderately and severely disabled women. This may be because social support is likely to have a cushioning effect that helps women to face problems boldly rather than developing psychological symptoms.

Hypotheses 4 and 5 are accepted.

The present results are in line with the findings reported by Cheryl, Hermanson, Diamond, Angell and Spiegel, (1998); Hodnett (2007); Tomczak-Witych (2006) and Lopez-Martinez, Esteve-Zarazaga and Ramirez-Maestre (2008). Their studies have concluded that lower social support deteriorates the physical and mental well being of an individual. Some of these studies also state that better social support reduces stress and pain.

Table 4.7: Analysis of Variance (2-way) of the Scores of Stress by Age and Pain Disorder

Source	Sum of Squares	df	Mean Squares	F	Sig.
Age	3540.76	2	1770.38	16.13	0.000
Pain disorder	11835.42	2	5917.71	53.93	0.000
Age x Pain disorder	2384.56	4	596.14	5.43	0.000
Error	12180.738	111	109.74	- -	- -
Total	25874.99	119	- -	- -	- -

The results of ANOVA (2 way) presented in Table 4.7 reveal that age and pain disorder have significant (0.01 level) effects on stress. The combined effect of age and pain disorder on stress is also significant at 0.01 level.

Table 4.8: Multiple Comparisons-Scheffe of the Scores on Stress in Relation to Age and Pain Disorder

Independent Variables			Mean Diff	Std Error	Significance
Age	1) Young	2	-7.16	2.27	0.009
		3	-2.68	2.35	0.526

	2) Mid Transition	1	7.16	2.27	0.009
		3	4.48	2.55	0.217
	3) Elder	1	2.68	2.35	0.526
		2	-4.48	2.55	0.217
Pain Disorder	1) Severely disabled	2	19.28	2.48	0.000
		3	17.11	2.26	0.000
	2) Moderately disabled	1	-19.28	2.48	0.000
		3	-2.16	2.37	0.660
	3) Less disabled	1	-17.11	2.26	0.000
		2	2.16	2.37	0.660

Table 4.8 presents the results of multiple comparisons-Scheffe on the scores of stress in relation to age and pain disorder. From the results it is seen that there is a significant difference between the young and mid transition adults. Significant difference is also seen in women who suffer from severe and moderate as well as moderate and less pain disorder with respect to stress.

Table 4.9: Scheffe- Homogenous Subsets

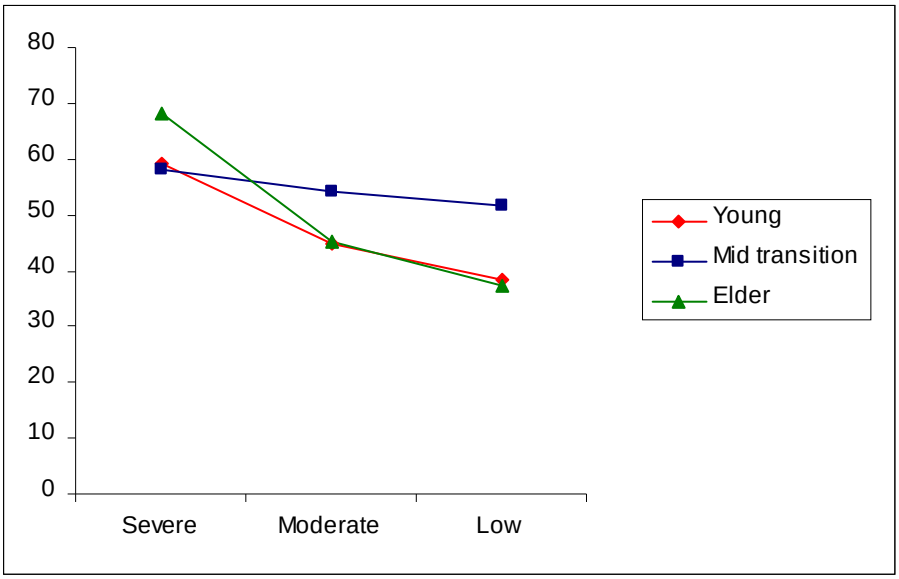
Independent Variables		N	Subset	
			1	2
Age	1) Young	52	47.48	
	2) Mid transition	36		54.64
	3) Elder	32	50.16	50.16
	Sig.		0.537	0.178
Pain Disorder	1) Severely disabled	39		62.49
	2) Moderately disabled	33	43.21	
	3) Less disabled	48	45.38	
	Sig.		0.660	1.00

From the means given in Table 4.9 it could be seen that mid transition adults have higher means which indicate that they are prone to more stressful conditions in their day to day life than young and elder groups of adult women. Women who suffer severely from pain are seen to score high on stress implying that these women suffer from high stress.

Table 4.10: 3 x 3 Mean Contingency Table for Stress

Age Group	Severely disabled	Moderate disabled	Less disabled
Young	59.37	44.70	38.38
Mid transition	58.00	54.25	51.67
Elder	68.00	45.23	37.25

Figure 4.2: Graph Showing Scores for Stress



The results in Table 4.10 and Figure 4.2 show that severely disabled women, irrespective of their age, are more stressed than all the other groups. Among the three groups of women, namely, young, mid transition and elder, mid transition adults are found as more stressed. In this group even those with low pain and less disabled appear as comparably more stressed than their counterparts in the young and elder groups.

Hypotheses 6 and 7 are accepted.

Table 4.11: Analysis of Variance (2-way) of the Scores of the 8 Coping Styles by Age and Pain Disorder

Dep. Var.	Source	Sum of squares	df	Mean squares	F	Sig.
Minimization	Age category	288.23	2	144.11	0.13	0.875
	Pain Disorder	10.56.08	2	5283.04	4.88	0.009
	Age x Pain Disorder	12224.16	4	3056.04	2.83	0.028
	Error	120091.47	111	1081.91	- -	- -
	Total	140972.80	119	- -	- -	- -
Suppression	Age category	2591.70	2	1295.85	2.02	0.137
	Pain Disorder	5969.31	2	2984.66	4.66	0.011
	Age x Pain Disorder	7641.36	4	1910.34	2.98	0.022
	Error	71095.85	111	640.50	- -	- -
	Total	87557.47	119	- -	- -	- -
Seeking succourance	Age category	3493.92	2	1746.96	2.99	0.054
	Pain Disorder	1501.005	2	750.53	1.28	0.281
	Age x Pain Disorder	6196.53	4	1549.13	2.65	0.037
	Error	64897.96	111	584.67	- -	- -
	Total	79404.8	119	- -	- -	- -
Replacement	Age category	8569.69	2	4284.85	5.30	0.006
	Pain Disorder	6652.35	2	3326.17	4.11	0.019
	Age x Pain Disorder	15855.32	4	3963.83	4.90	0.001
	Error	89780.13	111	808.83	- -	- -
	Total	115529.20	119	- -	- -	- -
Blame	Age category	383.48	2	191.74	0.26	0.773
	Pain Disorder	12789.64	2	6394.82	8.60	0.000
	Age x Pain Disorder	15086.39	4	3771.60	5.07	0.001
	Error	82567.39	111	743.85	- -	- -
	Total	108544.67	119	- -	- -	- -
Substitution	Age category	14915.87	2	7457.93	12.84	0.000
	Pain Disorder	15751.68	2	7875.84	13.56	0.000
	Age x Pain Disorder	17187.10	4	4296.77	7.40	0.000
	Error	64467.28	111	580.79	- -	- -
	Total	112778.80	119	- -	- -	- -
Mapping	Age category	18938.83	2	9469.41	14.05	0.000
	Pain Disorder	1100.73	2	550.37	0.82	0.444
	Age x Pain Disorder	19793.71	4	4948.43	7.34	0.000
	Error	74794.18	111	673.82	- -	- -
	Total	124920.00	119	- -	- -	- -
Reversal	Age category	16950.64	2	8475.32	10.08	0.000
	Pain Disorder	5230.18	2	2615.09	3.11	0.049

	Age x Pain Disorder	12982.62	4	3245.66	3.86	0.006
	Error	93332.30	111	840.83	- -	- -
	Total	126369.20	119	- -	- -	- -

The results of ANOVA (2 way) on the 8 coping styles are presented in Table 4.11. The results indicate that age has a significant effect on coping styles of replacement, substitution, mapping and reversal. Pain disorder has significant effect on coping styles of minimization, suppression, replacement, substitution and reversal. Combined effect of age and pain disorder is found to be significant on coping styles of replacement, substitution, mapping and reversal. Combined effects of age and pain disorder are seen at 0.05 level of significance on coping styles of minimisation, suppression and seeking succourance.

Table 4.12: Multiple Comparisons-Scheffe of the Scores on Coping Styles in Relation to Age and Pain Disorder

Dependent Variable	Independent Variable			Mean Difference	Std. Error	Sig.
Minimization	Pain Disorder	1) Severely disabled	2	5.37	7.78	0.789
			3	18.91	7.09	0.32
		2) Moderately disabled	1	-5.37	7.78	0.789
			3	13.54	7.44	0.195
		3) Less disabled	1	-18.91	7.09	0.032
			2	-13.54	7.44	0.195
Suppression	Pain Disorder	1) Severely disabled	2	-19.96	5.99	0.005
			3	-4.11	5.46	0.754
		2) Moderately disabled	1	19.96	5.99	0.005
			3	15.85	5.72	0.024
		3) Less disabled	1	4.11	5.46	0.754
			2	-15.85	5.72	0.024
Replacement	Age	1) Young	2	-14.32	6.17	0.072
			3	-14.14	6.39	0.091
		2) Mid transition	1	14.32	6.17	0.072
			3	0.18	6.91	1.00
		3) Elder	1	14.14	6.39	0.091

Table 4.12 contd…

			2	-0.18	6.91	1.00
Replacement	Pain Disorder	1) Severely disabled	2	10.96	6.73	0.269
			3	5.56	6.13	0.664
		2) Moderately disabled	1	-10.96	6.73	0.269
			3	-5.40	6.43	0.703
		3) Less disabled	1	-5.56	6.13	0.664
			2	-5.40	6.43	0.703
Blame	Pain Disorder	1) Severely disabled	2	-19.62	6.45	0.012
			3	-11.74	5.88	0.141
		2) Moderately disabled	1	19.62	6.45	0.012
			3	7.88	6.17	0.444
		3) Less disabled	1	11.74	5.88	0.141
			2	-7.88	6.17	0.444
Substitution	Age	1) Young	2	0.97	5.23	0.983
			3	-27.42	5.41	0.000
		2) Mid transition	1	-0.97	5.23	0.983
			3	-28.39	5.86	0.000
		3) Elder	1	27.42	5.41	0.000
			2	28.39	5.86	0.000
	Pain Disorder	1) Severely disabled	2	-12.04	5.70	0.112
			3	11.56	5.20	0.089
		2) Moderately disabled	1	12.04	5.70	0.112
			3	23.60	5.45	0.000
		3) Less disabled	1	-11.56	5.20	0.089
			2	-23.60	5.45	0.000
Mapping	Age	1) Young	2	-7.02	5.63	0.462
			3	32.41	5.83	0.000
		2) Mid transition	1	7.02	5.63	0.462
			3	39.43	6.31	0.000
		3) Elder	1	-32.41	5.83	0.000
			2	-39.43	6.31	0.000
Reversal	Age	1) Young	2	-18.06	6.29	0.019
			3	11.63	6.52	0.208
		2) Mid transition	1	18.06	6.29	0.019
			3	29.69	7.05	0.000
		3) Elder	1	-11.63	6.52	0.208
			2	-29.69	7.05	0.000

Table 4.12 presents the results of multiple comparisons-Scheffe of the scores of coping styles in relation to age and pain disorder. The results show that the groups of women who are severely disabled and less disabled by pain differ significantly on their use of coping style minimization. Women who suffer from severe and moderate pain as well as those who suffer moderate and less pain differ significantly in the use of coping style suppression. Groups of women who are moderately and less disabled by pain are seen to significantly differ on the use of coping style of substitution. Significant difference is also seen between young and elder adults as well as mid transition and elder adults in the use of coping style of blame. Young and elder adults as well as mid transition and elder adults significantly differ on their usage of coping style of mapping. The young and mid-transition adults as well as the mid transition and elder adults differ significantly in their usage of coping style of reversal.

Table 4.13: Scheffe- Homogeneous Subsets

Dep. Var.	Independent Variables		N	Subsets	
				1	2
Minimization	Pain Disorder	1) Severely disabled	39	44.73	
		2) Moderately disabled	33	58.27	58.27
		3) Less disabled	48		63.64
		Sig.		0.196	0.771
Suppression	Pain Disorder	1) Severely disabled	39	70.06	
		2) Moderately disabled	48	54.10	
		3) Less disabled	33		50.10
		Sig.		0.774	1.000
Replacement	Age	1) Young	52	32.23	
		2) Mid transition	36	46.56	
		3) Elder	32	46.38	
		Sig.		0.093	
	Pain Disorder	1) Severely disabled	39	34.58	
		2) Moderately disabled	33	39.98	
		3) Less disabled	48	45.54	
		Sig.		0.239	
Blame	Pain Disorder	1) Severely disabled	39	62.36	
		2) Moderately disabled	33		54.48
		3) Less disabled	48	42.74	42.74
		Sig.		0.169	0.445
Substitution	Age	1) Young	52	32.08	
		2) Mid transition	36	31.11	
		3) Elder	32		59.50
		Sig.		0.985	1.000
	Pain Disorder	1) Severely disabled	39	28.85	28.85
		2) Moderately disabled	33		40.41
		3) Less disabled	48	52.45	
		Sig.		.111	.092
Mapping	Age	1) Young	52		59.53
		2) Mid transition	36		66.56
		3) Elder	32	27.13	
		Sig.		0.218	1.00
Reversal	Age	1) Young	52	42.38	
		2) Mid transition	36		60.44
		3) Elder	32	30.75	
		Sig.		0.207	1.00
	Pain Disorder	1) Severely disabled	39	49.12	
		2) Moderately disabled	33	47.33	
		3) Less disabled	48	39.52	
		Sig.		0.346	

While taking Table 4.13 into consideration mid transition adults were seen to have scored the highest mean for coping styles of replacement, mapping and reversal indicating that this group used these coping styles the most. The elder adults were seen to have the highest mean for the coping styles of substitution. This shows that elder adults with pain disorder use coping style of substitution the most. Young adults were seen to have the highest means for coping style of mapping when compared to the elder group indicating that they use this coping styles the most to deal with problems of life. Women who are more disabled by pain use coping styles of suppression, blame and reversal the most and minimization, replacement, substitution and reversal the least.

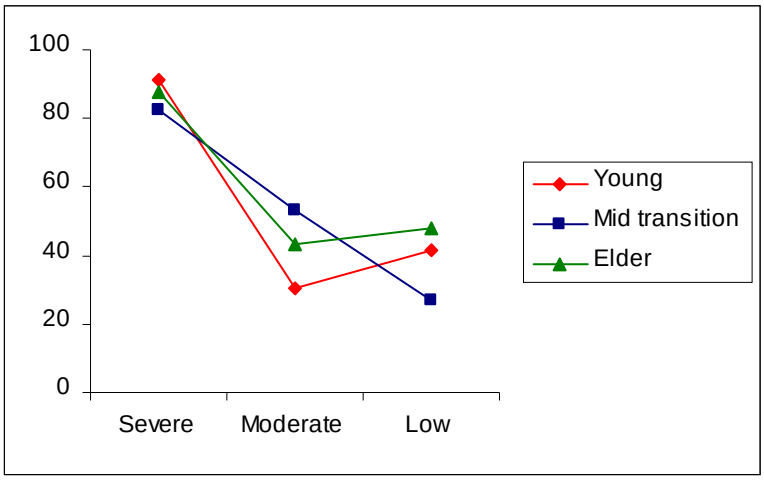
Hypotheses 8 and 9 are accepted.

Table 4.14: 3 x 3 Mean Contingency Table for Coping Styles

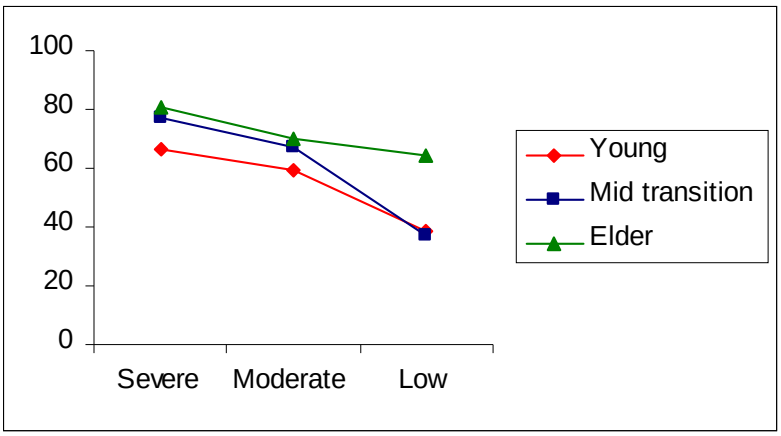
Coping Styles	Age Group	Severely disabled	Moderately disabled	Less disabled
Minimization	Young	91.40	30.67	41.50
	Mid transition	82.50	53.00	26.67
	Elder	88.00	43.00	47.75
Suppression	Young	66.57	59.00	38.33
	Mid transition	77.00	67.33	37.33
	Elder	81.00	69.67	64.00
Seeking Succourance	Young	88.50	83.50	54.00
	Mid transition	89.50	82.25	54.00
	Elder	92.00	84.33	82.00
Replacement	Young	27.49	32.50	36.70
	Mid transition	42.35	46.33	51.00
	Elder	28.66	48.50	62.00
Blame	Young	72.00	61.67	25.67
	Mid transition	53.00	42.33	20.75
	Elder	78.00	61.75	19.50
Substitution	Young	15.00	21.00	60.25
	Mid transition	18.35	21.25	53.73
	Elder	53.75	61.00	63.75
Mapping	Young	67.00	63.25	48.50
	Mid transition	76.33	88.66	34.67
	Elder	41.00	23.00	17.43
Reversal	Young	46.50	37.75	40.33
	Mid transition	77.00	61.67	42.67
	Elder	46.00	32.00	39.25

Figure 4.3: Graph Showing Scores for Coping Styles

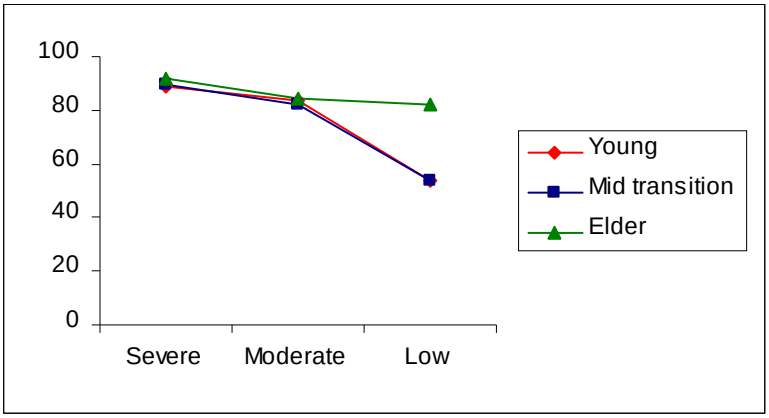
(i) Minimization



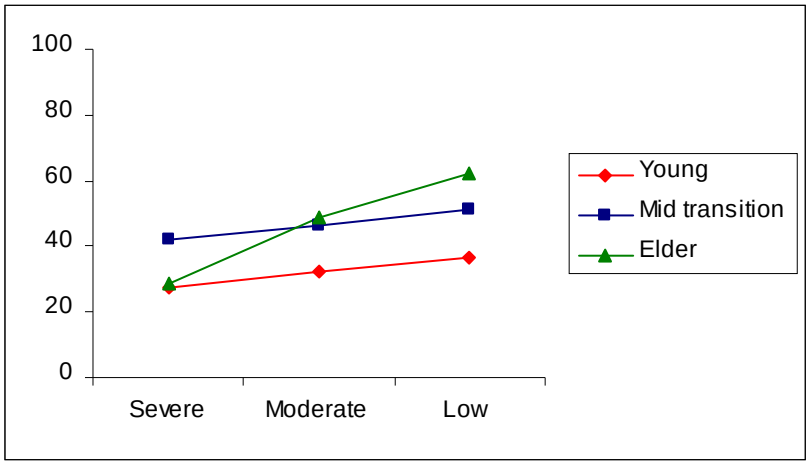
(ii) Suppression



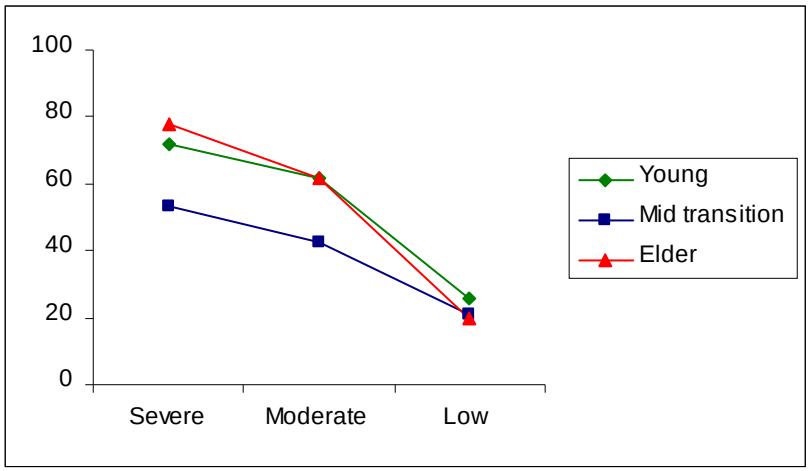
(iii) Seeking Succourance



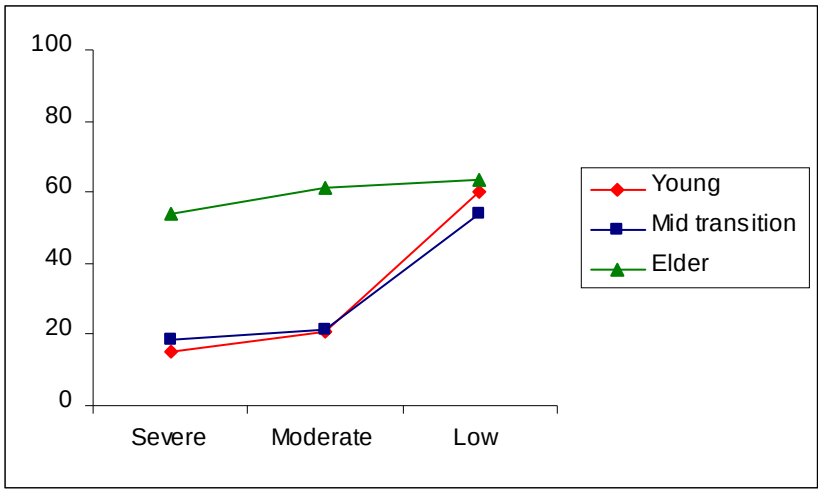
(iv) Replacement



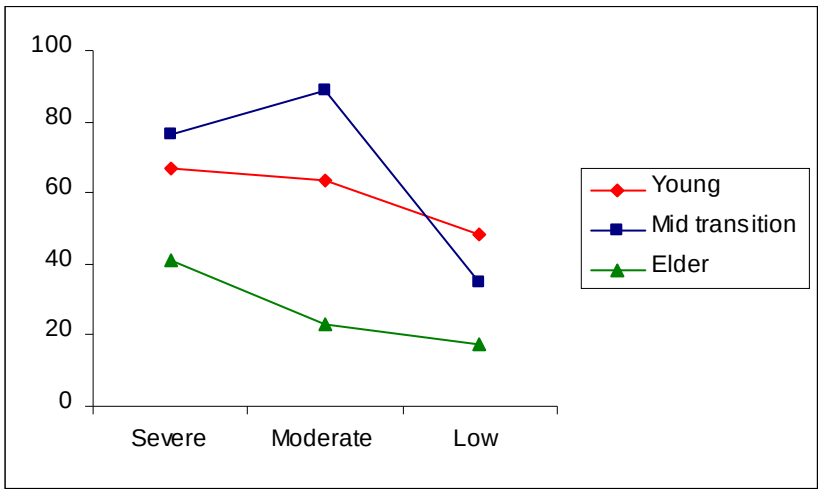
(v) Blame



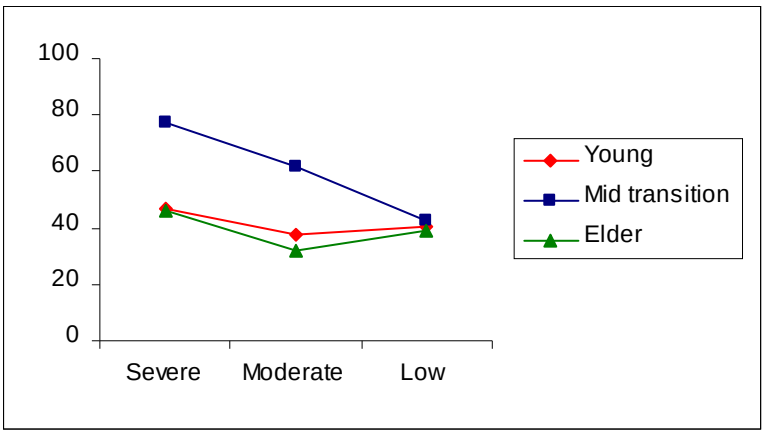
(vi) Substitution



(vii) Mapping



(viii) Reversal



The results in Table 4.14 and Figure 4.3 show that the less disabled groups of elderly use the coping styles of suppression, seeking succourance, replacement and substitution more predominantly than other coping styles. Severely disabled groups of mid transition adults are found as depending on coping styles of minimization, suppression, seeking succourance, mapping and reversal. Young adults, however, are found to use minimization, suppression, seeking succourance, blame and mapping more frequently. Seeking succourance and suppression are found as predominantly used by all groups of women irrespective of their disability caused by pain disorder.

Table 4.15: Analysis of Variance (2 Way) of the Scores of Social Support by Age and Symptom Intensity

Source	Sum of Squares	df	Mean Squares	F	Sig.
Age	168.34	2	84.17	6.24	0.003
Symptom Intensity	56.73	2	28.37	2.10	0.127
Age x Symptom Intensity	48.14	4	12.04	0.89	0.471
Error	1496.16	111	13.48	- -	- -
Total	1775.59	119	- -	- -	- -

Table 4.15 presents the results of ANOVA (2 way) on social support. From the results it could be seen that age has significant (0.01 level) effect on social support where as, symptom intensity as well as the combined effect of age and symptom intensity on social support are not found to be significant.

The tables showing multiple comparisons-Scheffe of the scores on social support in relation to age and its homogenous subsets are given in Tables 4.4 and 4.5.

Hypothesis 10 is rejected

Table 4.16: Analysis of Variance (2 way) of the Scores of Stress by Age and Symptom Intensity

Source	Sum of Squares	df	Mean Squares	F	Sig.
Age	277.14	2	138.57	0.80	0.454
Symptom intensity	4653.48	2	2326.74	13.36	0.000
Age x Symptom Intensity	880.62	4	220.15	1.26	0.288
Error	19326.18	111	174.11	- -	- -
Total	25875.10	119	- -	- -	- -

Table 4.16 presents the results of ANOVA (2-way) on the scores of stress. From the table it can be seen that symptom intensity has a significant

effect on stress. There is no indication of the combined effect of age and symptom intensity on stress.

Table 4.17: Multiple Comparisons–Scheffe of the Scores on Stress in Relation to Symptom Intensity

Independent Variable			Mean Difference	Std Error	Sig.
Symptom Intensity	1) More intensity	2	13.10	3.16	0.001
		3	14.90	2.81	0.000
	2) Moderate intensity	1	-12.10	3.16	0.001
		3	2.80	3.03	0.653
	3) Less intensity	1	-14.90	2.81	0.000
		2	-2.80	3.03	0.653

Table 4.17 presents the results of multiple comparisons-Scheffe on the stress scores in relation to symptom intensity. The results show a significant (0.01 level) difference between group which report more and moderate as well as more and less intensity of pain.

Table 4.18: Scheffe- Homogenous Subsets

Independent Variable		N	Subsets	
			1	2
Symptom Intensity	1) More intensity	40		59.55
	2) Moderate intensity	31	47.45	
	3) Less intensity	39	44.65	
	Sig.		0.649	1.00

Table 4.18 presents the means obtained through the subsets. It is seen that group which suffers intense pain has obtained higher mean score on stress. This shows that this group suffers most from stressful situations in day to day life. The group with less symptom intensity seems to have lowest

mean which indicates low level of stress for the group than the other groups of women.

Hypothesis 11 is accepted.

Table 4.19: Analysis of Variance (2 way) of the Scores of the 8 Coping Styles by Age and Symptom Intensity

Dep. Var.	Source	Sum of squares	Df	Mean squares	F	Sig.
Minimization	Age	3453.76	2	1726.88	1.63	0.201
	Symptom Intensity	15813.44	2	7906.72	7.46	0.001
	Age x Symptom intensity	4284.10	4	1071.93	1.01	0.406
	Error	117708.69	111	1060.44	- -	- -
	Total	140972.80	119	- -	- -	- -
Suppression	Age	268.62	2	134.31	0.20	0.817
	Symptom Intensity	5942.21	2	2971.10	4.47	0.014
	Age x Symptom intensity	11176.62	4	2794.15	4.21	0.003
	Error	73763.72	111	664.54	- -	- -
	Total	87557.47	119	- -	- -	- -
Seeking succourance	Age	6411.66	2	3205.83	5.72	0.004
	Symptom Intensity	3522.01	2	1761.00	3.14	0.047
	Age x Symptom intensity	8843.39	4	2210.85	3.95	0.005
	Error	62207.37	111	560.43	- -	- -
	Total	79404.80	119	- -	- -	- -
Replacement	Age	295229	2	1473.14	1.79	0.172
	Symptom Intensity	13385.82	2	6692.91	8.11	0.001
	Age x Symptom intensity	4359.34	4	1089.34	1.32	0.267
	Error	91640.45	111	825.59	- -	- -
	Total	115529.20	119	- -	- -	- -
Blame	Age	7844.78	2	3922.39	4.62	0.012
	Symptom Intensity	510.32	2	255.16	0.30	0.741
	Age x Symptom intensity	8676.06	4	2169.01	2.56	0.043
	Error	94237.25	111	848.98	- -	- -
	Total	108544.67	119	- -	- -	- -

Table 4.19 contd…

Substitution	Age	18174.02	2	9087.01	15.95	0.000
	Symptom Intensity	17723.85	2	8861.92	15.55	0.000
	Age x Symptom intensity	12616.35	4	3154.09	5.54	0.000
	Error	63252.42	111	569.84	- -	- -
	Total	112778.80	119	- -	- -	- -
Mapping	Age	32433.78	2	16216.89	25.14	0.000
	Symptom Intensity	5508.04	2	2745.02	4.27	0.016
	Age x Symptom intensity	14426.16	4	3606.54	5.59	0.000
	Error	71592.29	111	644.98	- -	- -
	Total	124920.00	119	- -	- -	- -
Reversal	Age	10.15	2	5.08	8.37	0.000
	Symptom Intensity	8.90	3	2.97	4.90	0.003
	Age x Symptom intensity	4.29	5	0.86	1.42	0.224
	Error		109	0.61	- -	- -
	Total		119	- -	- -	- -

The results of ANOVA (2 way) on coping styles is presented in Table 4.21. The results indicate a 0.01 level of significant effect of age on coping styles of seeking succourance, substitution, mapping as well as reversal and a 0.05 level of significant effect of coping style replacement. Intensity of symptoms has a 0.01 level of significant effect on coping styles of minimization, replacement, substitution and reversal. A 0.05 level of significant effect of symptom intensity on coping styles of suppression, seeking succourance and mapping is also seen. Combined effect of age and symptom intensity on coping styles of suppression, seeking succourance, substitution and mapping is seen at 0.01 level of significance. A 0.05 level of significant effect of age and symptom intensity is seen on coping style blame.

Table 4.20: Multiple Comparisons-Scheffe of the Scores on the 8 Coping Styles in Relation to Age and Symptom Intensity

Dep. Var.	Independent Variable		Mean difference	Std. Error	Sig.

Minimization	Symptom intensity	1) More intensity	2	28.63	7.79	0.002
			3	10.17	6.94	0.345
		2) Moderate intensity	1	-28.63	7.79	0.002
			3	-18.46	7.47	0.051
		3) Less intensity	1	-10.17	6.94	0.345
			2	18.46	7.47	0.051
Suppression	Symptom Intensity	1) More intensity	2	-8.94	6.17	0.353
			3	1.84	5.49	0.946
		2) Moderate intensity	1	8.94	6.17	0.353
			3	10.78	5.92	0.195
		3) Less intensity	1	-1.84	5.49	0.946
			2	-10.78	5.92	0.195
Seeking Succourance	Age	1) Young	2	-3.44	5.13	0.799
			3	-16.38	5.32	0.011
		2) Mid transition	1	3.44	5.13	0.799
			3	-12.93	5.75	0.084
		3) Elder	1	16.38	5.32	0.011
			2	-12.93	5.75	0.084
	Symptom Intensity	1) More intensity	2	10.07	5.66	0.210
			3	-1.96	5.04	0.927
		2) Moderate intensity	1	-10.07	5.66	0.210
			3	-12.03	5.43	0.091
		3) Less intensity	1	-1.93	5.04	0.927
			2	12.03	5.43	0.091
Replacement	Symptom Intensity	1) More intensity	2	30.45	6.88	0.000
			3	15.63	6.12	0.042
		2) Moderate intensity	1	-30.45	6.88	0.000
			3	-14.82	6.59	0.085
		3) Less intensity	1	-15.63	6.12	0.042
			2	14.82	6.59	0.085
Blame	Age	1) Young	2	8.97	6.32	0.369
			3	-9.17	6.55	0.378
		2) Mid transition	1	-8.97	6.32	0.369
			3	-18.14	7.08	0.041

Table 4.20 contd…

		3) Elder	1	9.17	6.55	0.378
			2	18.14	7.08	0.041
Substitution	Symptom Intensity	1) More intensity	2	31.12	5.71	0.000
			3	23.11	5.09	0.000
		2) Moderate intensity	1	-31.12	5.71	0.000
			3	-8.02	5.48	0.346
		3) Less intensity	1	-23.11	5.09	0.000
			2	8.02	5.48	0.346
Mapping	Symptom intensity	1) More intensity	2	21.31	6.08	0.003
			3	4.82	5.41	0.673
		2) Moderate intensity	1	-21.31	6.08	0.003
			3	-16.49	5.83	0.021
		3) Less intensity	1	-4.82	5.41	0.673
			2	16.49	5.83	0.021
Reversal	Symptom Intensity	1) More intensity	2	32.40	6.82	0.000
			3	17.09	6.08	0.022
		2) Moderate intensity	1	-32.40	6.82	0.000
			3	-15.31	6.54	0.069
		3) Less intensity	1	-17.09	6.08	0.022
			2	15.31	6.54	0.069

The results of multiple comparisons-Scheffe of the scores on coping styles in relation to age and symptom intensity are given in Table 4.20. Elder and young adults are seen to differ significantly from each other on their use of coping style of seeking succourance. There is a significant difference between the mid transition and elder adults in the use of coping style of blame. The tables showing the multiple comparison- Scheffe on the scores on coping styles of reversal, substitution and mapping in relation to age is given in Tables 4.12.

Use of coping style minimization, replacement substitution mapping and reversal among the groups of women who are severely and moderately disabled by pain is seen to differ significantly. There is significant difference between groups of women with most and least intense symptoms in their use of coping styles replacement, substitution and reversal. Groups of women who are moderately disabled and less disabled by pain seem to differ from each other significantly on their use of coping style mapping.

Table 4.21 Scheffe- Homogenous Subsets

Dep. Var.	Independent Variables		N	Subsets	
				1	2
Minimization	Symptom Intensity	1) More intensity	40		66.15
		2) Moderate intensity	31	37.52	
		3) Less intensity	49		55.98
		Sig.		1.000	0.393
Suppression	Symptom Intensity	1) More intensity	40	64.61	
		2) Moderate intensity	31	55.68	
		3) Less intensity	49	53.84	
		Sig.		0.190	
Seeking Succourance	Age	1) Young	52	71.00	
		2) Mid transition	36	74.44	74.44
		3) Elder	32		87.38
		Sig.		0.817	0.062
	Symptom Intensity	1) More intensity	40	80.16	
		2) Moderate intensity	31	68.13	
		3) Less intensity	49	78.29	
		Sig.		0.087	
Replacement	Symptom Intensity	1) More intensity	40		54.55
		2) Moderate intensity	31	38.92	38.92
		3) Less intensity	49	24.09	
		Sig.		0.081	0.062
Blame	Age	1) Young	52	53.08	53.08
		2) Mid transition	36	44.11	
		3) Elder	32		62.25
		Sig.		0.407	0.390
Substitution	Symptom Intensity	1) More intensity	40		56.58
		2) Moderate intensity	31	25.45	
		3) Less intensity	49	33.47	
		Sig.		0.340	1.00
Mapping	Symptom Intensity	1) More intensity	40		39.16
		2) Moderate intensity	31		55.65
		3) Less intensity	49	60.48	
		Sig.		1.00	0.707
Reversal	Symptom Intensity	1) More intensity	40		60.05

		2) Moderate intensity	31	27.65	
		3) Less intensity	49	42.96	
		Sig.		0.066	1.00

The means obtained through Scheffe-homogenous subsets are presented in Table 4.21. The results indicate that women who suffered the most intense symptoms scored the highest mean for the coping style minimization indicating that this group used this coping style the most. The group which suffered moderately used it the least. The values for the subsets of coping styles of substitution, mapping and reversal in relation to age are given in Table 4.13.

The means of the scores for suppression was the highest for the group of women who suffered from the highest intensity of pain. This indicates that women who suffer most intense pain symptoms used the coping style suppression the most.

The women who suffered from the most intense symptoms of pain had the highest mean for the coping style of seeking succourance indicating frequent usage of seeking help from others by this group.

The highest mean for coping style replacement was seen among the group of women who reported most intense pain symptoms. This shows that this group uses replacement to cope with their daily problems.

Women who suffered from the most intense symptoms of pain were seen to have the highest mean for coping style substitution, indicating that this group largely engaged in tension reducing activities in order to combat their daily life hassles.

Coping style mapping was seen to be used most by the group which reported less intense symptoms of pain. This shows that these women seek

additional information to solve their problems.

Women who suffered group intense pain the most were seen to have comparably high mean for coping style of reversal indicating that this group of women acted the opposite of what they were actually feeling to cope with problems.

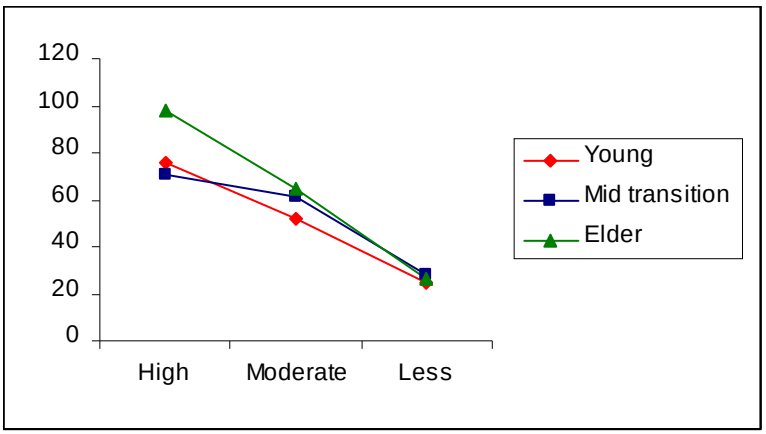
The mean for young adults were the least for coping style seeking succourance while elder adults scored maximum for both seeking succourance and blame. This indicates that the younger adults did not turn to others frequently for help while the elder adults depended largely on this coping style to deal with stressful situations. Elder adults also blame others or the situation for the problem or crisis.

Table 4.22: 3 x 3 Mean Contingency Table for Coping Styles

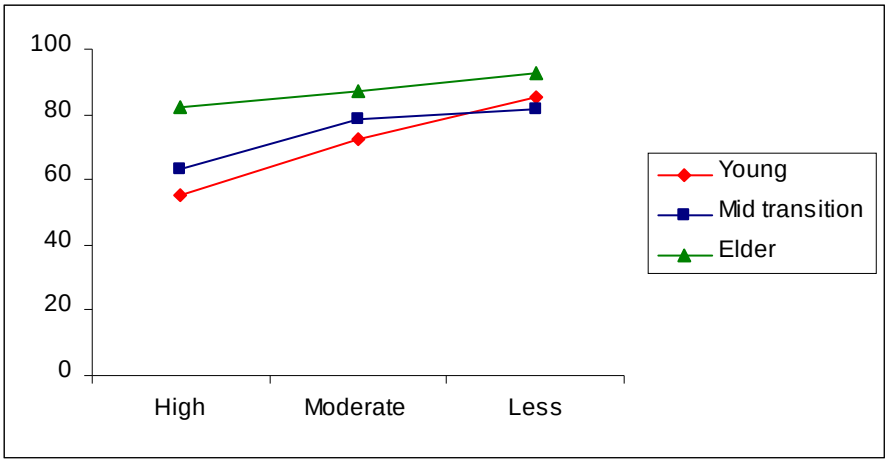
Coping Styles	Age Group	High Symptom Intensity	Moderate Symptom Intensity	Less Symptom Intensity
Suppression	Young	75.60	52.00	25.00
	Mid transition	71.00	61.66	28.00
	Elder	98.00	65.00	26.67
Seeking Succourance	Young	55.18	72.50	85.33
	Mid transition	63.24	78.33	81.75
	Elder	82.33	87.33	92.48
Blame	Young	78.00	45.50	35.75
	Mid transition	63.33	45.50	23.50
	Elder	78.00	59.33	49.42
Substitution	Young	20.59	28.25	47.40
	Mid transition	17.75	31.00	44.58
	Elder	67.00	62.50	49.00
Mapping	Young	54.18	62.00	83.50
	Mid transition	36.67	64.88	77.10
	Elder	20.00	26.13	35.25

Figure 4.4: Graph Showing Scores for Coping Styles

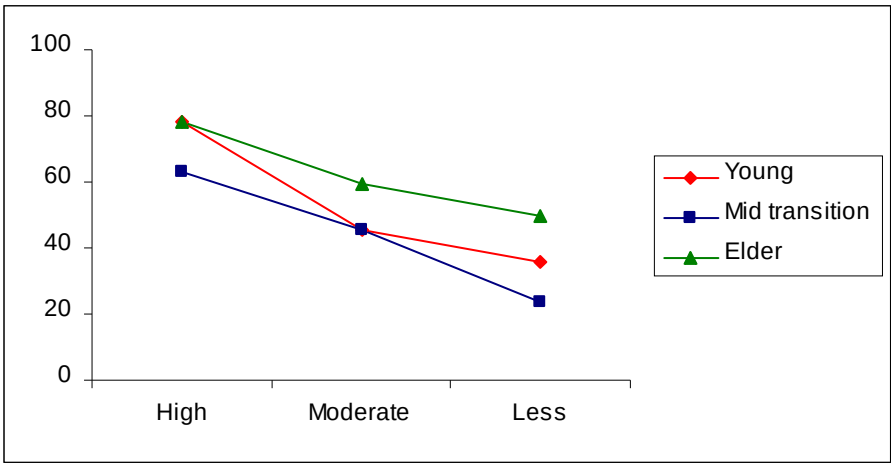
(i) Suppression



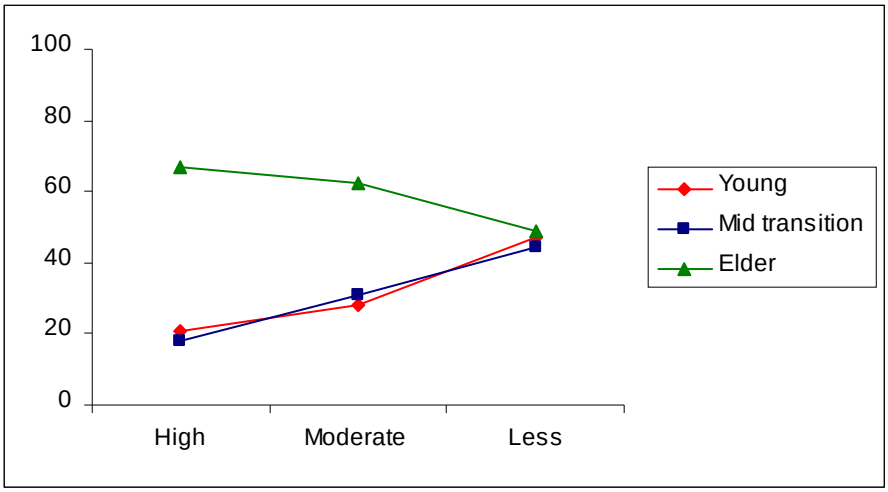
(ii) Seeking Succourance



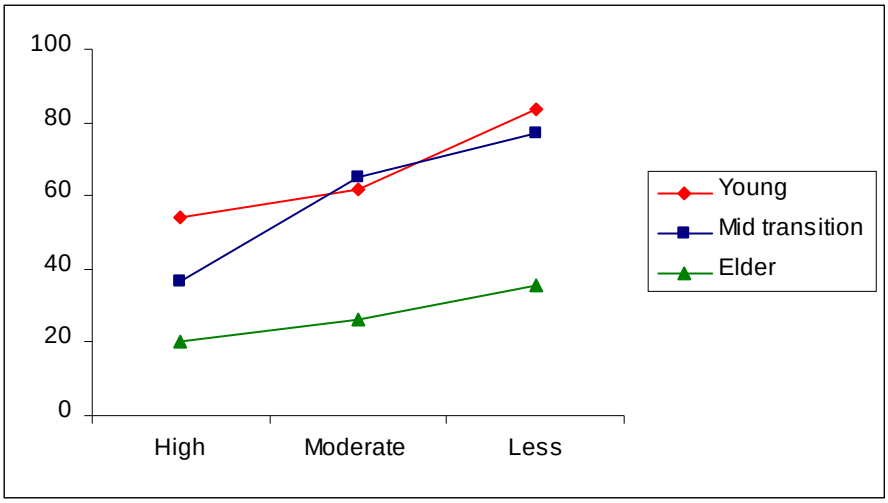
(iii) Blame



(iv) Substitution



(v) Mapping



The results in Table 4.22 and Figure 4.4 indicate that elder women who report less intense pain are found to use seeking succourance more than any other coping style. However, those who report more intense pain are found to use suppression predominantly than any other coping strategy. Young women with less intense symptoms are found to employ seeking succourance more followed by mapping. A more or less similar trend is seen in the case of mid transition adults, who report low symptom intensity. The results show seeking succourance as a favoured strategy of coping used by women with less intense pain, where as suppression is frequently used by

those having severely intense pain. But no specific trend is visible in the use of coping style by women with moderate pain symptoms.

Hypothesis 12 is accepted.

The results are similar to those reported by Grossi, Soares, Angelesleva and Perski (1999) and Byrant, Marosszeky, Crooks, Baguley and Gurka (2005).

Table 4.23: Analysis of Variance (2 way) of the Scores of Social Support by Age and Symptom Frequency

Source	Sum of Squares	df	Mean Squares	F	Sig.
Age	408.36	2	204.18	20.23	0.000
Symptom Frequency	272.12	2	136.08	13.49	0.000
Age x Symptom Frequency	236.22	4	59.05	5.85	0.000
Error	1120.09	111	10.09	- -	- -
Total	1775.59	119	- -	- -	- -

The results of ANOVA (2way) on social support given in Table 4.23 indicate a significant (0.01 level) effect of age, symptom frequency as well as combined effect of age and symptom frequency on social support.

Table 4.24: Multiple Comparisons-Scheffe of the Scores on Social Support in Relation to Symptom Frequency

Independent Variable			Mean Difference	Std. Error	Sig.
Symptom Frequency	1) More frequent	2	-1.77	0.75	0.068
		3	-1.13	0.67	0.247
	2) Moderately frequent	1	1.77	0.75	0.068
		3	0.64	0.75	0.694
	3) Less frequent	1	1.13	0.67	0.247
		2	-0.64	0.75	0.694

Table 4.24 presents the results of multiple comparisons-Scheffe on social support. There is no significant difference between the groups of women with moderate and less frequent symptoms as well as between women with more and less frequent symptoms. However, a difference significant at 0.10 level is noticed is social support between those who report more and moderately frequent symptoms of pain.

Table 4.25: Scheffe- Homogenous Subsets

Independent Variable		N	Subsets	
			1	2
Symptom Frequency	1) More frequent	44	19.57	
	2) Moderately frequent	30	20.70	
	3)Less frequent	46	21.33	
	Sig.		0.055	

The means obtained through the subsets are given in Table 4.25. The group with more symptom frequency has the lowest mean. This suggests that these women enjoy less social support. And the group which reports less pain

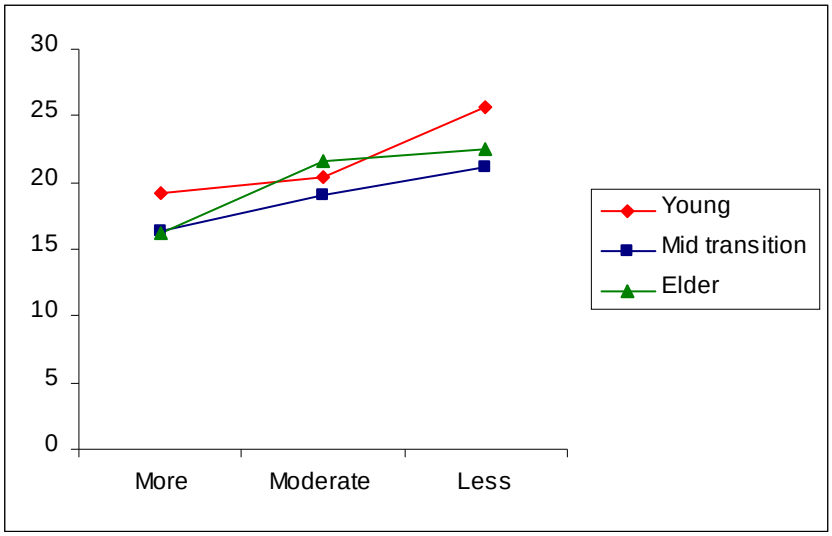
symptom frequency are seen to enjoy better social support.

The results of multiple comparisons –Scheffe on the scores on social support in relation to age and its homogenous subsets are given in Tables 4.4 and 4.5.

Table 4.26: 3 x 3 Mean Contingency Table for Social Support

Age Group	More Frequent	Moderately Frequency	Less Frequent
Young	19.23	20.33	25.69
Mid transition	16.33	19.00	21.16
Elder	16.22	21.67	22.50

Figure 4.5: Graph Showing Scores for Social Support



Hypothesis 13 is rejected.

Table 4.27: Analysis of Variance (2 way) of the Scores of Stress by Age and Symptom Frequency

Source	Sum of Squares	df	Mean Squares	F	Sig.
Age	4681.62	2	2340.81	15.34	0.000
Symptom Frequency	6812.02	2	3406.01	22.32	0.000
Age x Symptom Frequency	2109.95	4	527.49	3.46	0.011
Error	16937.52	111	152.59	- -	- -
Total	25874.99	119	- -	- -	- -

Table 4.27 presents the ANOVA (2-way) of age and symptom frequency on stress. The results indicate age and symptom frequency as having significant effect (0.01 level) on stress. The combined effect of age and symptom frequency on stress also seems to be significant at 0.05 level.

Table 4.28: Multiple Comparisons-Scheffe of the Scores on Stress in Relation to Age and Symptom Frequency

Independent Variable			Mean Difference	Std. Error	Sig.
Pain Frequency	1) More frequent	2	11.29	2.92	0.001
		3	9.12	2.61	0.003
	2) Moderately frequent	1	-11.29	2.92	0.001
		3	-2.18	2.90	0.755
	3)Less frequent	1	-9.12	2.61	0.003
		2	2.18	2.90	0.755

The results of multiple comparisons-Scheffe of the scores on stress are given in Table 4.28. It is seen that there are significant differences in stress experienced between groups of women, who report more and comparatively

moderate as well as more and less frequent pain symptoms.

The table and discussion for multiple comparisons-Scheffe of the scores on stress in relation to age is given Table 4.8.

Table 4.29: Scheffe- Homogenous Subsets

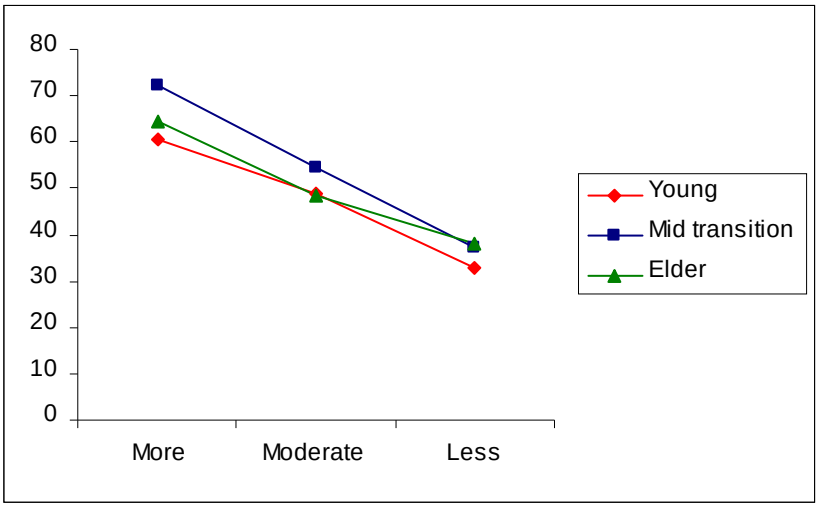
Independent Variables		N	Subsets	
			1	2
Symptom Frequency	1) More frequent	44		56.66
	2) Moderately frequent	30	45.37	
	3) Less frequent	46	47.54	
	Sig.		0.742	1.00

The means obtained through subsets given in Table 4.29 indicate that the group which suffers more frequent symptoms has obtained a high mean for stress. This shows that the group suffers more from stressful conditions in their day to day life. The values and discussion of subsets for social support in relation to age is given in Table 4.9.

Table 4.30: 3 x 3 Mean Contingency Table for Stress

Age Group	More Frequent	Moderately Frequent	Less Frequent
Young	60.75	48.69	33.00
Mid transition	72.22	54.50	37.20
Elder	64.30	48.25	37.93

Figure 4.6: Graph Showing Scores for Stress



Hypothesis 14 is partially accepted.

Table 4.31: Analysis of Variance (2 way) of the Scores of the 8 Coping Styles by Age and Symptom Frequency

Dep. Var.	Source	Sum of squares	df	Mean squares	F	Sig.
Minimization	Age	2128.09	2	1064.05	0.99	0.376
	Symptom Frequency	4769.14	2	2384.57	2.21	0.114
	Age x Symptom Frequency	11082.07	4	2770.52	2.57	0.042
	Error	119588.02	111	1077.37	- -	- -
	Total	140972.80	119	- -	- -	- -
Suppression	Age	1835.28	2	917.64	1.36	0.260
	Symptom Frequency	724.61	2	362.30	0.54	0.585
	Age x Symptom Frequency	11545.49	4	2886.37	4.29	0.003
	Error	74691.96	111	672.90	- -	- -
	Total	87557.47	119	- -	- -	- -
Seeking succourance	Age	4385.10	2	2192.55	3.50	0.034
	Symptom Frequency	1551.53	2	775.76	1.24	0.294
	Age x Symptom Frequency	3655.88	4	913.97	1.46	0.219
	Error	69494.36	111	626.08	- -	- -
	Total	79404.80	119	- -	- -	- -
Replacement	Age	7191.22	2	3595.61	4.27	0.016
	Symptom Frequency	2136.41	2	1068.20	1.27	0.286
	Age x Symptom Frequency	14355.80	4	3588.95	4.26	0.003

Table 4.31 contd…

	Error	93546.13	111	842.76	- -	- -
	Total	115529.20	119	- -	- -	- -
Blame	Age	9270.99	2	4635.49	5.92	0.004
	Symptom Frequency	5877.72	2	2938.86	3.75	0.026
	Age x Symptom Frequency	4777.96	4	1194.49	1.53	0.200
	Error	86891.17	111	782.80	- -	- -
	Total	108544.67	119	- -	- -	- -
Substitution	Age	12457.61	2	6228.80	8.39	0.000
	Symptom Frequency	4596.63	2	2298.32	3.10	0.049
	Age x Symptom Frequency	9864.54	4	2466.14	3.32	0.013
	Error	82365.46	111	742.03	- -	- -
	Total	112778.80	119	- -	- -	- -
Mapping	Age	22526.72	2	11263.36	16.83	0.000
	Symptom Frequency	3840.19	2	1920.09	2.87	0.061
	Age x Symptom Frequency	13908.57	4	3477.14	5.20	0.001
	Error	74297.09	111	669.34	- -	- -
	Total	124920.00	119	- -	- -	- -
Reversal	Age	15565.64	2	7782.82	9.83	0.000
	Symptom Frequency	9650.01	2	4825.01	6.09	0.003
	Age x Symptom Frequency	6521.84	4	1630.46	2.06	0.091
	Error	87914.69	111	792.02	- -	- -
	Total	126369.20	119	- -	- -	- -

Table 4.31 presents the summary of the ANOVA (2 way) conducted on the scores of the 8 coping styles. The results indicate that age seems to have a significant effect on coping styles of seeking succourance, replacement, blame, substitution, mapping and reversal. Frequency of pain symptoms seems to have an effect on coping styles of blame, substitution and reversal. Combined effects of age and frequency of symptoms are seen to be significant on coping styles suppression, replacement, substitution and mapping.

Table 4.32: Multiple Comparisons-Scheffe of the Scores on Coping Styles in Relation to Age and Symptom Frequency

Dep. Var.	Independent Variable			Mean difference	Std. Error	Sig.
Blame	Symptom Frequency	1) More frequent	2	-17.63	6.62	0.032
			3	-15.10	5.90	0.441
		2) Moderately frequent	1	17.63	6.62	0.032
			3	2.53	6.57	0.929
		3) Less frequent	1	15.10	5.90	0.041
			2	-2.53	6.57	0.939
Substitution	Symptom Frequency	1) More frequent	2	-3.36	6.45	0.873
			3	3.59	5.74	0.823
		2) Moderately frequent	1	3.36	6.45	0.873
			3	6.96	6.39	0.555
		3)Less frequent	1	-3.59	5.74	0.823
			2	-6.96	6.39	0.555
Reversal	Symptom Frequency	1) More frequent	2	-30.99	6.66	0.000
			3	-6.28	5.93	0.573
		2) Moderately frequent	1	30.99	6.66	0.000
			3	24.71	6.60	0.001
		3)Less frequent	1	6.28	5.93	0.573
			2	-24.71	6.60	0.001

On examination of Table 4.32 which presents the results of multiple comparisons-Scheffe on coping style in relation to symptom frequency it is seen that the women who suffer from high and moderate levels of frequency of pain differ in coping styles of blame and reversal. There is also a 0.01 level of significant difference between groups of women who report moderate and low frequency of symptoms on the coping style of reversal. The table and discussion of the scores on coping styles of replacement, substitution, mapping and reversal in relation to age is given in Table 4.12

and that for seeking succourance and blame is given in Table 4.20.

Table 4.33: Scheffe-Homogenous Subsets

Dep. Var.	Independent variables		N	Subsets	
				1	2
Blame	Symptom Frequency	1) More frequent	44		60.27
		2) Moderately frequent	30	42.64	
		3)Less frequent	46	57.74	57.74
		Sig.		0.065	0.924
Substitution	Symptom Frequency	1) More frequent	44	36.04	
		2) Moderately frequent	30	39.64	
		3)Less frequent	46	43.00	
		Sig.		0.535	
Reversal	Symptom Frequency	1) More frequent	44	65.53	
		2) Moderately frequent	30		34.55
		3)Less frequent	46	40.83	
		Sig.		0.620	1.00

Table 4.33 presents the means obtained through the subsets.

It is illustrated that women who suffer most from frequent pain symptoms use coping style blame the most when compared to the group who suffer comparatively moderate and less frequency of pain symptoms.

The group of women who suffer from less frequent symptoms of pain have scored the highest mean for coping style substitution implying that this group is more likely to be engaged in tension reducing activities to overcome stress.

Women who suffered more frequent pain symptoms were more likely to use the coping style reversal as they scored high means and this meant that

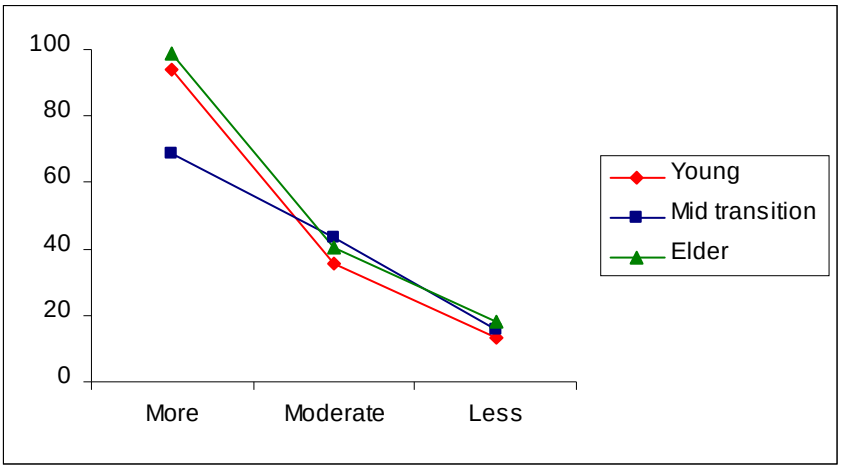
this group was more likely to act the opposite of what they actually felt about the stressful situation to overcome it. The table and discussion of subsets for age of coping styles of substitution, mapping and reversal is given in Table 4.13 and that for seeking succourance and blame is given in Table 4.21.

Table 4.34: 3 x 3 Mean Contingency Table for Stress

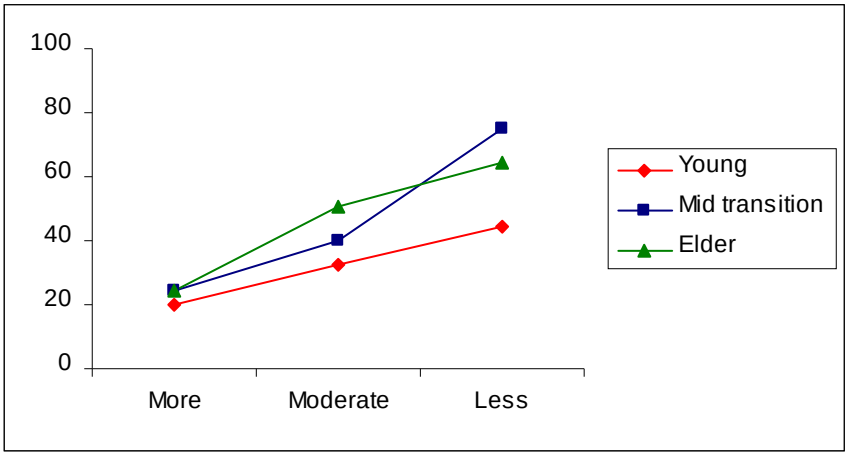
Coping Style	Age Group	More Frequent	Moderately Frequent	Less Frequent
Suppression	Young	94.00	35.40	13.00
	Mid transition	68.67	43.33	15.67
	Elder	98.67	40.25	18.33
Replacement	Young	19.75	32.27	44.68
	Mid transition	24.68	40.00	75.00
	Elder	24.48	50.33	64.33
Substitution	Young	35.70	30.20	30.36
	Mid transition	42.00	26.13	25.20
	Elder	68.50	61.00	49.00
Mapping	Young	33.00	60.00	85.62
	Mid transition	56.60	64.08	79.00
	Elder	20.33	27.22	34.00

Figure 4.7: Graph Showing Scores for Coping Styles

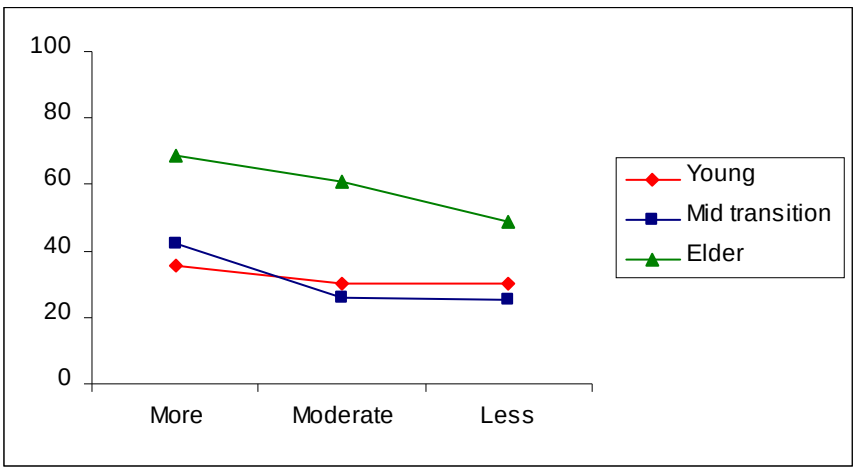
(i) Suppression



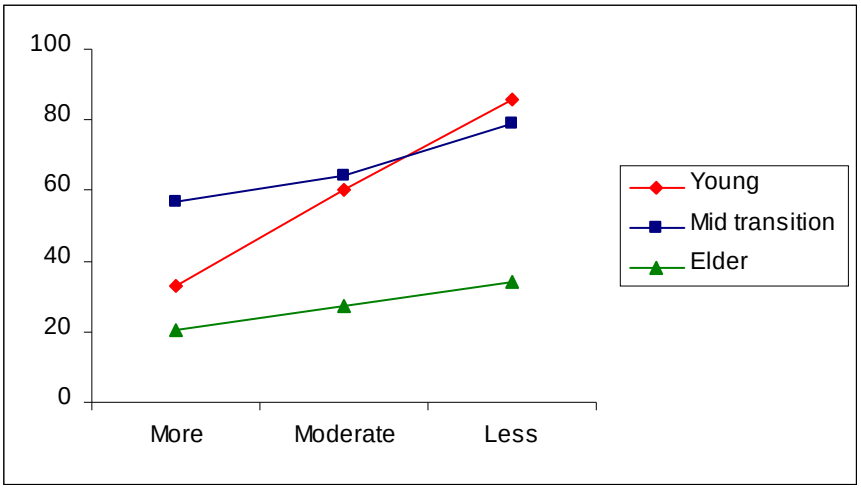
(ii)Replacement



(iii) Substitution



(iv) Mapping



From Table 4.34 and Figure 4.7 it can be seen that women who report more frequent pain are found to use suppression more frequently than the other coping styles. But those with less frequent symptoms of pain are seen as using replacement and mapping more. Replacement is used more by mid transition and elder women and mapping is used frequently by young and mid transition women. Elder women with frequent pain symptoms are also found to use substitution to a considerable extent.

Hypothesis 15 is rejected in the case of coping styles of blame and substitution, but it is partially accepted for coping style of reversal.

III

A reverse analysis to relate the extremes of the variables such as social support, stress and coping styles to pain disorder, symptom frequency and symptom intensity was also carried out. In this analysis age, social support, stress and coping styles were treated as independent variables where as pain disorder, symptom frequency and symptom intensity were treated as dependent variables. For this purpose 3 groups of women viz., young adults, mid transition adults and elder adults were considered. In order to categorize the

subjects in terms of extremes of social support, stress and coping styles they were grouped based on quartile deviations of the respective total scores obtained. The procedure described in page 93 is adopted for the present analysis also.

Table 4.35: Break- up of the Sample

Variable	Group/Category	Description		N
Age	1 Below 25 years	Young adulthood		52
	2 25-40 years	Mid transition		36
	3. 40 and above	Elder adulthood		32
Social Support	1 Above 1st Quartile	Better social support		12
	2 Between 1st and 3rd Quartile	Moderate social support		48
	3. Below 3rd Quartile	Less social support		60
Stress	1 Above 1st Quartile	High stress		59
	2 Between 1st and 3rd Quartile	Moderate stress		33
	3. Below 3rd Quartile	Low stress		28
Coping Styles	1 Above 1st Quartile	More used	Minimization	36
			Suppression	35
			Seeking succourance	42
			Replacement	40
			Blame	44
			Substitution	24
			Mapping	52
			Reversal	50
	2 Between 1st and 3rd Quartile	Moderately used	Minimization	44
			Suppression	44
			Seeking succourance	41
			Replacement	28
			Blame	24
			Substitution	32
			Mapping	28
			Reversal	34
	3. Below 3rd Quartile	Less used	Minimization	40
			Suppression	41
			Seeking succourance	37
			Replacement	52
			Blame	52
			Substitution	64
			Mapping	40
			Reversal	36

Analysis of Variance (Two-Way) was employed to analyze the data. In cases where F-ratios were significant multiple comparisons-Scheffe was used

to compare the mean scores of the groups studied.

Interaction effects were explained with the help of graphs.

Table 4.36: Analysis of Variance (2 way) of the Scores of Pain Disorder by Age and Social Support

Source	Sum of Squares	df	Mean Squares	F	Sig.
Age	14.72	2	7.36	3.22	0.044
Social support	24.96	2	12.48	5.46	0.005
Age x social support	5.95	2	2.97	1.30	0.276
Error	258.30	113	2.29	- -	- -
Total	2348.00	120	- -	- -	- -

Table 4.36 presents the results of ANOVA (2 way) on pain disorder. The results indicate a significant effect (0.05 level) of age on pain disorder. The results also indicate that social support also has a 0.01 level significant effect on pain disorder. However their combined effect is not seen to be significant.

Table 4.37: Multiple Comparisons-Scheffe of the Scores on Pain Disorder in Relation to Age and Social Support

Independent Variables			Mean Difference	Std. Error	Sig.
Age	1) Young	2	0.66	0.33	0.140
		3	0.49	0.34	0.353
	2) Mid transition	1	-0.66	0.33	0.140
		3	-0.16	0.37	0.906
	3) Elder	1	-0.49	0.34	0.353
		2	0.16	0.37	0.906
Social Support	1) Better social support	2	0.73	0.49	0.331
		3	-0.18	0.48	0.929
	2) Moderate social support	1	-0.73	0.49	0.331
		3	-0.91	0.29	0.009
	3) Less social support	1	0.18	0.48	0.929
		2	0.91	0.29	0.009

The multiple comparisons-Scheffe of the scores on pain disorder in relation to age and social support are presented in Table 4.37. The results indicate that women who enjoy moderate and low levels of social support differ significantly at 0.01 level on pain disorder. There is no significant difference in pain disorder seen among young, mid transition and elder women.

Table 4.38: Scheffe- Homogeneous Subsets

Independent Variables		N	Subset 1
Age	1) Young	52	4.46
	2) Mid transition	36	3.81
	3) Elder	32	3.97
	Sig.		0.169
Social Support	1) Better social support	12	3.60
	2) Moderate social support	48	4.33
	3) Less social support	60	4.52
	Sig.		0.109

Table 4.38 presents the means obtained through the subsets. The mean is seen to be the highest for the young adults and the lowest for mid transition adults. This indicates that young and mid transition adults suffer most and least from pain disorder respectively. The groups of women who enjoyed better social support has scored low mean which indicates that better socially supported women suffered less and are hence less by pain disorder. The low mean score for women who received poor social support points out that they are more prone to pain disorder and are more disabled.

Hypothesis 16 is rejected.

Hypothesis 17 is partially accepted.

Table 4.39: Analysis of Variance (2 way) of the Scores of Pain Disorder by Age and Stress

Source	Sum of Squares	df	Mean Square	F	Sig.
Age	6.41	2	3.20	1.46	0.236
Stress	31.42	2	15.71	7.17	0.001
Age x Stress	1.76	4	0.44	0.20	0.938
Error	243.19	111	2.19	- -	- -
Corrected Total	297.87	119	- -	- -	- -

Table 4.39 presents the results of ANOVA (2-way) on pain disorder. From the results it is seen that stress has significant (0.01 level) effect on pain disorder. However combined effect of stress and age was not found significant on pain disorder. There is no indication of significant effect of age on pain disorder.

Table 4.40: Multiple Comparisons-Scheffe of the Scores on Pain Disorder in Relation to Stress

Independent Variables			Mean Difference	Std. Error	Sig.
Stress	1) High Stress	2	1.16	0.32	0.002
		3	1.33	0.34	0.001
	2) Moderate Stress	1	-1.16	0.32	0.002
		3	0.18	0.38	0.897
	3) Low Stress	1	-1.33	0.34	0.001
		2	-0.18	0.38	0.897

The results of multiple comparisons-Scheffe on pain disorder in relation to stress are given in Table 4.40. From the results given in the table it can be seen that women with high and moderate stress as well as high and

low stress differ significantly from each other on pain disorder.

Table 4.41: Scheffe- Homogeneous Subsets

Independent Variable		N	Subsets	
			1	2
Stress	1) High Stress	59		4.76
	2) Moderate stress	33	3.61	
	3) Low stress	28	3.43	
	Sig.		0.878	1.00

Table 4.41 presents the means derived through multiple comparisons-Scheffe subsets. The results indicate that more stressed women suffer more from pain disorder and became more disabled than women with comparably less stress.

Hypothesis 18 is accepted.

Table 4.42: Analysis of Variance (2 way) of the Scores of Pain Disorder by Age and the 8 Coping Styles

Source	Sum of Squares	df	Mean Square	F	Sig.
Age	8.88	2	4.44	2.34	0.101
Minimization	15.31	2	7.65	4.03	0.020
Age x Minimization	68.86	4	17.22	9.07	0.000
Error	210.79	111	1.90	- -	- -
Total	297.87	119	- -	- -	- -
Age	22.83	2	11.42	5.33	0.006
Suppression	1.01	2	0.50	0.24	0.791
Age x Suppression	41.90	4	10.48	4.90	0.001
Error	237.64	111	2.14	- -	- -
Total	297.87	119	- -	- -	- -
Age	6.03	2	3.01	1.36	0.260
Seeking succourance	1.62	2	0.81	0.37	0.694
Age x Seeking Succourance	37.03	3	12.34	5.58	0.001

Table 4.42 contd…

Error	247.61	112	2.21	- -	- -
Total	297.87	119	- -	- -	- -
Age	18.89	2	9.44	4.21	0.017
Replacement	23.87	2	11.94	5.33	0.006
Age x Replacement	13.20	4	3.30	1.47	0.215
Error	248.73	111	2.24	- -	- -
Total	297.87	119	- -	- -	- -
Age	14.82	2	7.41	4.01	0.021
Blame	44.32	2	22.16	11.98	0.000
Age x Blame	50.23	4	12.56	6.79	0.000
Error	205.36	111	1.85	- -	- -
Total	297.87	119	- -	- -	- -
Age	4.44	2	2.22	1.29	0.280
Substitution	42.30	2	21.15	12.27	0.000
Age x Substitution	51.58	4	12.89	7.48	0.000
Error	191.30	111	1.72	- -	- -
Total	297.87	119	- -	- -	- -
Age	39.25	2	19.63	16.81	0.000
Mapping	35.10	2	17.10	15.41	0.000
Age x Mapping	97.37	4	24.34	20.84	0.000
Error	129.63	111	1.17	- -	- -
Total	297.87	119	- -	- -	- -
Age	22.85	2	11.43	7.14	0.001
Reversal	2.55	2	1.27	0.80	0.453
Age x Reversal	107.69	4	26.92	16.83	0.000
Error	117.52	111	1.60	- -	- -
Total	297.87	119	- -	- -	- -

The results of ANOVA (2-way) on disability caused by pain disorder are presented in Table 4.42. The results indicate a significant effect of age on disability by pain disorder in the cases of coping styles of suppression, replacement, blame, mapping and reversal. Coping styles of minimization, replacement, blame, substitution and mapping were seen to have a significant effects on disability by pain disorder reported. Combined effects of age and coping styles of minimization, suppression, blame, substitution, mapping and reversal were also found to have significant effect of 0.01 level on disability by pain disorder.

Table 4.43: Multiple Comparisons-Scheffe of the Scores on Pain Disorder in Relation to Age and Coping Styles

Dependent Variable	Independent Variable			Mean difference	Std. Error	Sig.
PAIN DISORDER	Minimization	1) More used	2	0.68	0.31	0.092
			3	0.76	0.32	0.059
		2) Moderately used	1	-0.68	0.31	0.092
			3	8.00	0.30	0.966
		3) Less used	1	-0.76	0.32	0.059
			2	-8.00	0.30	0.966
	Replacement	1) More used	2	0.79	0.37	0.106
			3	0.59	0.31	0.173
		2) Moderately used	1	-0.79	0.37	0.106
			3	-0.20	0.35	0.857
		3) Less used	1	-0.59	0.31	0.173
			2	0.20	0.35	0.857
	Blame	1) More used	2	-1.15	0.35	0.005
			3	-0.98	0.28	0.003
		2) Moderately used	1	1.15	0.35	0.005
			3	0.16	0.34	0.888
		3) Less used	1	0.98	0.28	0.003
			2	-0.16	0.34	0.888
	Substitution	1) More used	2	1.54	0.35	0.000
			3	1.40	0.31	0.000
		2) Moderately used	1	-1.54	0.35	0.000
			3	-0.14	0.28	0.885
		3) Less used	1	-1.40	0.31	0.000
			2	0.14	0.28	0.885
	Mapping	1) More used	2	-1.46	0.25	0.000
			3	0.51	0.23	0.084
		2) Moderately used	1	1.47	0.25	0.000
			3	1.98	0.27	0.000
		3) Less used	1	-0.51	0.23	0.084
			2	-1.98	0.27	0.000

Table 4.43 presents the results of multiple comparisons-Scheffe carried out on pain disorder in relation to coping styles. A significant difference is seen among women who mostly and moderately use coping styles of blame, substitution and mapping. Women who use coping styles of

blame and substitution frequently and less are also seen to significantly differ from each other at 0.01 level. Significant difference of 0.01 level is seen between groups of women with pain disorder who use coping style of mapping moderately and least. The table for multiple comparisons-Scheffe of the scores on pain disorder in relation to age is given in Table 4.37.

Table 4.44: Scheffe- Homogeneous Subsets

Dependent Variable	Independent Variables		N	Subsets	
				1	2
Pain Disorder	Minimization	1) More used	36	4.64	
		2) Moderately used	44	3.95	
		3) Less used	40	3.88	
		Sig.		0.051	
	Replacement	1) More used	40	3.79	
		2) Moderately used	28	3.98	
		3) Less used	52	4.58	
		Sig.			
	Blame	1) More used	44	4.46	
		2) Moderately used	24		4.46
		3) Less used	52		3.48
		Sig.		1.00	0.879
	Substitution	1) More used	24	3.75	
		2) Moderately used	32	3.89	
		3) Less used	64		5.29
		Sig.		0.907	1.00
	Mapping	1) More used	52	5.43	
		2) Moderately used	28		3.96
		3) Less used	40	3.45	
		Sig.		0.127	1.00

The means obtained through the subsets are presented in Table 4.44. From the results it can be seen that women who use coping style minimization the most when compared to groups which use it moderately and less are seen to suffer most from pain disorder. Coping style replacement was used most frequently by women who report less pain disorder. Women

who reported being most affected by pain disorder were seen to fall short of using coping style replacement therefore are poor at dealing with their problems by finding alternative solutions.

Women who used coping style blame the most were noticed to have high mean for pain disorder. Lower mean for pain disorder was seen in women who used this coping style less. Thus pain disordered women are more likely to blame the situation or system for their problems.

Women who used coping style mapping the most seemed to suffer less from pain disorder. The groups which used them moderately and less were seen to suffer more from pain disorder.

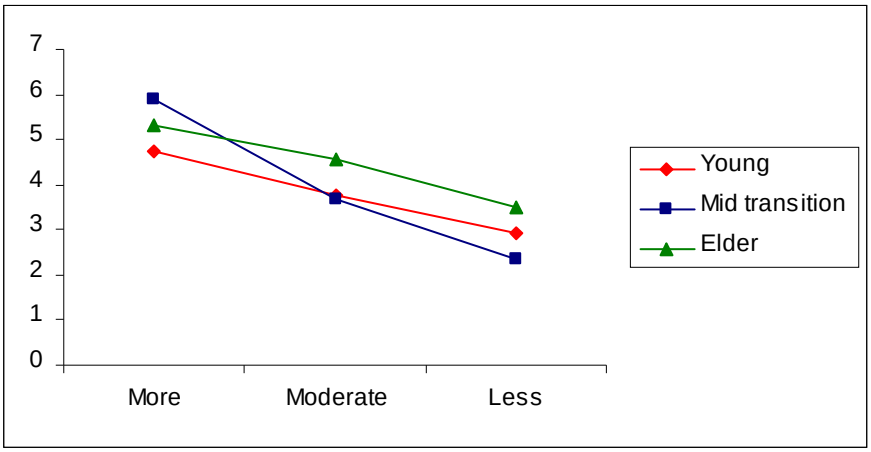
Women who used coping style reversal most were seen to report more pain disorder than women who used them moderately or less. Thus this might mean that women who reported more disability due to pain deal with problems by acting the opposite of what they feel. The subsets for age is given in Table 4.38.

Table 4.45: 3 x 3 Mean Contingency Table for Pain Disorder

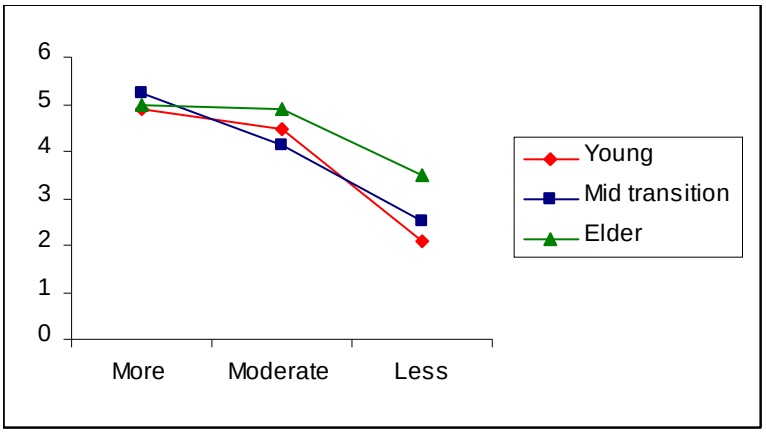
Coping Style	Age Group	More frequently	Moderately frequent	Less frequent
Minimization	Young	4.75	3.75	2.93
	Mid transition	5.91	3.67	2.33
	Elder	5.33	4.55	3.50
Suppression	Young	4.91	4.45	2.07
	Mid transition	5.25	4.14	2.50
	Elder	5.00	4.88	3.50
Seeking Succourance	Young	3.00	3.43	5.00
	Mid transition	2.91	4.00	5.00
	Elder	3.50	4.88	5.00
Blame	Young	5.75	3.20	2.48
	Mid transition	6.00	3.18	2.73
	Elder	6.00	3.88	3.50
Substitution	Young	3.00	4.03	4.40
	Mid transition	2.50	3.74	5.67
	Elder	3.50	3.88	6.00
Mapping	Young	3.50	3.27	4.66
	Mid transition	3.00	4.33	4.58
	Elder	3.33	3.67	6.38
Reversal	Young	4.67	4.50	2.26
	Mid transition	5.00	4.20	2.71
	Elder	5.33	4.72	3.33

Figure 4.8: Graph Showing Scores for Pain Disorder

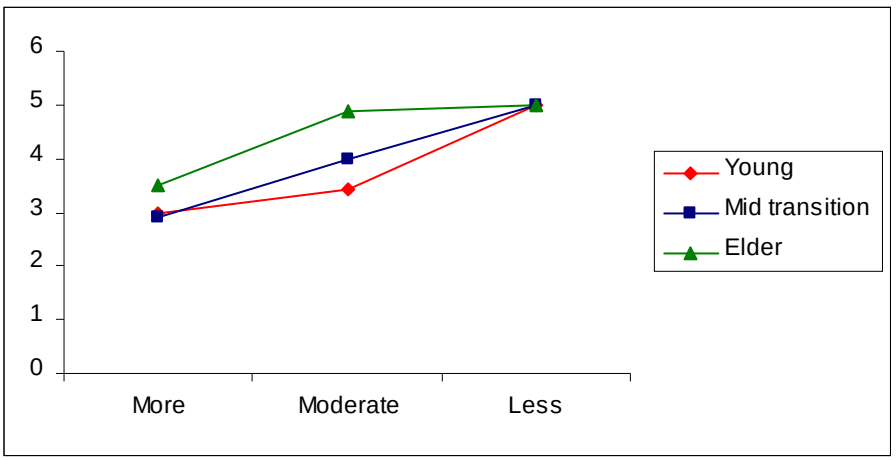
(i) Minimization



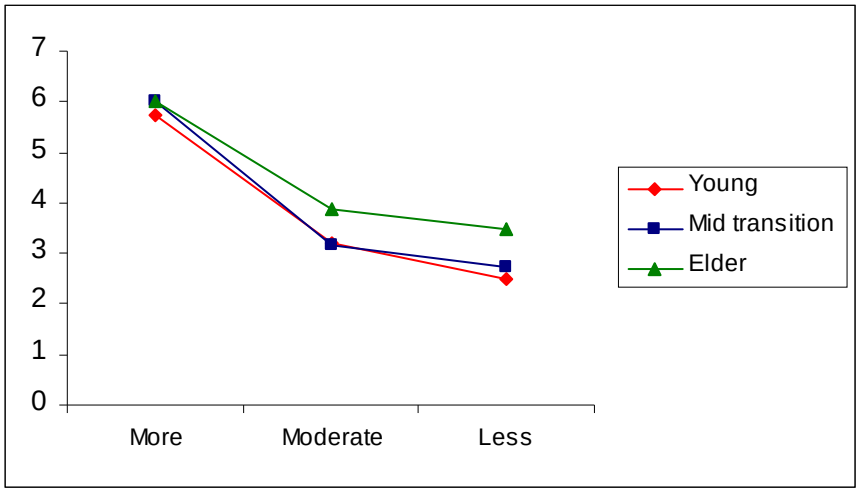
(ii) Suppression



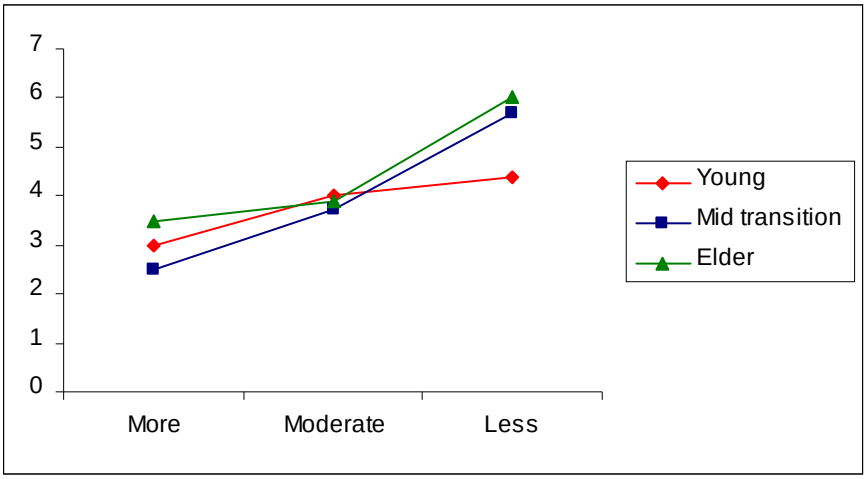
(iii) Seeking Succourance



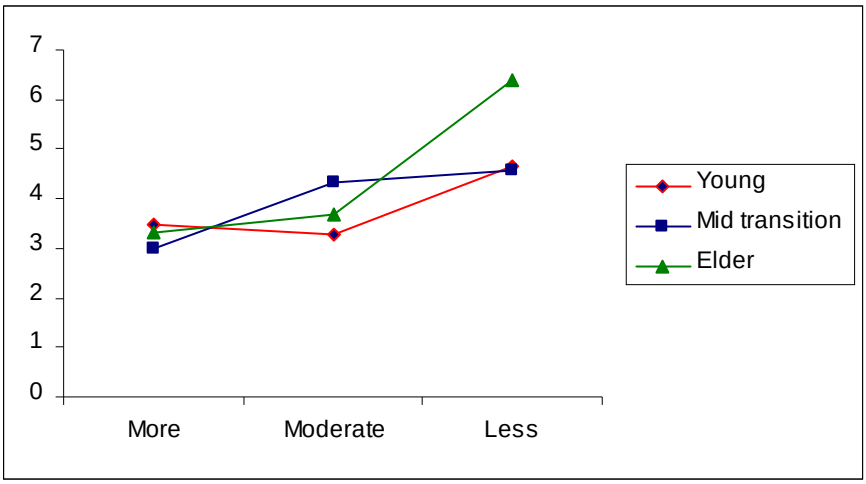
(iv) Blame



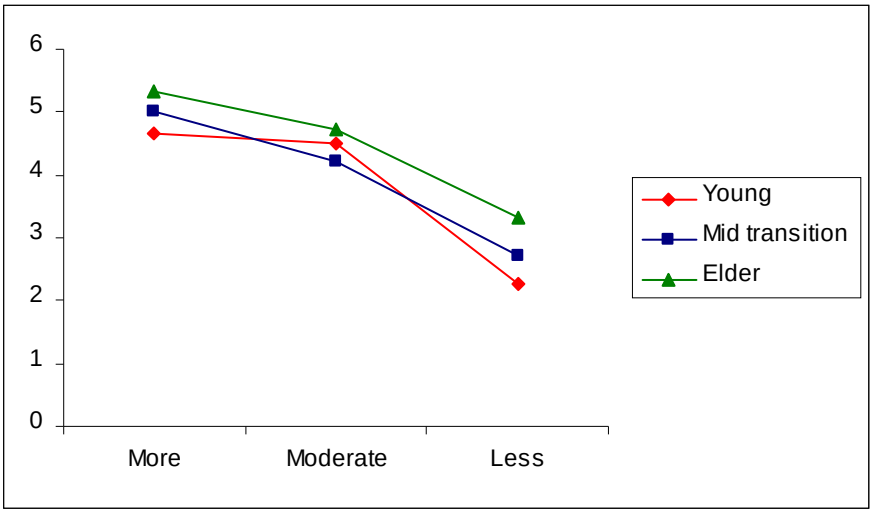
(v) Substitution



(vi) Mapping



(vii) Reversal



The results in Table 4.45 reveal that young women who use coping style of blame more frequently are found as comparably more disabled by pain disorder more than the moderately and less disabled groups. Mid transition adults who use minimization, suppression, blame and reversal more are found as most affected by pain disorder and among them those who use blame most frequently are found as more disabled than others. In the case of elderly women those who use blame are found more disabled by pain. On the contrary, less disabled elder adults use substitution and mapping more frequently. Less disabled young women as well as mid transition group are seen using the coping style of seeking succourance more predominantly than the other strategies.

Hypothesis 19 is accepted.

Table 4.46: Analysis of Variance (2 way) of the Scores of Symptom Intensity by Age and Social Support

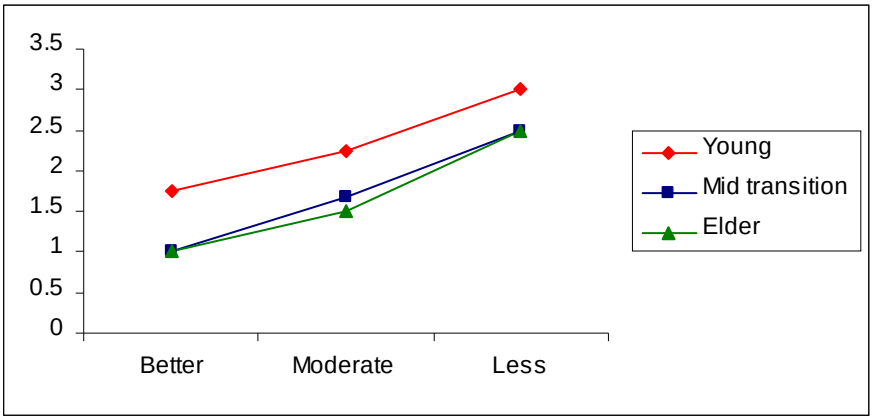
Source	Sum of Squares	df	Mean Square	F	Sig.
Age	3.42	2	1.71	1.92	0.152
Social Support	1.20	2	0.60	0.67	0.513
Age x Social Support	6.42	2	3.21	3.60	0.030
Error	100.75	113	0.89	- -	- -
Total	113.00	119	- -	- -	- -

The ANOVA (2 way) on the scores of symptom intensity is given in Table 4.46. The results in the table indicate no significant effect of age and social support on symptom intensity. Combined effect of age and social support is seen to have a significant effect on symptom intensity.

Table 4.47: 3 x 3 Mean Contingency Table for Symptom Intensity

Age Group	Better social support	Moderate social support	Less social support
Young	1.75	2.25	3.00
Mid transition	1.00	1.67	2.50
Elder	1.00	1.50	2.50

Figure 4.9: Graph Showing Scores for Symptom Intensity



Hypotheses 20 and 21 are rejected.

Table 4.48: Analysis of Variance (2 way) of the Scores of Symptom

Intensity by Age and Stress

Source	Sum of Squares	df	Mean Square	F	Sig.
Age	1.59	2	0.80	1.02	0.365
Stress	11.49	2	5.75	7.35	0.001
Age x Stress	5.68	4	1.42	1.81	0.131
Error	8.79	111	0.78	- -	- -
Total	113.00	119	- -	- -	- -

Table 4.48 presents the ANOVA (2 way) on the scores of symptom intensity. The results show that age has no significant effect on symptom intensity where as, stress has a 0.01 level of significant effect on symptom intensity. The combined effect of age and stress is not found to be significant.

Table 4.49: Multiple Comparisons-Scheffe of the Scores on Symptom Intensity of in Relation to Stress

Independent Variable			Mean difference	Std. Error	Sig.
Stress	1) High stress	2	-0.15	0.19	0.137
		3	0.87	0.20	0.000
	2) Moderate stress	1	0.15	0.19	0.737
		3	1.02	0.23	0.000
	3) Low stress	1	-0.87	0.20	0.000
		2	-1.02	0.23	0.000

The results of multiple comparisons-Scheffe of the scores on symptoms intensity in relation to stress is presented in Table 4.49. The results indicate that the groups of women who are highly stressed and less stressed as well as the groups of women who are less and moderately stressed significantly differ at 0.01 level.

Table 4.50: Scheffe- Homogeneous Subsets

Independent Variable	N	Subsets

			1	2
Stress	1) High Stress	59		2.15
	2) Moderate stress	33		2.30
	3) Low Stress	28	1.29	
	Sig.		1.00	0.770

Table 4.50 presents the means obtained through the subsets. From the results it is indicated that highly stressed women are more prone to intense pain as this group has the highest mean. Women who suffer less from pain are seen to be less stressed.

Hypothesis 22 is accepted.

Table 4.51: Analysis of Variance (2 way) of the Scores of Symptom ntensity by Age and the 8 Coping Styles

Dep. Var.	Source	Sum of Squares	df	Mean Square	F	Sig.
Symptom Intensity	Age	6.26	2	3.13	4.42	0.014
	Minimization	11.10	2	5.55	7.84	0.001
	Age x Minimization	21.17	4	5.29	7.48	0.000
	Error	78.58	111	0.71	- -	- -
	Total	112.99	119	- -	- -	- -
	Age	2.01	2	1.00	1.12	0.330
	Suppression	0.58	2	0.29	0.33	0.723
	Age x Suppression	8.82	4	2.21	2.46	0.049
	Error	99.49	111	0.90	- -	- -
	Total	112.99	119	- -	- -	- -
	Age	2.98	2	1.49	1.81	0.168
	Seeking Succourance	0.72	2	0.36	0.44	0.648
	Age x Seeking Succourance	15.91	4	5.31	6.43	0.000
	Error	92.34	111	0.82	- -	- -
	Total	112.99	119	- -	- -	- -
	Age	0.30	2	0.15	0.18	0.832
	Replacement	14.03	2	7.02	8.69	0.000
	Age x Replacement	6.67	4	1.67	2.06	0.090
	Error	89.68	111	0.81	- -	- -
	Total	112.99	119	- -	- -	- -

Table 4.51 contd…

	Age	1.69	2	0.84	1.09	0.338
	Blame	13.26	2	6.63	8.61	0.000
	Age x Blame	10.61	4	2.65	3.44	0.011
	Error	85.48	111	0.77	- -	- -
	Total	112.99	119	- -	- -	- -
	Age	11.69	2	5.84	7.92	0.001
	Substitution	9.73	2	4.87	6.60	0.002
	Age x Substitution	12.99	4	3.25	4.41	0.002
	Error	81.85	111	0.74	- -	- -
	Total	112.99	119	- -	- -	- -
	Age	4.80	2	2.40	3.99	0.021
	Mapping	9.18	2	4.59	7.63	0.001
	Age x Mapping	29.58	4	7.39	12.29	0.000
	Error	66.78	111	0.60	- -	- -
	Total	112.99	119	- -	- -	- -
	Age	1.27	2	0.64	1.05	0.352
	Reversal	3.71	2	1.85	3.07	0.051
	Age x Reversal	35.36	4	8.84	14.62	0.000
	Error	67.11	111	0.61	- -	- -
	Total	112.99	119	- -	- -	- -

Table 4.51 presents the results of the analysis of variance on the scores of symptom intensity. From the results it can be seen that age has a significant effect on symptom intensity when the coping styles minimization, blame, substitution and mapping are taken into consideration. Coping styles minimization, seeking succourance, blame, substitution and mapping seem to have a significant effect on the intensity of pain symptoms. Combined effect of age and coping styles of minimization, seeking succourance, blame, substitution and mapping are seen to have significant effects on the intensity of pain symptoms.

Table 4.52: Multiple Comparisons–Scheffe of the Scores on Symptom Intensity in Relation to Age and Social Support

Dependent Variable	Independent Variable	Mean difference	Std. Error	Sig.

Symptom Intensity	Age	1) Young	2	-0.43	0.18	0.071
			3	-0.36	0.19	0.175
		2) Mid transition	1	0.43	0.18	0.071
			3	6.94	0.20	0.994
		3) Elder	1	0.36	0.19	0.175
			2	-6.94	0.20	0.994
	Minimization	1) More frequently used	2	0.32	0.19	0.236
			3	0.50	0.19	0.037
		2) Moderately used	1	-0.32	0.19	0.236
			3	0.18	0.18	0.622
		3) Less used	1	-0.50	0.19	0.037
			2	-0.18	0.18	0.622
	Replacement	1) More frequently used	2	0.86	0.22	0.001
			3	0.71	0.19	0.001
		2) Moderately used	1	-0.86	0.22	0.001
			3	-0.15	0.21	0.788
		3) Less used	1	-0.71	0.19	0.001
			2	0.15	0.21	0.788
	Blame	1) More frequently used	2	-0.88	0.22	0.001
			3	-0.15	0.18	0.694
		2) Moderately used	1	0.88	0.22	0.001
			3	0.72	0.22	0.005
		3) Less used	1	0.15	0.18	0.694
			2	-0.72	0.22	0.005
	Substitution	1) More frequently used	2	0.67	0.23	0.019
			3	0.93	0.21	0.000
		2) Moderately used	1	-0.67	0.23	0.019
			3	0.27	0.19	0.364
		3) Less used	1	-0.93	0.21	0.000
			2	-0.27	0.19	0.364
	Mapping	1) More frequently used	2	-0.32	0.18	0.214
			3	0.25	0.16	0.313
		2) Moderately used	1	0.32	0.18	0.214
			3	0.57	0.01	0.014
		3) Less used	1	-0.25	0.16	0.313
			2	-0.57	0.01	0.014

Multiple comparisons-Scheffe of the scores on symptom intensity in relation to age and social support is given in Table 4.52. The results indicate significant difference in symptom intensity between women who use coping

styles replacement, blame and substitution very frequently and moderately. Women who used coping style replacement and substitution frequently and less were seen to differ on symptom intensity at 0.01 level of significance. A 0.01 level of significant difference on intensity of reported symptoms is seen between women who use coping styles blame moderately and less. Young and mid transition adults are seen to significantly differ on the intensity of pain symptoms.

Table 4.53: Scheffe- Homogeneous Subsets

Independent Variable		N	Subsets	
			1	2
Age	1) Young	52	1.77	
	2) Mid transition	36	2.19	
	3) Elder	32	2.13	
	Sig.		0.091	
Minimization	1) More frequently used	36		2.28
	2) Moderately used	44	1.95	1.95
	3) Less used	40	1.78	
	Sig.		0.637	0.235
Replacement	1) More frequently used	40		1.64
	2) Moderately used	28	1.79	
	3) Less used	52	2.50	
	Sig.		0.782	1.00
Blame	1) More frequently used	44		2.63
	2) Moderately used	24	1.90	
	3) Less used	52	1.75	
	Sig.		0.760	1.00
Substitution	1) More frequently used	24		1.73
	2) Moderately used	32	2.00	
	3) Less used	64	2.67	
	Sig.		0.447	1.00
Mapping	1) More frequently used	52	1.75	1.75
	2) Moderately used	28	2.00	
	3) Less used	40	2.32	2.32

Table 4.53 contd…

	Sig.		0.381	0.204

The means obtained through subsets are presented in Table 4.53. The results indicate that young adults have the lowest means where as the mid transition adults have high mean scores for symptom intensity. This indicates that young adult group is likely to suffer less from intense pain symptoms. Meanwhile the mid transition adults have the highest possibility to suffer from intense pain symptoms.

Young adult women who use coping style minimization more are found as likely to suffer more from intense pain symptoms. Frequent use of coping style replacement is seen in the case of women with less intense pain symptoms. This suggests that less affected women employ replacement to combat daily stresses and strains.

Frequent use of coping style blame is seen to result in more intense pain symptoms and women who use them least in the group are seen to suffer less intense symptoms. Highest mean for symptom intensity is noticed among women who use coping style of substitution least. This indicates that women who use coping style substitution to combat life’s stress are less likely to suffer from intense pain symptoms.

The frequent use of coping style mapping in women with pain disorder has resulted in less intense symptoms, whereas the women who used this coping style less were seen to suffer more from intense pain symptoms.

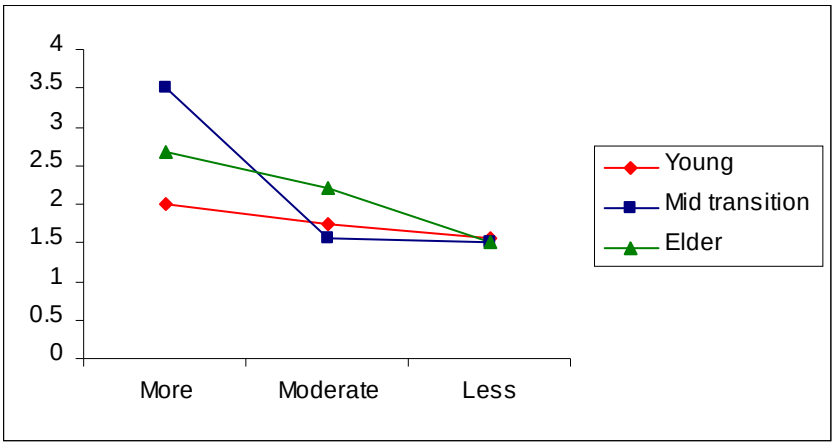
Table 4.54: 3 x 3 Mean Contingency Table for Symptom Intensity

Coping Style	Age Group	More frequently used	Moderately used	Less used
Minimization	Young	2.00	1.75	1.56

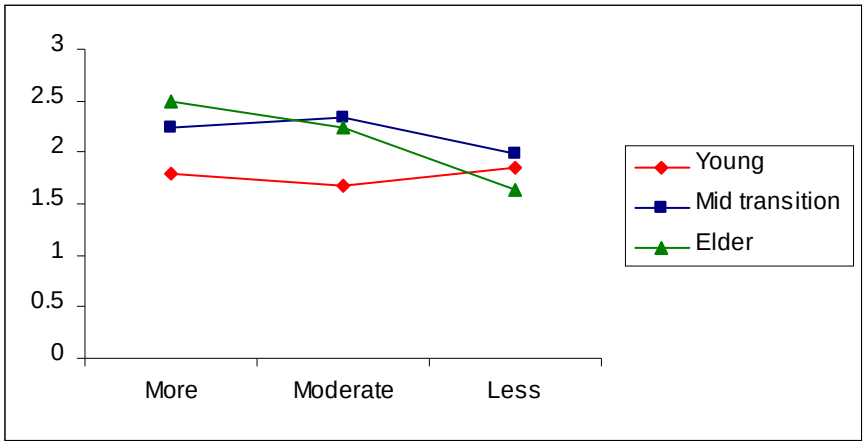
	Mid transition	3.50	1.57	1.50
	Elder	2.67	2.22	1.50
Seeking Succourance	Young	1.80	1.67	1.85
	Mid transition	2.25	2.33	1.99
	Elder	2.50	2.25	1.64
Blame	Young	2.00	1.67	1.64
	Mid transition	2.92	2.00	1.65
	Elder	2.83	1.92	1.64
Mapping	Young	1.48	1.50	2.33
	Mid transition	1.67	2.40	2.50
	Elder	1.20	2.25	2.94
Reversal	Young	2.75	1.56	1.00
	Mid transition	1.33	2.33	2.91
	Elder	1.22	1.67	3.50

Figure 4.10: Graph Showing Scores for Symptom Intensity

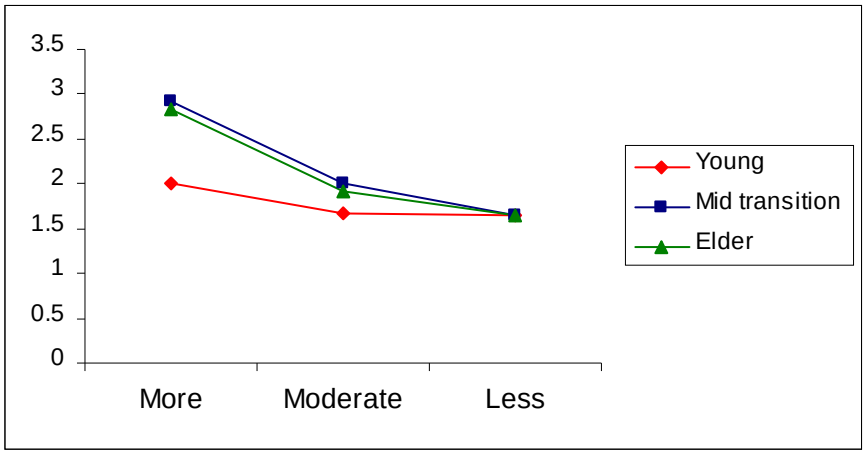
(i) Minimization



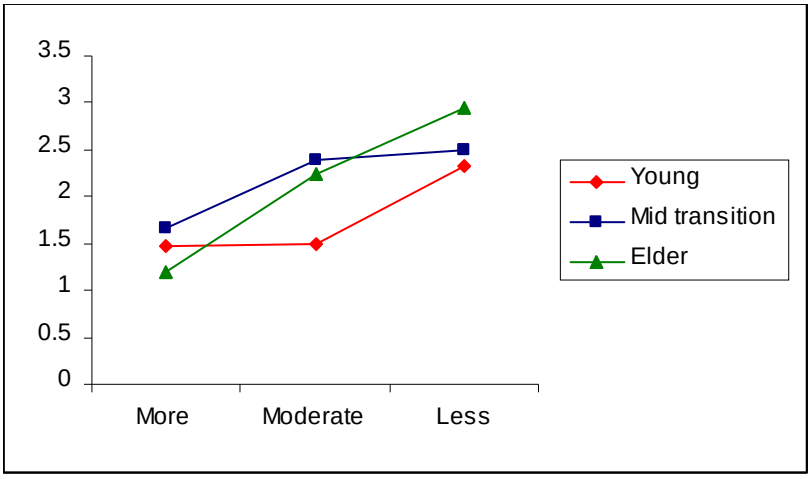
(ii) Seeking Succourance



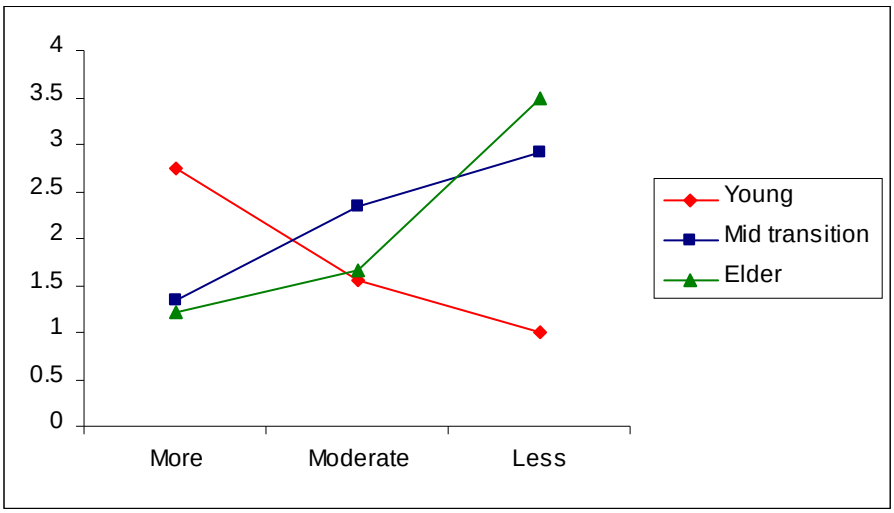
(iii) Blame



(iv) Mapping



(v) Reversal



Results, with respect to symptom intensity in relation to age and coping styles, (Table 4.54) suggest that mid transition group of women experience more intense symptoms of pain than any other group of women and they use minimization more predominantly than the other coping mechanisms. In all the other cases the use of coping strategies are more ore less similar with regard to dealing with problems of day to day life.

Hypothesis 23 is accepted.

Table 4.55: Analysis of Variance (2 way) of the Scores of Symptom Frequency by Age and Social Support

Source	Sum of Squares	df	Mean Square	F	Sig.
Age	28.25	2	14.12	16.30	0.000
Social Support	18.89	2	9.42	10.87	0.000
Age x Social Support	0.37	2	0.19	0.22	0.806
Error	97.88	113	0.87	- -	- -
Total	146.59	119	- -	- -	- -

Table 4.55 presents the ANOVA (2 way) on symptom frequency. The results indicate that age has a significant (0.01 level) effect on symptom frequency. There is also a similar level of significant effect of social support on symptom frequency. The combined effect of age and social support is not found significant.

Table 4.56: Multiple Comparisons-Scheffe of the Scores on Symptom Frequency in Relation to Age and Social Support

Independent Variable			Mean difference	Std. Error	Sig.
Age	1) Young	2	1.08	0.20	0.000
		3	0.85	0.21	0.000
	2) Mid transition	1	-1.08	0.20	0.000
		3	-0.23	0.23	0.591
	3) Elder	1	-0.85	0.21	0.000
		2	0.23	0.23	0.591
Social Support	1) Better social support	2	0.67	0.30	0.090
		3	-0.15	0.29	0.878
	2) Moderate social support	1	-0.67	0.30	0.090
		3	-0.82	0.18	0.000
	3) Less Social Support	1	0.15	0.29	0.878
		2	0.82	0.18	0.000

The results of multiple comparisons-Scheffe, of the scores on symptom frequency in relation to age and social support are given in Table 4.56. The results indicate significant differences (0.01 level) between the young and mid transition adults as well as young and elder adults. Significant difference between groups of women who enjoy moderate and low levels of social support at 0.01 level is also seen.

Table 4.57: Scheffe- Homogeneous Subsets

Independent Variable		N	Subsets	
			1	2
Age	1) Young	52		2.69
	2) Mid Transition	36	1.67	
	3) Elder	32	1.84	
	Sig.		0.551	1.00
Social support	1) Better social support	12		1.67
	2) Moderate social support	48	2.33	
	3) Less Social Support	60		2.48
	Sig.		1.00	0.851

Table 4.57 presents the means obtained through the subsets. The results indicate that young adults have a higher mean than the others. This indicates that young adults are more prone to frequent pain symptoms. The least value for mean was seen among mid transition adults. Women who enjoyed less social support were seen to have higher tendency to be prone to symptom frequency as this group has the highest mean. Women who received high social support were seen to be less prone to frequent pain symptoms.

Hypotheses 24 and 25 are partially accepted.

Table 4.58: Analysis of Variance (2 way) of the Scores of Symptom Frequency by Age and Stress

Source	Sum of Squares	df	Mean Square	F	Sig.
Age	14.38	2	7.19	8.99	0.000
Stress	17.05	2	8.52	10.65	0.000
Age x Stress	7.77	4	1.94	2.43	0.052
Error	88.80	111	0.80	- -	- -
Total	146.59	119	- -	- -	- -

The results of ANOVA (2 way) on symptom frequency are presented in Table 4.58. The results indicate that age and stress have a significant effect (0.01 level) on the frequency of pain symptoms experienced.

Table 4.59: Multiple Comparisons-Scheffe of the Score of Symptom Frequency in Relation to Age and Stress

Independent Variable			Mean difference	Std. Error	Sig.
Stress	1) High stress	2	1.31	0.19	0.000
		3	0.47	0.01	0.079
	2) Moderate stress	1	-1.31	0.19	0.000
		3	-0.84	0.23	0.002
	3) Low stress	1	-0.47	0.01	0.079
		2	0.84	0.23	0.002

Table 4.59 presents the results of multiple comparisons-Scheffe of the scores of symptom frequency in relation to stress. The results of multiple comparisons-Scheffe on symptom frequency in relation to age are given in Table 4.56. Women who are highly and moderately stressed seem to significantly differ from each other. A significant difference in symptom

frequency is also seen among women who are less and moderately stressed.

Table 4.60: Scheffe- Homogeneous Subsets

Independent Variable		N	Subsets	
			1	2
Stress	1) High stress	59		2.61
	2) Moderate stress	33	1.30	
	3) Low stress	28		2.14
	Sig.		1.00	0.089

The means obtained through subsets are presented in Table 4.60. The means for age is given in Table 4.57. The results reveal that the group which is highly stressed has the highest mean. This indicates that this group of women suffer from more frequent symptoms relating to pain.

Hypothesis 26 is accepted.

Table 4.61: Analysis of Variance (2 way) of the Scores of Symptom Frequency by Age and the 8 Coping Styles

Dep. Var.	Source	Sum of Squares	df	Mean Square	F	Sig.
Symptom Frequency	Age	25.93	2	12.97	14.41	0.000
	Minimization	0.34	2	0.17	0.19	0.827
	Age x Minimization	17.90	4	4.48	4.97	0.001
	Error	99.88	111	0.90	- -	- -
	Total	146.59	119	- -	- -	- -
	Age	32.84	2	16.42	19.65	0.000
	Suppression	2.81	2	1.40	1.68	0.191
	Age x Suppression	17.93	4	4.48	5.36	0.001
	Error	92.77	111	0.84	- -	- -
	Total	146.59	119	- -	- -	- -
	Age	14.08	2	7.04	7.90	0.001
	Seeking Succourance	3.47	2	1.74	1.95	0.147
	Age x Seeking Succourance	14.55	3	4.85	5.44	0.002

Table 4.61 contd…

	Error	99.84	112	0.89	- -	- -
	Total	146.59	119	- -	- -	- -
	Age	22.90	2	11.45	11.75	0.000
	Replacement	1.36	2	0.68	0.70	0.500
	Age x Replacement	6.10	4	1.52	1.56	0.189
	Error	108.15	111	0.97	- -	- -
	Total	146.59	119	- -	- -	- -
	Age	25.68	2	12.84	18.59	0.000
	Blame	17.79	2	8.90	12.88	0.000
	Age x Blame	23.18	4	5.80	8.39	0.000
	Error	76.68	111	0.69	- -	- -
	Total	146.59	119	- -	- -	- -
	Age	6.54	2	3.27	4.05	0.020
	Substitution	11.85	2	5.92	7.33	0.001
	Age x Substitution	17.17	4	4.29	5.31	0.001
	Error	89.73	111	0.81	- -	- -
	Total	146.59	119	- -	- -	- -
	Age	31.95	2	15.98	24.84	0.000
	Mapping	8.82	2	4.41	6.86	0.002
	Age x Mapping	26.32	4.	6.58	10.23	0.000
	Error	71.38	111	0.64	- -	- -
	Total	146.59	119	- -	- -	- -
	Age	26.28	2	13.14	17.27	0.000
	Reversal	0.22	2	0.11	0.15	0.863
	Age x Reversal	31.84	4	7.96	10.46	0.000
	Error	84.48	111	0.76	- -	- -
	Total	146.59	119	- -	- -	- -

Table 4.61 presents the results of ANOVA (2-way) on the scores of symptom frequency. It could be observed from the results that significant effect of coping styles of minimization, suppression, seeking succourance, replacement, blame, substitution, mapping and reversal is seen on frequency

of symptoms. Coping styles of blame, substitution and mapping are seen to have a significant effect on frequency of reported pain symptoms. Combined effects of age and coping styles minimization, suppression, seeking succourance, blame, substitution, mapping and reversal seem to have a significant effect on symptom frequency.

Table 4.62: Multiple Comparisons-Scheffe of Scores on Symptom Frequency in Relation to Age and Coping Styles

Dep. Var.	Independent Variable			Mean difference	Std. Error	Sig.
Symptom Frequency	Blame	1) More frequently used	2	-0.27	0.21	0.436
			3	-0.83	0.17	0.000
		2) Moderately used	1	0.27	0.21	0.436
			3	-0.56	0.21	0.028
		3) Less used	1	0.83	0.17	0.000
			2	0.56	0.21	0.028
	Substitution	1) More frequently used	2	0.88	0.24	0.002
			3	0.47	0.22	0.098
		2) Moderately used	1	-0.88	0.24	0.002
			3	-0.41	0.19	0.118
		3) Less used	1	-0.47	0.22	0.098
			2	0.41	0.19	0.118
	Mapping	1) More frequently used	2	-1.15	0.19	0.000
			3	0.26	0.17	0.304
		2) Moderately used	1	1.15	0.19	0.000
			3	1.41	0.20	0.000
		3) Less used	1	-0.26	0.17	0.304
			2	-1.41	0.20	0.000

The results of multiple comparisons-Scheffe of the scores on symptom frequency in relation to coping styles are given in Table 4.62. The results of multiple comparisons-Scheffe in relation to age is given in Table 4.56.

There is a significant difference among women who use coping styles substitution most and moderately on symptom frequency. Women who use the coping style mapping mostly and moderately as well as least and moderately are significantly different from each other on symptom frequency.

Table 4.63: Scheffe- Homogeneous Subsets

Independent Variable		N	Subsets	
			1	2
Blame	1) More frequently used	44	2.56	
	2) Moderately used	24	2.00	
	3) Less used	52		1.73
	Sig.		0.384	1.00
Substitution	1) More frequently used	24	1.75	
	2) Moderately used	32	2.16	2.16
	3) Less used	64	2.63	
	Sig.		0.182	1.05
Mapping	1) More frequently used	52	1.70	
	2) Moderately used	28	1.96	
	3) Less used	40		3.11
	Sig.		0.372	1.00

Table 4.63 presents the means obtained through the subsets. The means for age are given Table 4.57. The results indicate that women who use coping style blame the most report more frequency of symptoms related to pain. This suggests that women who suffer from frequent pain symptoms tend to blame the situation or system for the problem to combat daily hassles of life.

Women who use coping style of substitution less are seen to suffer more from frequent pain experiences. Those who use it more have lower means indicating that this groups of women engaged in tension reducing activities to keep away from stress.

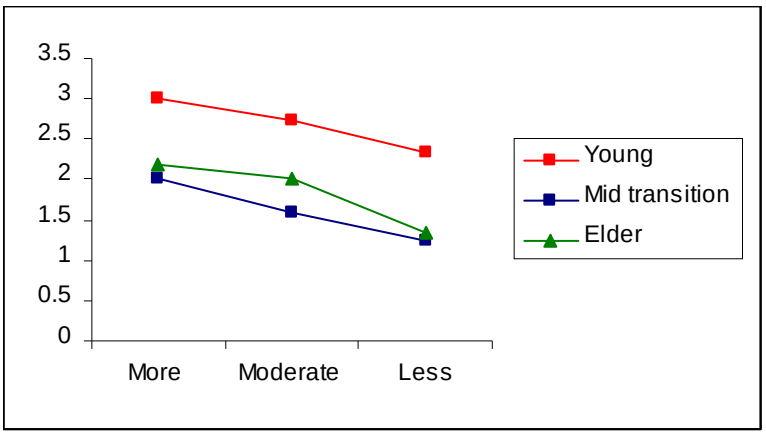
Higher mean for symptom frequency were seen for women who used coping style mapping less. Women who employed this coping style frequently to face stress were seen to report less frequent pain symptoms. Thus they usually cope with stress trying to collect more information about their problem or situation.

Table 4.64: 3 x 3 Mean Contingency Table for Symptom Frequency

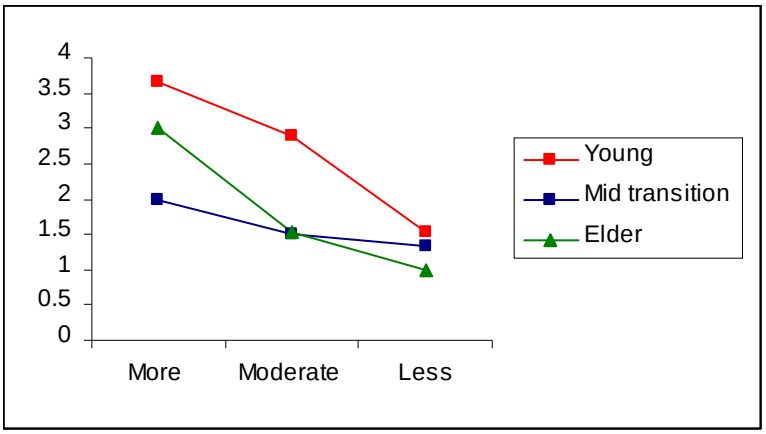
Coping Style	Age Group	More frequent use	Moderate use	Less use
Minimization	Young	3.00	2.74	2.33
	Mid transition	2.00	1.58	1.25
	Elder	2.19	2.00	1.33
Suppression	Young	3.65	2.90	1.52
	Mid transition	2.00	1.50	1.33
	Elder	3.00	1.52	1.00
Seeking Succourance	Young	2.43	2.60	3.00
	Mid transition	1.00	1.30	2.53
	Elder	1.00	2.00	2.53
Blame	Young	3.20	3.55	3.12
	Mid transition	3.10	1.85	1.00
	Elder	2.10	1.09	1.52
Substitution	Young	2.50	2.48	3.10
	Mid transition	1.17	1.50	2.17
	Elder	1.00	2.08	2.04
Mapping	Young	3.33	3.16	1.59
	Mid transition	1.00	1.79	2.05
	Elder	1.20	2.00	2.23
Reversal	Young	4.00	2.08	2.00
	Mid transition	2.33	1.28	1.25
	Elder	2.70	2.00	1.00

Figure 4.11: Graph Showing Scores for Symptom Frequency

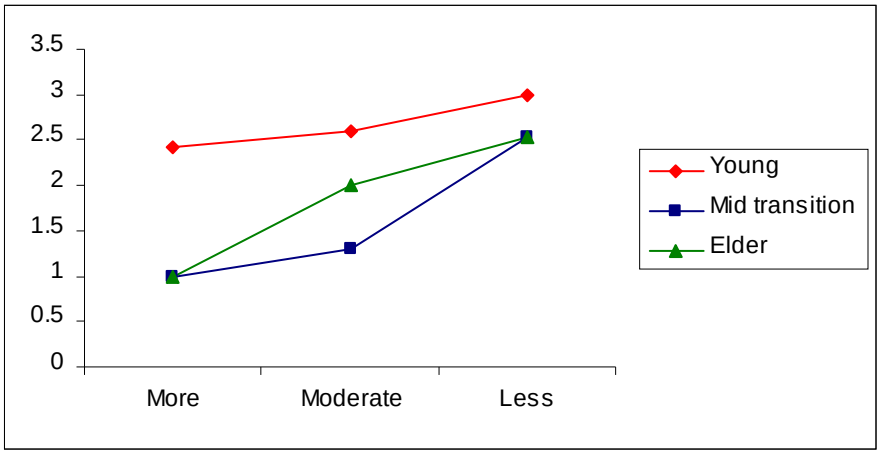
(i) Minimization



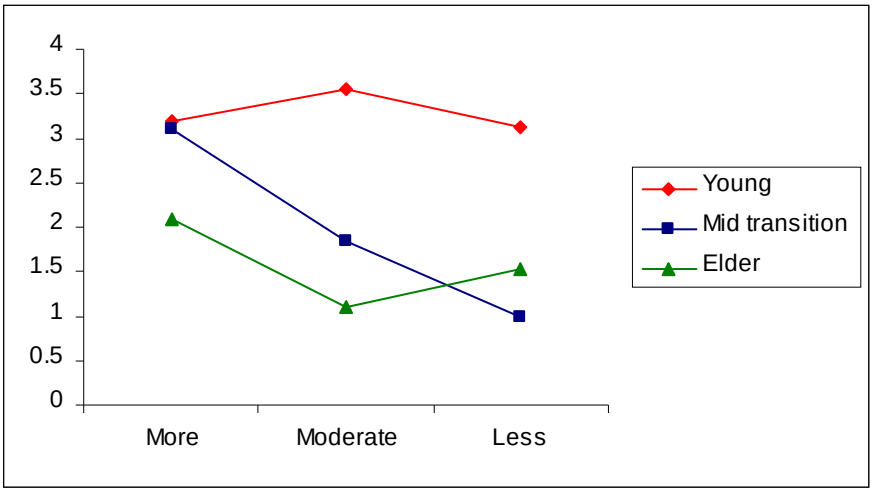
(ii) Suppression



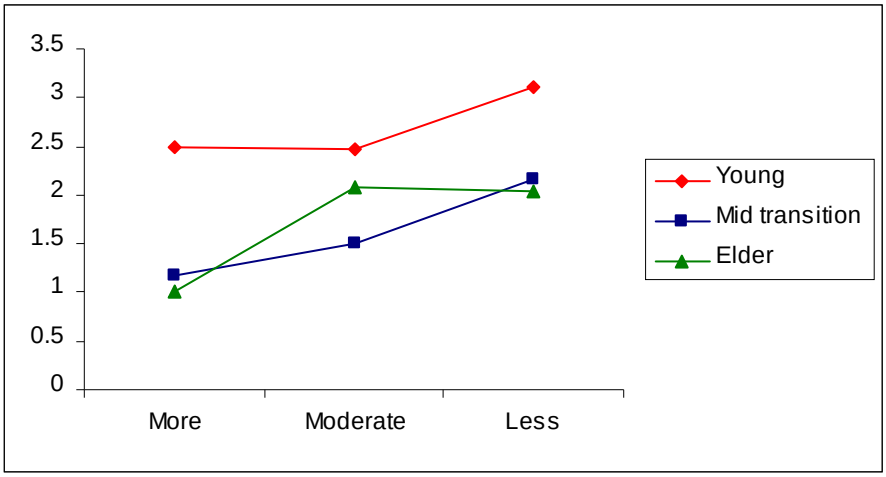
(iii) Seeking Succourance



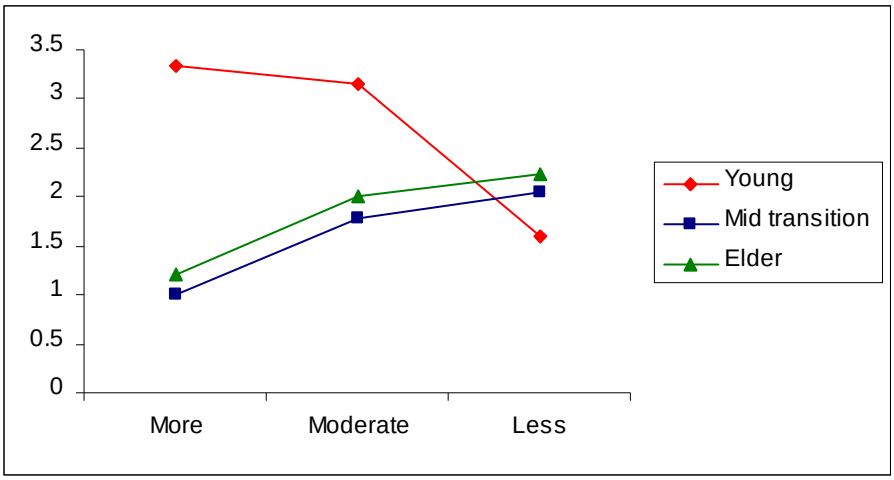
(iv) Blame



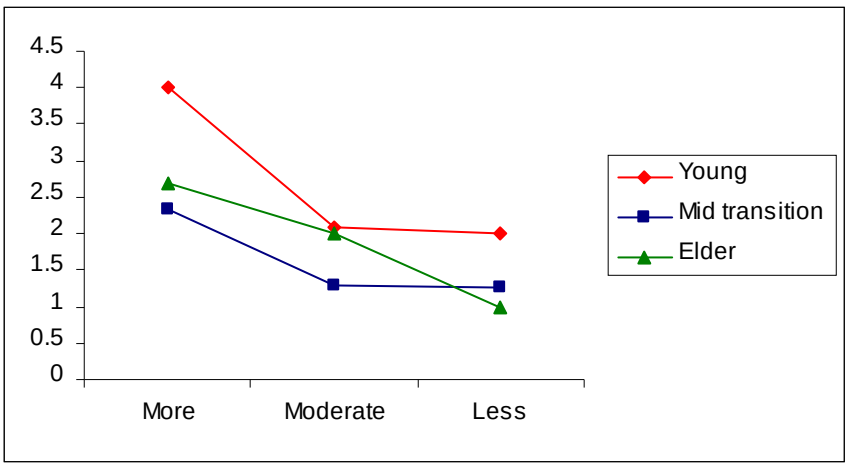
(v) Substitution



(vi) Mapping



(vii) Reversal



The results (Table 4.64) show that different subgroups of women are more or less similar with respect to symptoms of pain experienced. The young women however are found to use reversal more than any other coping style and are found as having more intense symptoms of pain. Again among them those who use suppression also seem to experience comparably more intense symptoms.

Hypothesis 27 is accepted.

The results presented above demonstrate the effects of social support on disability caused by pain disorder, intensity of the symptoms and frequency of occurrence of the symptoms.

Stress also seems to effect the level of disability due to pain disorder, intensity and frequency of pain symptoms.

An examination of the results of coping styles in relation to disability by pain disorder, pain symptom intensity and frequency of occurrence of the symptoms suggest a controversial trend. The findings show that the coping styles of blame and suppression are commonly used by women who are more

disabled by pain. Blaming others for their problems and avoiding problems are found to augment their bodily discomfort. At the same time they also are found to use replacement and reversal to deal with their problems. Hearing about the situation and looking for alternate ways to solve the problems and bringing to make best out of the situation are likely to decrease discomfort and pain symptoms. Unfortunately this is not evident in the case of the present sample. Help-seeking activities are not more frequent in pain disorder patients.

The results thus reveal that women with pain disorders fail to use coping strategies effectively to deal with the stresses and strains of day to day life and that they use ineffective and negative coping methods more frequently. This may be a potential reason for the long sustained bodily pain and discomfort reported by women with pain disorder.

IV

Relationship of a few selected socio demographic factors to disability caused by pain disorder, symptom intensity and symptom frequency are also examined in the present study. The variables selected include educational status, marital status, employment, family income, family type and birth order of women with pain disorder. For the purpose of analysis the data collected from 120 women were subjected to t-test for independent samples. The results are presented and discussed in the following pages.

Table 4.65: Break-up of the Sample

Variable	Group	Description	N
Education	1	Highly educated	20

	2	Moderately educated	24
	3	Less educated	44
	4	Barely Literate	32
Marital Status	1	Married	56
	2	Unmarried	64
Employment	1	Students	52
	2	Employed	28
	3	Unemployed	40
Family Income	1	Low family income	12
	2	Moderate family income	32
	3	High family income	76
Family type	1	Nuclear	44
	2	Joint	76
Birth order	1	First born	44
	2	Second born	44
	3	Last born	32

Table 4.66: Mean, SDs and t-values on Pain Disorder Symptom Intensity and Symptom Frequency of High Educated, Moderately Educated, Less Educated Women and Barely Literate Women

Groups	Pain	N	Mean	SD	Groups Compared	t-value
1) Highly Educated	Pain Disorder	20	4.35	1.84	1 & 2	0.038
2) Moderately Educated		24	4.33	0.96	2 & 3	0.718
					2& 4	1.004
3) Less educated		44	4.09	1.49	3 & 1	0.598
					3 & 4	0.474
4) Barely literate		32	3.91	1.91	4 & 1	0.827
1) Highly Educated	Symptom Intensity	20	2.60	1.05	1 & 2	4.641**
2) Moderately Educated		24	1.33	0.76	2 & 3	3.350**
					2& 4	3.119**
3) Less educated		44	1.95	0.71	3 & 1	2.884**
					3 & 4	0.963
4) Barely literate		32	2.16	1.11	4 & 1	1.433
1) Highly Educated	Symptom Frequency	20	1.75	1.16	1 & 2	4.606**
2) Moderately Educated		24	3.00	0.59	2 & 3	3.425**
					2& 4	5.518**
3) Less educated		44	2.14	1.15	3 & 1	1.239
					3 & 4	1.532
4) Barely literate		32	1.75	0.98	4 & 1	0.000

**significant at 0.01 level

The Table 4.66 presents the means, SDs and t-values on pain disorder, symptom intensity and symptom frequency of high educated, moderately educated, less educated and barely literate women. The results indicate that there is no significant difference seen among the four groups of women in the case of pain disorder. Women with high and moderate education are seen to

differ significantly from each other on symptom intensity. There is a significant difference noted among high-educated and moderate-educated as well as high-educated and less-educated women in relation to symptom intensity. Less educated and barely literate women also seemed to differ significantly on pain disorder. The highest and lowest means were noted for less educated women and moderately educated women respectively.

Moderate-educated women seemed to significantly differ from highly educated, less educated as well as barely literate women. High educated women seemed to report the highest frequency of pain.

The results are similar to those reported by Shields (2004).

Hypothesis 28 is partially accepted.

Table 4.67: Means, SDs and t-values on Pain Disorder, Symptom Intensity and Symptom Frequency of Married and Unmarried Women

Groups	Pain	N	Mean	SD	Groups Compared	t-value
1) Married	Pain disorder	56	4.43	1.60	1 & 2	1.934
2) Unmarried		64	3.88	1.50		
1) Married	Symptom Intensity	56	1.80	1.01	1 & 2	2.003*
2) Unmarried		64	2.16	0.91		
1) Married	Symptom Frequency	56	2.63	0.98	1 & 2	4.870**
2) Unmarried		64	1.72	1.05		

**significant at 0.01 level
* significant at 0.05 level

The results of the t test done on pain disorder, symptom intensity and symptom frequency of married and single women who were diagnosed with pain disorder is given in Table 4.67. The results indicate a 0.05 level of

significant difference between the married and single women. The mean for the single women are high indicating a higher chanced for them to suffer from more intense symptoms of pain. Also there is a 0.01 level of significant difference seen between-these 2 groups on symptom frequency. The mean for the single group is seen to be higher again indicating this group as suffering more from frequent pain symptoms.

Hypothesis 29 is partially accepted.

The results are similar to those reported by Shields (2004) and against those reported by Hough (1999).

Table 4.68: Means, SDs and t-values on Pain Disorder, Symptom Intensity and Symptom Frequency of Students, Employed and Unemployed Groups of Women

Groups	Pain	N	Mean	SD	Groups Compared	t-value
1) Students	Pain disorder	52	4.02	1.73	1 & 2	0.397
2) Employed		28	3.86	1.76	1 & 3	1.429
3) Unemployed		40	4.48	1.18	2 & 3	1.738
1) Students	Symptom Intensity	52	2.13	0.99	1 & 2	0.181
2) Employed		28	2.18	1.12	1 & 3	2.429*
3) Unemployed		40	1.68	0.76	2 & 3	2.201*
1) Students	Symptom frequency	52	1.88	1.10	1 & 2	0.821
2) Employed		28	1.68	1.02	1 & 3	4.312**
3) Unemployed		40	2.80	0.88	2 & 3	4.834**

**significant at 0.01 level
* significant at 0.05 level

Table 4.68 presents the results of the t-tests on pain disorder, symptom intensity and symptom frequency students, employed and unemployed groups of women. There is a significant difference observed between unemployed women and students as well as employed women in both

intensity and frequency of symptoms. The employed women have reported highest mean whereas the lowest mean was seen in unemployed women.

Hypothesis 30 is partially accepted.

Table 4.69: Means, SDs and t-values on Pain Disorder, Symptom Intensity and Symptom Frequency of Women with Low, Average and High Family Income

Groups	Pain	N	Mean	SD	Groups Compared	t-value
1) Low family income	Pain disorder	12	3.33	0.49	1 & 2	1.207
2) Average family income		32	3.97	1.79	1 & 3	2.171*
3) High family income		76	4.33	1.57	2 & 3	1.045
1) Low family income	Symptom Intensity	12	1.67	0.99	1 & 2	0.563
2) Average family income		32	1.88	1.13	1 & 3	1.507
3) High family income		76	2.09	0.90	2 & 3	1.061
1) Low family income	Symptom frequency	12	1.67	6.49	1 & 2	1.337
2) Average family income		32	2.09	1.06	1 & 3	1.635
3) High family income		76	2.24	1.19	2 & 3	0.590

* significant at 0.05 level

Table 4.69 presents the results of t-test on pain disorder, symptom intensity and symptom frequency of women with low, average and high family income. There is a 0.05 level of significant difference seen between the low and high family income group with respect to pain disorder. The mean for the high family income group is seen to be high indicating higher number of reports of pain in this group. The results are similar to those reported by Hughes, Taylor, Robinson-Whelen and Nosek (2005) and Baum, Garofalo and Yali, (1999).

Hypothesis 31 is partially accepted.

Table 4.70: Means, SDs and t-values on Pain disorder, Symptom Intensity and Symptom frequency of women from nuclear and joint-families

Groups	Pain	N	Mean	SD	Groups Compared	t-value
1) Nuclear family	Pain disorder	44	4.70	1.71	1 & 2	3.118**
2) Joint family		76	3.80	1.41		
1) Nuclear family	Symptom Intensity	44	2.16	1.12	1 & 2	1.439
2) Joint family		76	1.89	0.87		
1) Nuclear family	Symptom Frequency	44	2.55	1.09	1 & 2	3.143**
2) Joint family		76	1.91	1.06		

**significant at 0.01 level

The results of t-test on pain disorder, symptom intensity and symptom frequency of women from nuclear and joint families are given in Table 4.70. The results indicate a significant difference between the group of women from joint and nuclear families on pain disorder at 0.05 level and on symptom frequency at 0.01 level. in both cases the mean is higher for the group of women hailing from nuclear families indicating that this group of women suffer more from pain disorder and more frequent symptoms of pain.

Hypothesis 32 is partially accepted.

Table 4.71: Means, SDs and t-values on Pain Disorder, Symptom Intensity and Symptom frequency on Birth Order of Women

Groups	Pain	N	Mean	SD	Groups Compared	t-value
1) First born	Pain disorder	44	4.48	2.02	1 & 2	2.395*
2) Second born		44	3.64	1.16	1 & 3	0.332
3) Last born		32	4.34	1.23	2 & 3	2.551*

1) First born	Symptom Intensity	44	2.05	1.10	1 & 2	0.634
2) Second born		44	1.91	0.91	1 & 3	0.060
3) Last born		32	2.03	0.90	2 & 3	0.581
1) First born	Symptom frequency	44	2.43	1.17	1 & 2	3.203**
2) Second born		44	1.73	0.87	1 & 3	0.438
3) Last born		32	2.31	1.18	2 & 3	2.492*

**significant at 0.01 level
* significant at 0.05 level

Table 4.71 presents the results of t test on pain disorder, symptom intensity and symptom frequency on birth order of women who were grouped as first born, second born and last born. The results indicate a significant (0.05 level) of difference between the first born and second born as well as second born and last born on pain disorder and symptom frequency. The results indicate higher means for the first born on both pain disorder and symptom frequency indicating a higher number of reports of pain disorder and frequent symptom experiences.

The mean for the last born are higher when compared to the second born, indicating a higher incidence of pain disorder and frequency of pain symptoms in this group.

Hypothesis 33 is partially accepted.

PART B

EFFICACY OF INTERVENTION:

To examine the efficacy of intervention package designed for the present study the data collected from the experimental and control groups of women with pain disorder at pre-intervention, post-intervention and follow-up sessions were analyzed using t-test. The groups of 15 experimental

subjects and 15 control subjects were compared on stress, pain intensity and pain frequency.

The results are presented in the following pages:

Table 4.72: Means & SDs of the Scores on Stress at Pre, Post and Follow-up Sessions by Experiment and Control Groups of Women with Pain Disorder

Experimental Group				**Control Group**		
Sessions	N	Mean	SD	N	Mean	SD
Pre	15	62.47	15.65	15	61.33	14.59
Post	15	28.47	8.14	15	59.73	13.79
Follow-up	15	21.67	7.66	15	57.87	13.57

Table 4.73: t-values of the Scores of Experimental and Control Groups of Women with Pain Disorder at Pre, Post and Follow-up Sessions

Groups Compared	Sessions Compared	t-value	Level of Significance
E & C	Pre-Pre	0.21	NS
E & C	Pre-Post	7.56	0.01
E & C	Follow up – Follow up	8.99	0.01
E & E	Pre-Post	7.46	0.01
E & E	Pre-Follow up	9.07	0.01
E & E	Post-Follow up	2.36	0.05
C & C	Pre-Post	0.31	NS
C & C	Pre-Follow up	0.67	NS
C & C	Post-Follow up	0.37	NS

Table 4.71 and 4.72 display the means, SDs and t-values of the stress scores of the experimental and control groups of women with pain disorder at pre, post and follow up sessions of intervention. The results indicate no significant difference in the mean base line scores of the two groups.

Comparison of the post intervention scores of the experimental and control groups show significant differences in stress and the control group shows higher stress scores when compared to the experimental group. A similar trend is seen in the follow-up scores of the two groups, the experimental group exhibiting lower scores on stress.

When the experimental group is considered independently, it is found that significant differences exist between pre and post intervention as well as pre and follow-up scores. But no significant difference is evident in the mean

stress scores of the experimental group between post and follow up sessions.

Independent assessment of control group shows no difference in scores between pre & post, post and follow-up as well as pre and follow up sessions.

The results of the experimental group indicate the effectiveness of intervention in reducing stress in women with pain disorder.

Hypothesis 34 is accepted.

The results are in line with those reported by Deckro, Domar and Deckro (1993), Jarvikoski and colleagues (1991), Hughes, Robinson-Whelen, Taylor and Hall (2006) and Furze, Lewin, Murberg, Bull and Thompson (2005). These authors suggest that relaxation is helpful in reducing stress and that stress and psychological interventions are negatively correlated. They also emphasise the need to correct wrong notions and beliefs about the patient's diseased or disabled state.

Table 4.74: Means & SDs of the Scores on Pain Disorder at Pre, Post and Follow-up Sessions by Experimental and Control Groups of Women with Pain Disorder

Experimental Group				Control Group		
Session	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**
Pre	15	6.27	1.16	15	5.93	1.33
Post	15	3.13	1.13	15	6.07	1.16
Follow-up	15	2.67	0.82	15	6.27	1.22

Table 4.75: Pain Disorder Scores of Experimental and Control Groups of Women with Pain Disorder at Pre, Post and Follow-up Sessions

Groups Compared	Sessions Compared	t-value	Level of Significance
E & C	Pre-Pre	0.73	NS
E & C	Post-Post	-7.0	0.01
E & C	Follow up – Follow up	-9.48	0.01
E & E	Pre-Post	7.49	0.01
E & E	Pre-Follow up	9.81	0.01
E & E	Post-Follow up	1.30	NS
C & C	Pre-Post	-0.29	NS
C & C	Pre-Follow up	-0.71	NS
C & C	Post-Follow up	-0.46	NS

Table 4.74 and 4.75 present the means, SDs and t-values of the scores on pain disorder of the experimental and control groups of women at pre, post and follow-up sessions of intervention. The results indicate no significant difference in the mean baseline course of the two groups. Comparison of the post intervention scores of the experimental and control groups show significant difference in the pain disorder scores. The experimental group shows a significant reduction in pain and disability caused by the disorder than the control group. A similar trend of significance at 0.01 level is seen with the follow up scores of the experimental and control groups with low scores for the experimental group with respect to pain disorder.

When the experimental group is taken independently the results reveal significant differences between the pre-post as well as between pre-follow up intervention scores. There is no difference noticed among the mean scores of pain disorder between the post and follow-up sessions. When the control

group is considered independently, there is no difference noted among the pre, post and follow up scores.

The results demonstrate that the intervention package is effective to reduce pain and hence disability caused by pain disorder.

Table 4.76: Means & SDs of the Scores on Pain Intensity at Pre, Post and Follow-up Sessions by Experimental and Control Groups of Women with Pain Disorder

Experimental Group				Control Group		
Session	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**
Pre	15	2.87	0.92	15	2.6	0.91
Post	15	1.73	0.80	15	3.13	1.12
Follow-up	15	1.53	0.64	15	3.27	0.80

Table 4.77: Pain Intensity Scores of Experimental and Control Groups of Women with Pain Disorder at Pre, Post and Follow-up Sessions

Groups Compared	Sessions Compared	t-value	Level of Significance
E & C	Pre-Pre	0.80	NS
E & C	Post-Post	3.93	0.01
E & C	Follow up – Follow up	6.56	0.01
E & E	Pre-Post	3.61	0.01
E & E	Pre-Follow up	4.62	0.01
E & E	Post-Follow up	0.76	NS
C & C	Pre-Post	1.43	NS
C & C	Pre-Follow up	2.13	0.05
C & C	Post-Follow up	0.37	NS

Pain intensity is found to decrease as a result of intervention given to the sample of women with pain disorder (Table 4.76 and 4.77). When the experimental and control groups are compared no significant difference is noticed between baseline scores. But significant differences are seen in post-post as well as follow up-follow up scores of pain intensity.

The assessment of the experimental group reveals a significant difference between pre and post as well as between pre and follow up scores of pain intensity. However no significant difference is reported between post and follow up scores. This shows that there is no significant reduction in pain intensity after the termination of the intervention. But there is lower mean recorded at the follow up sessions when compared to the post intervention, scores suggesting that the subjects could maintain healthy status even at

follow up period. This indicates the efficacy of the interventions used.

On the whole the results reveal the impact of the intervention in reducing the intensity of symptoms in pain disorder. From the results it is evident that psychological intervention brings about significant changes in the suffering of women with pain disorder. As the results show no significant difference in the post follow up sessions, there is a need for the intervention to be carried on for a longer duration in order to sustain the pre-post difference.

Table 4.78: Means & SDs of the Scores in Pain Frequency at Pre, Post and Follow-up Sessions by Experimental and Control Groups of Women with Pain Disorder

Experimental Group				Control Group		
Session	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**
Pre	15	3.40	0.83	15	3.33	0.9
Post	15	1.40	0.63	15	2.93	1.33
Follow-up	15	1.20	0.41	15	3.00	1.00

Table 4.79: Pain Frequency Scores of Experimental and Control Groups of Women with Pain Disorder at Pre, Post and Follow-up Sessions

Groups Compared	Sessions Compared	t-value	Level of Significance
E & C	Pre-Pre	0.21	NS
E & C	Post-Post	4.02	0.01
E & C	Follow up – Follow up	6.44	0.01
E & E	Pre-Post	7.43	0.01
E & E	Pre-Follow up	9.20	0.01
E & E	Post-Follow up	1.03	NS
C & C	Pre-Post	0.96	NS
C & C	Pre-Follow up	0.96	NS
C & C	Post-Follow up	0.16	NS

The results of analysis of the scores in pain frequency of women with pain disorder in the experimental and control groups at pre, post and follow up sessions of intervention are given in Table 4. 78 and 4.79. Base line scores do not appear to differ in the case of experimental and control groups. But these two groups differ from each other on post intervention as well as follow up pain frequency scores.

In the case of experimental group, pre-post intervention and pre-intervention-follow up differences in mean pain frequency scores are significant at 0.01 level. There is no significant difference seen between the post intervention and follow up sessions. This clearly indicates the need for extending the duration of the intervention. However the means indicate a slight decrease in the frequency of pain symptoms of the subjects.

On the whole, the results show that psychological intervention is

effective in reducing disability caused by pain disorder, intensity of pain symptoms as well as frequency of pain symptoms.

Hypothesis 35 is accepted.

The results are supported by Arnette (1996); Glombiewski, Tersek and Rief (2008); Kaapa, Frantsi, Sarna and Malmivaara (2006); Yip (2004); Gura (2002); Turner and Jenson (1993) and Theime, Flor and Turk (2006). Their results show that psychological interventions help to reduce psychosomatic symptoms and discomforts caused by them.

The results of the present study may be summarized as follows:

The correlational analysis of pain disorder, symptom intensity and symptom frequency to social support, stress and the eight coping style proves beyond doubt that social support is negatively correlated to pain experience and disability, caused by pain. Women with pain disorder who are well socially supported have reduction in the disability caused by pain, intensity as well as frequency of symptoms. This may be because they get help through the society to deal with their emotionally-charged and challenging situations which reduces the pain they suffer from. The results are similar to those reported by Raichle, Hanley, Jensen and Cardenas (2007).

Stress on the other hand is positively correlated to pain. Women who are highly stressed are also more prone to be more disabled by pain. Stress increases the susceptibility to sensitivity to pain as suggested by Linton (2000); Lampe, Soellner Kriesmer, Rumpold, Kantmer- Rumplmair, Ogon and Rathner (2001); Crauford, Creed and Jayson (1990); Creed, Craig and Farmer (2001) and Cheryl, Hermanson, Diamond, Angell and Spiegel,

(1998). Pain disability is seen to be positively correlated to coping style of blame and negatively to coping style of substitution. Coping styles of substitution and reversal are negatively correlated to intensity of symptoms, whereas, coping styles of replacement is positively correlated to intensity. Coping style of blame is seen to be positively correlated to symptom frequency.

When the ANOVA (2-way) and a reverse analysis was performed on the scores it is seen that age had significant effect on social support, stress, coping styles of replacement, substitution, mapping, reversal, pain disorder, symptom intensity and symptom frequency.

Pain disorder is noted to have an effect on social support, stress and coping styles of replacement, substitution, mapping and reversal. Symptom intensity has an effect on stress and coping styles of minimization, seeking succourance, substitution, mapping and reversal. Pain frequency has an effect on social support, stress and coping styles of blame, substitution, mapping and reversal. In the reverse analysis, social support is seen to have an effect on pain disorder and symptom frequency. Stress has an effect on pain disorder, symptom intensity and symptom frequency. Coping styles, blame, substitution, mapping and reversal have an effect on pain disorder, symptom intensity and symptom frequency. Disability caused by pain and symptom intensity are affected by coping styles of minimization and replacement.

Coping styles affect a person’s perception of psychological stress as suggested by Lueboonthavatchai (2007) and Strickland, Giger, Nelson and Davis (2007). The psychological stress, when perceived as positive or negative, influences the individual’s perception of pain intensity or frequency

and thus has an effect on the disability of pain. There are various coping styles and many studies have reported that, coping styles influence an individual's perception and reaction to stress (Mitchell , Hargrove , Collins , Thompson , Reddick and Kaslow, 2006; Byrant, Marosszeky, Crooks, Baguley and Gurka, 2005; Curtis, Groarke, Coughlan and Gsel's, 2004 and Myaskovsky, Dew, Switzer, Hall, Kormos, Goycoolea, DiMartini , Manzetti and McCurry, 2003).

The results of 't' tests done on demographic variables show that groups of women, with pain disorder, who are highly educated, married, employed, first born, hailing from average income and nuclear families reported more disability. Groups of women who were barely literate, employed, first born, hailing from average income and nuclear families reported more intense symptoms, where as, groups of women who were unmarried, highly educated, first born, hailing from average income and nuclear families report more frequent symptoms of pain. It may be reasoned that these groups of women are entrusted with more duties and responsibilities when compared to their respective counterparts. They may be looked upon with high expectations by significant people in their life and may face higher financial competitions. The first borns, being succeeded by other siblings may feel more responsible and may suffer from consequent competitions, stresses, strains and conflicts. Barely literate women who are seen to suffer more from intense symptoms may regret being uneducated thus not being able to support their families financially or children academically. Thus, though inclusive, the findings demonstrate the causative role of the selected demographic factors in developing and maintaining pain disorder

among women.

The results of the ‘t’ tests done on the pre, post and follow-up scores of stress, disability due to pain, symptom intensity and symptom frequency reveal that psychological intervention comprising of counselling, relaxation and pain imagery was effective in reducing the stress and the disability caused due to pain experienced by women with pain disorder. A significant reduction in stress, disability due to pain, symptom intensity and symptom frequency was seen in the pre and post scores. The tendency to maintain a lowered stress and pain symptom condition was evident in the post and follow-up sessions.

CHAPTER V

[redacted]

SUMMARY AND CONCLUSIONS

Psychological factors like stress, depression, fatigue, frustration trigger many health related problems and many of these problems may trigger or maintain pain. While pain is not always bad it is mostly accompanied with unpleasant experiences and sensations. There are many theorists who have tried to explain physiological pain sensations and the latest understanding is that pain is not only related to tissue damage and physical illness, but also to mental phenomena including depression, anxiety and somatisation (Smith, 2001).

Somatoform Disorders

Somatoform disorders encompass several mental disorders in which people report physical symptoms or concerns that suggest but are not explained by physical disorders or report as perceived defect in appearance. These disorders encompass mind-body interaction in which the brain, in ways not well understood, sends various signals that impinge on the patient's awareness indicating a curious problem in the body.

The text revision of the IVth edition of DSM-IV-TR recognizes 5 specific somatofrom disorders namely, somatization disorder, conversion disorder, hypochondriasis, body dismorphic disorder and pain disorder.

Pain disorder is characterized by symptoms of pain that are either solely related to or significantly exacerbated by psychological factors and not some organic reason. The production of these symptoms is not under voluntary control. The primary symptom is pain in one or more sites that is

not fully accounted for by a non psychiatric, medical or neurological condition. This disorder is diagnosed twice in women than in men and the peak ages of onset are in the fourth and fifth decades. Patients lack insight and respond less well to analgesics. The common sites for pain are head, neck, chest, lower back, abdomen and genitals.

There are a wide range of treatments offered for pain relief like conventional treatments, complementary therapy and psychological interventions. Conventional treatments include hot and cold compresses, bed rest, exercise and/ or medications. Complementary therapy compresses acupuncture, massage, meditation, etc. Cognitive and behavioural therapies are the psychological interventions usually used in combating pain. Cognitive strategies include biofeedback, relaxation and imagery, behavioural therapy includes relaxation. These therapies are seen to improve the condition among populations with psychological factors like anxiety, stress, fear etc. present along with the pain symptoms.

The present study tries to study the relation of social support, stress and coping styles in women with pain disorder. It also tries to study the efficacy of a psychological intervention aimed at reducing the discomfort experienced by these women.

OBJECTIVES OF THE STUDY

The objectives of the present study are to

1. examine the relationship of pain disorder, symptom intensity and frequency to social stress and coping styles.
2. examine the effect of age, socials support, stress and coping styles on pain disorder symptom intensity and frequency.
3. study the effect of pain disorder, symptom intensity and frequency on social support, stress and coping styles (reverse analysis).
4. see whether or not young, mid transition and elder groups of women differ among themselves in severity of pain disorder, symptom intensity , symptom frequency, social support, stress and coping styles and
5. study the effect of socio-demographic variables namely educational qualification, marital status, employment, family income, family type and birth order.

DESIGN

This research used a quantitative descriptive design in order to examine the relationship of pain symptom intensity and frequency as well as severity of disability caused by pain disorder to social support, stress and coping styles.

A pre-post experimental-control design was used for the intervention purpose.

METHOD

Sample

The sample of the study was collected from two women's hostels in Kannur district. The sample also included women who sought counselling from the researcher. From among the 123 subjects who participated in the study 3 subjects dropped out during the course of training. Thus the final sample consisted of 123 women with pain disorder.

Age of the subjects ranged from 21-52 years. All the subjects belonged to middle socio-economic status and urban background. Educational status varied from barely literate to highly educated category. There were women from different religious group.

Descriptions of the Tools

1) AECOM Coping Scale

The AECOM (Albert Einstein College of Medicine) Coping Scale for the measurement of coping styles is a questionnaire based on the psycho-evolutionary theory of emotion developed by Plutchik in 1980, which postulates systematic connection between 8 basic emotions and 8 coping styles. This consists of 87 items each rated by the subject on a 4-point scale ranging from 'never' to 'often' weighted 0-3. It is based on the expressed opinion that the way each individual copes with successful life events is relatively independent on his or her emotional or psychopathological state and is characteristic of him or her. This model assumes that there are 8 basic coping styles that may be used by an individual in his or her attempt to reduce stress or cope with life problems.

Administration and Scoring

The subjects were told to fill the questionnaire that would be distributed and they were also told that there would be no time restriction but they would have to finish it as soon as they can. The questionnaires were distributed and once completed were taken back. The scoring was done as per given in the manual.

2) The S.S. Inventory (Shibu and Dharmangadan, 1993)

At moments of comfort and convenience stress may not be a problem. But when confronted with challenge and controversy, the way in which people react (physically, emotionally and spiritually) is an index of their success in dealing with stress. Stress is a part of everyday life, and human body's responses to stressful stimuli seem to play a key role in mankind's survival. So it is quite difficult to measure the level of stress in individuals.

Administration and Scoring

The questionnaire was distributed and after the completion they were collected back. The scoring was done as given in the manual.

3) Social Support Scale (Asha, 1998)

Social support scale is used to measure perceived social support. It assesses seven relational provisions, namely, attachment, social integration, reassurance, reliable alliance, guidance and opportunity for nurturance as identified by Weiss (1974) and provision for psychological safety.

Administration and Scoring

The SS scale can be administered individually or in group. The measure asks the subject to rate the degree to which they perceive their social

relationships are currently supplying each of the provisions. Each provision is assessed by four items, two that describe the presence and two that describe the absence of the provisions. The subjects are to indicate on a four point scale, ranging from 'completely true' to 'not at all true', the extent to which each statement describes their current relationships.

For the scoring purposes the negative items are reversed and summed together with the positive items to form a score for each social provision. Total social support perception score is derived by summing the seven individual provision score.

4) Pain Symptom Rating Scale

The pain symptom rating scale was developed by the researcher for the study. The scale consisted of 5 items namely, menstruation, back, neck, joint and general body pain. Each item was rated for intensity and frequency of symptoms. The intensity varied from unbearable to negligible and the frequency varied form often to never.

Administration and scoring

The subjects were given the scale containing five areas of pain. They were asked to put a [✓] mark against the age of pain they suffered from. Then the subjects were asked to mark the columns that rated their pain experience in terms of intensity and frequency.

The scoring was done by providing a score with in the range 5 to 1 for intensity (unbearable to negligible) and the same for frequency (often to never). The sum of the scores of intensity and frequency was taken to assess severity of pain disorder. There were 5 such types of pain that were assessed viz. neck pain, back pain, abdomen pain, joint pain and general body pain.

OBJECTIVE OF THE INTERVENTION

The objective of this part of the research was to test the efficacy of the psychological intervention designed for women with pain disorder.

Intervention Package

The components of intervention package used with the experimental group are:

1) General counselling
2) Relaxation and
3) Pain imagery.

The strategies and their procedures are given below.

1) General counselling

General counselling is a major component of all self-help programmes (Erdman and Lampe, 1996). There is good evidence that the more the people understand about their illness and treatment the better they adhere to treatment plans.

Counselling was provided to make the clients aware of their problem, to have knowledge about symptoms, to change their attitude towards illness, to think positively, to help them believe that they could control their problems and engage in normal activities.

The general counselling was done with an objective to help the subjects to enhance problem solving habits, to improve self esteem and to learn how to manage stress as well as pain.

2) Relaxation

Relaxation is done in order to train the subject to relax her body muscle groups which eventually leads to the relaxation of the mind and this will help her to overcome the ill effects of stress. The relaxation of muscles are done step by step and the muscle groups generally focused upon are: toes and feet, lower leg, upper leg, hip, abdomen, lower back, chest, upper back, fingers and hands, wrist and lower arm, upper arm or biceps, shoulders, front and back of neck, jaws, lips, cheeks, eyes, eye brows and fore head and scalp.

3) Pain imagery

Imagery is the use of one's imagination to relieve pain. It is best used with other therapeutic techniques such as relaxation or distraction or it can be used independently for pain control or pain modification. This can also be used to change the intensity or nature of pain for e.g. from burning pain to coolness in the painful area. Catalano and Hardin (1996) outline a four-step procedure for effective pain relief using imagery which was used for this study.

ANALYSES OF THE DATA

The statistical techniques used for this study include, Correlation analysis, Two-way ANOVA, Multiple comparisons (Scheffe) and t-tests.

MAJOR FINDINGS

Part A (I)

1. There are high negative correlations between social support and disability caused by pain disorder, pain symptom intensity as well as pain symptom frequency.
2. Less socially supported women are more disabled by pain have more

intense and frequent symptoms of pain.

3. There is high positive correlation between stress and disability caused by pain disorder, symptom intensity and symptom frequency. Highly stressed women are found as more disabled by pain disorder, having more intense and frequent symptoms of pain.
4. Among the coping styles replacement is found as positively related to symptom intensity. Blame is seen related positively to disability caused by pain as well as symptom frequency. The coping style substitution seems to have positive relationship with disability and symptom intensity where as reversal appears as positively related to symptom intensity.

Women who are disabled by pain disorder are found to use blame, substitution and reversal more. A similar trend is seen in the case of women who report intense symptoms of pain. However, those with frequent symptoms are found as using blame less and substitution more than any other coping style.

Part A (II)

4. Young women are found as better socially supported than mid transition and elder adult women. Again elder adults who are less disabled by pain disorder are found to receive more social support than the moderately disabled and more disabled elders and also than the subgroups of mid transition and younger adult women.

Women who are severely disabled by pain are less socially supported. Where as those who are less disabled are better socially

supported.

5. Among the young, mid transition and elder groups of women mid transition group seems as more stressed than their counterparts.

   Women who are severely disabled by pain disorder are found as more stressed than moderately and less disabled women.

6. The mid transition and elder adult women are found to use coping styles of substitution as well as replacement and mapping more respectively. However, the young adults are seen as using the coping style of mapping more frequently than the other coping strategies.

7. Groups of women who report high, moderate and less intense pain symptoms are homogenous with respect to social support received.

8. Women with more intense pain symptoms are found as more stressed than those with moderately and less intense pain symptoms.

9. Women who report highly intense symptoms are found to employ seeking succourance more frequently followed by minimization, suppression and reversal in order of frequency of the use of each mechanism.

   Seeking succourance is seen as the most predominant style of coping used by the different age groups of women, namely the young, mid-transition and elder groups.

10. Pain symptom frequency is found to have a significant effect on social support. Women who report more frequent symptoms are found as less socially supported than women with less frequent symptoms.

11. The group of women having more frequent pain symptoms are found as more stressed than the groups with moderate and less frequent symptoms of pain.
12. Groups of women reporting more frequent pain symptoms are found as using blame and reversal more predominantly than any other coping mechanisms.

    Young adults who report less frequent symptoms are seen as using mapping more predominantly, whereas mid transition adults are found to employ replacement and mapping more. Elderly with less frequent symptoms are found to prefer replacement to some extent and those with more frequent symptoms are found to use suppression more predominantly and substitution to a considerable extent. Again both young and mid transition adults with frequent symptoms of pain are seen preferring suppression over other coping styles to deal with the problems of day to day life.

Part A (III)

13. Young women are found more disabled by pain disorder than the mid transition and elder women.

    Again groups of women with better social support are seen as less disabled than those with moderate and poor social support.

14. Group of women who are highly stressed are found to suffer more from pain disorder and hence more disabled than the moderately stressed and less stressed groups.

15. Women with pain disorder are seen using the coping style of mapping more predominantly followed by blame and minimization in the order of preference shown by them, replacement and substitution have been emerged as less used coping methods.

    Elder group of women who prefer minimization, suppression, blame and reversal frequently are found as more disabled and those who use seeking succourance as well as mapping as less disabled by pain. Similar trend is seen in the case of mid transition women with respect to the disability caused by pain disorder. But however the elderly women who use mapping less are found as more disabled by pain disorder. Again young women who use blame to cope with problems are found as more disabled by pain.

16. Social support shows no significant effect on symptom intensity.

17. Less stressed women are found to have less intense symptoms of pain disorder.

18. Young adult women show less intense symptoms of pain than the other groups of women. In this group those who use minimization more are found to report more intense symptoms than those who use other coping mechanisms. Again young women who use blame more are also found to have more intense symptoms. On the contrary those who use mapping seem to have less intense symptoms of pain.

19. Better social support is found to result in less frequent pain symptoms among women with pain disorders.

20. Young adult women are found to report more frequent pain symptoms

whereas mid transition women report less frequent pain symptoms.

21. Highly stressed women are found to have more frequent symptoms of pain in comparison with less stressed women.
22. Women who use blame to deal with their problems are seen as having more frequent symptoms of pain. Again those who use the coping styles of substitution and mapping more are found to report less frequent symptoms of pain.

Part A (IV)

23. Educational status has no effect on the disability caused by pain disorder. But highly educated women seem to report more intense and frequent symptoms of pain when compared to their less educated counter parts.
24. Married women are found as having more intense and frequent pain symptoms. However, no difference in disability caused by pain disorder is noted between the married and unmarried women.
25. Employed women are found to have more intense symptoms of pain where as unemployed women are found to show more frequent symptoms.
26. Women from high income families are seen as more disabled by pain than those from average and low income families.
27. Women from nuclear families seem to be more disabled by pain disorder than those from joint families. Again, they also report more frequent pain symptoms than the women from joint families.

28. First born women are found as more disabled by pain than the other groups. Pain symptom frequency is also found more for the first born women.

Part B

29. Psychological intervention is effective in reducing stress experienced by women with pain disorders.
30. Psychological intervention is effective in curing disability caused by pain disorders.
31. Intervention is effective in reducing the intensity of symptoms of pain disorders.
32. Intervention is effective in reducing frequency of occurrence of pain symptoms.

CONCLUSIONS

The following conclusions may be drawn from the present investigation conducted among women with pain disorder.

1. Better social support reduces the intensity and frequency of pain disorder symptoms and reduces the risk of disability caused by pain disorder.
2. High stress increases the intensity and frequency of pain disorder symptoms and increases the risk of disability caused by pain disorder.
3. Positive coping strategies are effective to reduces the intensity and frequency of pain disorder symptoms and reduce the risk of disabilities caused by pain disorder.

4. Highly educated, married, employed, first born women hailing from nuclear and moderate income families are comparably more affected by pain disorder.
5. Psychological intervention is effective in reducing stress experienced by women with pain disorder.
6. Psychological intervention is effective in reducing the intensity and frequency of pain disorder symptoms and reducing the disability caused by pain disorder.

IMPLICATIONS

The information gained from the study may be used to train women to reduce their discomforts caused by day to day problems. The findings could also be used to create awareness among women regarding mind-body relationship and how to tackle problems, maintain healthy life styles and improve feeling of well being.

SCOPE FOR FURTHER RESEARCH

A research initiative could be undertaken including a large sample of women from different socio-cultural backgrounds.

Differential effects of selected packages of psychological interventions may be tested for their efficacy in dealing with pain disorder any women caused by psychological reasons.

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PAIN SYMPTOM RATING SCALE

PERSONAL DETAILS

NAME [Optional] :

Age :

Area :

Educational Qualification :

Religion :

Marital Status : Single/Married/Widowed/Divorced

Occupation :

Monthly Income of Family : Rs……

Type of Family : Joint/Nuclear

No. of family members :

Birth Order :

Put a [✓] mark against the area of pain use suffer from in the box provided. Then mark the column that rates your pain experience in terms of intensity and frequency

☐ **Abdomen**	• **Intensity**	Unbearable	Severe	Moderate	Mild	Negligible
	• **Frequency**	Often	Frequently	Sometimes	Rarely	Never
☐ **Back**	• **Intensity**	Unbearable	Severe	Moderate	Mild	Negligible
	• **Frequency**	Often	Frequently	Sometimes	Rarely	Never
☐ **Neck**	• **Intensity**	Unbearable	Severe	Moderate	Mild	Negligible
	• **Frequency**	Often	Frequently	Sometimes	Rarely	Never
☐ **Joint**	• **Intensity**	Unbearable	Severe	Moderate	Mild	Negligible
	• **Frequency**	Often	Frequently	Sometimes	Rarely	Never
☐ **General body pain**	• **Intensity**	Unbearable	Severe	Moderate	Mild	Negligible
	• **Frequency**	Often	Frequently	Sometimes	Rarely	Never

Other pain if any (Please specify) :…….....

Treatment Received :

Duration of Illness :