Coping strategies of ambulatory burn patients during daily dressing changes

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UMI
COPING STRATEGIES OF AMBULATORY BURN
PATIENTS DURING DAILY
DRESSING CHANGES

by

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Bachelor of Science
University of Nevada, Las Vegas
1986

A thesis submitted in partial fulfillment
of the requirements for the degree of

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ABSTRACT

Coping Strategies of Ambulatory Burn Patients during Daily Dressing Changes

by

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The purpose of this study was to describe the coping strategies used by ambulatory burn patients for management of pain during dressing changes. The sample consisted of 136 ambulatory burn patients (N = 136) who attended an outpatient Burn Clinic at a Southwestern medical center. Coping strategies were measured using the Coping Strategies Questionnaire (Rosenstiel & Keefe, 1983) and the Helpfulness of Prayer Scale (Saudia, Kinney, Brown & Young-Ward, 1991).

The most frequently used coping strategies used by ambulatory burn patients were coping self-statements (87.5%, n = 119) and praying/hoping (71.3%, n = 97). There was no significant difference in reported levels of pain among subjects who prayed (n = 56) and subjects who did not pray (n = 80) before or during dressing changes (t = .988, p = .325). Patients who used pain medications had significantly higher levels of pain.
(mean = 5.92) than patients who did not use pain medication (mean = 4.02) before their dressing changes ($t = 3.47, p = .001$). The level of pain experienced by patients was weakly correlated to the degree (depth) of the burn ($r = .230, p = .007$).
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INTRODUCTION

Burn injuries affect approximately 2.5 million people each year in the United States (Byers, 1996). The healing process following a burn injury is often long and painful. The ambulatory stage of a burn injury as part of the rehabilitation process frequently requires daily dressing changes. Daily dressing changes are perceived as painful events to patients whose burn injuries have not been treated by surgical interventions or a skin substitute. Ashburn (1995) reported that 84% of adult patients report their pain level during therapeutic procedures as extremely intense. Patients undergoing painful procedures frequently experience high anxiety which may amplify their level of pain.

A variety of coping strategies may enhance the manageability of pain associated with dressing changes. Coping strategies are considered cognitive or behavioral according to Rosenstiel and Keefe (1983). Coping behaviors that influence pain through the medium of one’s thoughts are cognitive. Prayer, imagery, and diversion techniques are examples of cognitive coping skills. Behavioral coping techniques are aimed at attenuating pain through physical or behavioral interventions. Taking analgesics,
exercising, and relaxation techniques are examples of behavioral strategies (Lin & Ward, 1996).

Numerous studies have examined the coping behaviors of clients who experience chronic pain. There is a void of studies on coping strategies for acute pain relief, and specifically for patients with burn injuries. Pain associated with burn injuries may be acute or chronic depending on the extent of the initial injury. For the purposes of this study, the pain associated with a burn injury will be considered acute.

The Problem Statement

Daily dressing changes for ambulatory burn patients are painful experiences. What coping behaviors are utilized by such patients to decrease their perception of this painful procedure? Do they find prayer useful in coping with this painful experience?

Several coping behaviors such as prayer, imaging, and meditation are based on spiritual beliefs. Addressing the spiritual needs of patients has recently received greater attention in nursing and medical literature. As stated by Burggraf and Barry (1996) of the American Nurses Association, “Addressing the spiritual identity or need in your patient is just as important as assessing for a physical complaint. Spirituality ...is a very necessary part of holistic care for all patients” (p.50).

Purpose of the Study

The purpose of this study was to examine what coping behaviors are used by ambulatory burn patients to help them cope with the acute pain experienced during daily
dressing changes. Specifically, this study examined the relationship between prayer and level of pain perception. Dossey (1993) has researched the use of prayer within the practice of medicine and writes, “It is simply a fact that patients sometimes improve dramatically following prayer, and in my judgment, when something affects human bodies, it becomes the legitimate concern of medicine to find out more about it” (p.9).

In addition to investigating the influence of prayer belief upon pain, the study addresses the relationship of burn characteristics and medication use to level of pain experienced during dressing changes.

Significance of Study

Several studies regarding pain and coping skills have concentrated on chronic illnesses. Minimal research has addressed the coping techniques used by burn patients in the acute phase of their recovery. Patients who have experienced burns have a multitude of stressors, notably the painful experience of daily dressing changes.

It is beneficial to practitioners to understand what coping behaviors patients find most helpful. It has been estimated that 90% of the population pray (Dossey, 1996). Knowledge of the frequency and benefits of prayer may encourage practitioners to alter their clinical environment in order to support patients in this practice. Examining the helpfulness of prayer may expand practitioners’ understanding of their patients’ spiritual needs and promote interventions which are supportive of their patients’ spiritual practices.
CHAPTER II

LITERATURE REVIEW

Introduction

The review of literature demonstrates that a variety of coping strategies have been studied regarding pain management. Cognitive and behavioral coping strategies have been explored with patients who experience both acute and chronic pain. The study of prayer as a coping behavior is a rapidly expanding area of interest for health professionals.

This chapter addresses the concept of prayer and reviews studies associated with the use of prayer for health benefits. Other topics that relate to the present study are addressed, including coping strategies, pain, medication for pain management, and burns.

Prayer

History has speculated that prayer has its roots in fear and desperation. Early man called out to imagined spirits or gods for protection in his hostile environment (Dossey, 1996). The beginning of prayer is not recorded. However, prayer is universal. It transcends all continents, races, religions, and time. Dossey (1996) defined prayer as an attitude of the heart, the desire to contact the Absolute. Expanding this definition, Dossey, (1996) wrote, “Prayer is communication with the Absolute” (p. 84).

This simplistic definition encompasses most religious and non religious
practices. Dossey (1996) noted that fundamentalists in numerous religions believe that specific religious practices are required for prayer to be effective. Yet, he found no significant correlations between effectiveness of prayer and one's private religious beliefs. The key factor reported was love, not religion, in prayer effectiveness.

Judaism and Christianity are the theological bases for most religions in the United States. In addition, a growing variety of religions are practiced such as Hindu, Unitarian, Baha’i, Taoist, Wiccan, and New Age. Graham (1997) reported that six million Americans now practice some form of Buddhism. Regardless of the religious preference, belief in the power of prayer is strong in America. Grant (1997) reported that 82% of Americans believe in the healing power of prayer, and that 64% believe that their doctor should join them in prayer if they request it.

The types of prayer practiced are prayers of petition, praise, repentance, healing, meditation, and contemplation. The Hail Mary, a Catholic prayer, is a meditative prayer that is estimated to be said 2 billion times each day (Grant, 1997). The Lord’s Prayer, a universal prayer used by Christians, is estimated to be prayed even more frequently.

Studies on Prayer

A frequently cited study on prayer is the “Positive Therapeutic Effects of Intercessory Prayer in a Coronary Care Unit Population” (Byrd, 1988). Byrd, a cardiologist and practicing Christian, requested born-again Christians to pray for an experimental group of 192 cardiac patients (N = 393). The control group of 201 patients...
received the same care as the experimental group except for the prayer intervention
treatment. It was a randomized double-blind experiment. Results of this ten-month
study were: the experimental group was five times less likely to require antibiotics than
the control group; the experimental group was three times less likely to develop
pulmonary edema; no one in the experimental group required endotracheal intubation
while twelve people in the control group did require endotracheal intubation; and
although not statistically significant, fewer deaths occurred in the experimental group.
The study received a large amount of attention and criticism. The study utilized born-
again Christians to deliver the prayer treatment. The born-again Christians were
instructed to pray daily for the patient/subjects, but received no specific instructions on
how to pray for them. No verification was given of the methodology of prayer used, or of
the expertise of group members who prayed. Dossey (1993) citing this study stated, “I
feel the Byrd experiment is suggestive but inconclusive and inherently ambiguous. It
simply contains too many problems that prevent us from drawing firm conclusions about
the possible power of prayer” (p. 186).

Saudia, Kinney, Brown, and Young-Ward (1991) studied the relationship between
health locus of control and helpfulness of prayer in cardiac patients prior to surgery
(N=100). Locus of control was defined by the authors as, “a psychologic concept that
addresses individual control beliefs” (p. 60). Individuals’ control beliefs can affect their
perception of stressful events and, therefore, influence choice of coping strategies. The
study found no relationship between locus of control and helpfulness of prayer (p>0.05).
Yet, ninety-six subjects reported that prayer was a coping strategy they had used prior to cardiac surgery. The Helpfulness of Prayer Scale was developed for this study. Subjects were instructed to indicate if they had used prayer to cope with their stress regarding impending cardiac surgery. Subjects who gave a positive response were then asked to rate the helpfulness of prayer on a rating scale. The scale range was 0 indicating not helpful to 15 indicating extremely helpful. Seventy subjects rated prayer as extremely helpful. A recommendation the researchers gave was that further research should explore the relationship between prayer and ability to cope with stressful situations.

A grounded theory research study was done by Howell (1994) on women and their coping strategies with chronic pain, (N=14). An in-depth interview was done with each subject regarding their use of natural and alternative health care practices. Ten of the fourteen women reported using prayer to strengthen their ability to cope with pain. Two of the subjects reported using meditation along with prayer. Howell cited her subjects by first names only. Quoting a patient named Sylvia, Howell reported, “I believe in the power of prayer but I don’t ask for a cure anymore. I just ask that He lets me get through a day” (p. 104). Howell recommended that primary health care providers encourage their patients with chronic pain to use multiple self-care modalities. Several of these self-care modalities are spiritual in nature. Howell concluded that use of self-care modalities may promote a sense of well-being and help women with chronic pain manage their pain more effectively.

Webster and Brennan (1995) studied self-care strategies used by women with
interstitial cystitis, (IC), (N=138). The exploratory and descriptive study examined the use and effectiveness of a variety of self-care strategies. Three tools were utilized. The first was the Urban Institute Study's survey (Held, Hanno, Wein, Paulym, & Cahn, 1988) which was modified to include current criteria about acute attacks of IC. The second was the McGill Pain Questionnaire (Melzack, 1975), which measured present pain and changes in level of pain following use of a strategy. The third tool, the Interstitial Cystitis Self-Care Response (Webster & Brennan, 1995), was developed for this study. Psychologic self-care strategies reported as most effective were praying, using aesthetic distractions such as listening to music, concentrating on a beautiful scene, using one's hands, or doing crafts.

A descriptive study (N=213) on the use of alternative medicine by Mexican Americans in the Texas Rio Grande Valley was done by Keegan (1996). Three research questions were asked, "(1) What specific kinds of alternative therapies do Mexicans in the Rio Grand Valley use? (2) What percentage of the sample uses alternative therapies? and (3) Do the users of alternative therapies self-report these visits to their established, conventional, primary health care provider?" (p. 277). Keegan defined alternative therapies as, "health practices that fall outside conventional mainstream health care" (p. 279). She lists prayer as an example, along with herbal medicine, massage, and folk medicine.

Keegan (1996) noted that a barrier to access to health care in the U.S. is the inability to speak English (McClanahan, 1992; Torres, 1993). Language barriers may
encourage more frequent use of alternative therapies. Keegan reported that 44% of the subjects used alternative therapies. Herbal medicine was the most frequent reported therapy at 44.1%. Prayer/spiritual healing was the second most frequent type of therapy reported, at 29.5%. In the prior 12 months both female and male respondents reported using prayer and/or spiritual healing at least 63 times.

Keegan (1996) reported that 66% of the Mexican Americans never report their use of alternative therapies to their primary health care provider. Acceptance of alternative therapies continues to grow in mainstream medicine. Keegan recommends that nurses become cognizant of this trend, and inquire about use of alternative medicine when interviewing patients.

In *Prayer is Good Medicine*, (1996) Dossey compares the work of Dr. Herbert Benson of Harvard University on the relaxation response of prayer and that of Erika Friedmann of the University of Pennsylvania in Philadelphia on survival rates of pet owners. Dossey reported that there are similar benefits from both prayer and pet ownership. These are: having someone to talk to; developing compassionate behavior; fostering a sense of well-being; promoting a sense of being loved unconditionally; reducing psychological stress; as well as increasing health and saving lives.

Researchers have noted a relationship between illness or disability and spiritual well-being. A patient's perception of dependency on spiritual needs is increased during illnesses and hospitalization (Francis, 1986; Hoskins, 1986; Schomus, 1980). A sense of isolation and despair (Shelly and Fish, 1995) often occurs during illness. Prayer is
perceived as a means to gain strength during an illness (Bacon, 1995). The preceding studies have indicated that prayer as a coping strategy may have a positive effect on pain, stress, and healing.

Definitions of Coping Strategies

Lazarus (1966) wrote extensively on coping, and his work is frequently cited in studies on coping strategies. Coping strategies as defined by Lazarus and Folkman (1984) are divided into behavioral or cognitive activities. Cognitive activities involve the manipulation of one’s thoughts or emotions. The effectiveness of a coping strategy is judged by the end result rather than by the nature of the strategy itself (Hodgins & Lander, 1997). Ineffective coping strategies create feelings of anxiety, distress, and loss of control (Lazarus and Folkman, 1984).

Studies on Coping Strategies

Hodgins and Lander (1997) studied children and their coping abilities with pain, specifically the pain of venipuncture. Eighty-five children ages 5-13 were interviewed prior to and immediately following venipuncture. A visual analogue scale was used during the interview along with the Children’s Anxiety and Pain Scale. Transcripts of the audiotaped interviews were reviewed and responses placed into one of the eleven categories. The coping category used most frequently for both pre- and post-procedure was the Direct Efforts to Maintain Control category. Five behavioral coping strategies
were classified in this category. They are: breathing, looking away, moving, reciting, and talking.

Hodgins and Lander noted that a modest positive correlation was observed between subjects' age and the reported use of cognitive coping strategies. This finding suggests that older children utilized more cognitive strategies than younger ones. A finding in gender difference was significant. Girls reported significantly less pain than boys (p = 0.05). A third significant finding was that children who anticipated higher pain intensity experienced more pain (p = 0.001). The researchers noted that the descriptive nature of the study limited its generalizability.

Brown and Nicassio (1987) studied active and passive coping strategies used by chronic pain suffers with rheumatoid arthritis (RA). The subjects (N=361) were recruited from rheumatology practices in four different states. The Vanderbilt Pain Management Inventory (VPMI) was developed for this study. Patients self-reported the frequency of their use of cognitive and/or behavioral strategies. Additional tools were used to measure pain, functional impairment, depression, helplessness, locus of control, and self-efficacy. A factor analysis was performed on the VPMI data. Twenty-one of the twenty-seven items of the VPMI loaded significantly. Praying for relief loaded in the top ten items for passive coping strategies.

Brown and Nicassio (1987) reported a relationship between passive strategies and poorer adjustment to chronic pain. Their study suggests that prayer as a coping behavior is not effective in chronic pain relief. No significant correlation was noted between type
of coping strategies and demographic data such as age, race, or marital status. However, education level was positively correlated with active coping strategies \( (r = 0.23, p<0.05) \). The researchers concluded, "The more active coping that patients reported, the greater their internal health locus of control and general self-efficacy, and the lower their depression, helplessness, pain and functional impairment" (p.61). They recommend that further studies be done on the relationship of pain and coping. Such studies could answer the question, "does pain affect coping or coping affect pain?" (p. 62).

Coping Strategies Questionnaire Studies

A frequently used instrument for measuring coping strategies related to pain is the Coping Strategy Questionnaire (CSQ). The CSQ, introduced by Rosenstiel and Keefe in 1983, was originally used in their study of chronic low back pain patients \((N = 61)\) at the Behavioral Physiology Lab at Duke University. The purpose of the study was to investigate the use of coping strategies by chronic low back pain patients and to investigate relationships among the variables. Chronic pain was defined as pain experienced for more than six months. While the researchers did not report a frequency number of coping strategies used by the subjects, they did report that chronic low back pain patients use some coping strategies more often than others. Praying, or hoping, and self-statement strategies were used most frequently. However, the overall effectiveness of coping strategies was rated as low. Using factor analysis, the variables of cognitive coping and suppression were found to be positively related with the variables diverting
attention and praying. Rosenstiel and Keefe concluded that "The most important finding of the present study is that the reported use of coping strategies is related to adjustment to a chronic pain problem" (p. 42).

Geisser, Robinson, and Henson (1994) used the CSQ subscales in their study of patients from the Anesthesiology/Clinical psychology Pain Clinic (N = 152) at the University of Florida. The seven subscales consisted of six cognitive strategies and one behavioral strategy. Adjustment to pain was measured using the Multidimensional Pain Inventory, Beck's Depression Inventory and the McGill Pain Questionnaire. The subject's average duration of pain was 82 months. Results indicated that adaptation to chronic pain was not related to conscious cognitive coping factors nor to increasing activities as measured by the CSQ subscales. It was also noted that praying/hoping and catastrophizing were related to poorer adjustment to chronic pain. The researchers concluded that, "CSQ subscales related to Conscious Cognitive Coping may have more applicability to acute rather than to chronic pain" (p. 104).

Kashikar-Zuck et al. (1997) utilized the CSQ with women (N=125) undergoing mammography. Prior to their mammogram, participants completed the CSQ regarding day-to-day pain experience. Following the mammogram, pain assessment was completed using four instruments. Results indicated that subjects' pain was in the low to moderate range. Women who reported using coping strategies to decrease pain during daily pain experiences had lower levels of pain during mammography. Using a series of t-tests, the researchers compared the sample of women receiving mammograms to other population
samples. The mammogram sample rated their ability to control and decrease their pain significantly higher than low back pain patients. The mammogram sample reported using prayer and hoping less frequently than patients with rheumatoid arthritis, yet more frequently than normal young adults.

Pain

The present study addresses acute pain. Acute pain is defined by Irving and Wallace (1997) as pain resulting from noxious stimuli from injury or disease. It is self-limiting and persists for no more than one month beyond the usual course of the disease or injury. Pain is considered a protective mechanism. Scientists at the International Association for the Study of Pain (IASP) define pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage (Wilkie & Boss, 1996). Nurses are frequently taught that pain is whatever the person experiencing it says it is (McCaffery & Beebe, 1989).

Regardless of the definition, pain is always subjective. Pain has multiple descriptions such as: throbbing, dull, sharp, crushing, and burning. Pain is considered chronic when it presents daily or almost daily for six months or more. Acute pain which is not treated effectively has an increased risk of developing into chronic pain (Irving & Wallace, 1997).

Not all noxious (potentially tissue damaging) stimuli result in pain. Activation of the primary afferent nerves with peripheral terminals that respond differently to noxious stimuli is termed nociception. Nociceptors primarily function to sense and transmit pain
signals. The nociceptive pathway is complex; nociception may or may not be perceived as pain depending on its interaction in the pathway. Pain is not perceived if the nociceptive stimulus is blocked.

The transmission of nociceptive stimuli is the physiological component of pain. There are five components of pain: physiologic, sensory (pain perception), affective (emotions, suffering), behavioral (behavioral response), and the cognitive dimensions (beliefs, attitudes, evaluations, goals). Pain is a multidimensional phenomenon. An understanding of its complex interaction among these dimensions is required for effective pain management (Wilkie & Boss, 1996).

**Characteristics of Burn Pain**

Pal, Cortiella, and Herndon (1997) studied methods of pain control in burns. They stated that numerous factors influence pain in the burn patient, such as: depth of burn, stage of healing, nature of therapeutic procedures, and patient characteristics. Pal et al. classified types of pain in burned patients. The first is resting pain; it occurs when the patient is lying down. It is constant and dull in nature. The second is procedural pain; it occurs during wound cleaning, debridement, dressing, or exercising. Procedural pain is shorter in duration, but has greater intensity than resting pain. The third is breakthrough pain which is associated with resting pain but is of shorter duration.

**Pain Medication**

Because pain is a significant feature of burn injuries, many patients use
analgesics. Opioid use is a situational factor that is likely to influence the coping strategies used by burn injured patients (Ulmer, 1997). The use of pain medication is an intervening variable in the present study.

At the 1998 American Burn Association (ABA) Sharar spoke on the pharmacotherapeutics of pain and anxiety management. He stated, “Because burn pain is variable in its degree and time course, reliance on a single analgesic regimen is unreliable at best, and unsuccessful at worst”. Sharar further explained that the diverse spectrum of burn patients creates an overwhelming and impractical chore of individualizing routine analgesic plans. Sharar recommends that the patient’s analgesic needs be based upon two categories. The first category is the clinical need for analgesia; is the pain background pain, procedural pain, or postoperative pain? The second category is patient or facility limitations. A preventive approach is considered crucial regardless of the clinical need or limitations. Patients are advised to take pain medication prior to painful procedures such as dressing changes. (Wilkie & Boss, 1996). Procedural pain occurs with dressing changes. Debridement of nonviable tissue and cleansing of the wound is standard care prior to application of prescribed creams/ointments and gauze.

The majority of subjects (78%) in Ulmer’s (1997) study reported procedural pain as severe. Procedures included were: debridement, surgical excision, skin harvesting and grafting techniques. Results of the study demonstrated insufficient pain management. Subjects reported pain levels of 3 or 4 (scale 0-10). Current standards
recommend adjustments be made to pain management regimes with scores greater than 3 (Jacox, Carr, & Chapman, 1992).

The American Pain Society (1993) classifies analgesics into three categories: nonopioid - aspirin, salicylate salts, acetaminophen, and nonsteroidal anti-inflammatory drugs (NSAIDs); opioid; and analgesics adjutants. The pain from burn injuries may require all three classifications of analgesics. The most common classification of analgesic therapy is opiates (Pal, et al., 1997). It is postulated that early aggressive treatment of burn pain may decrease the incidence of subsequent complications (Ptacek, Patterson, Montgomery, and Heimbach, 1995).

Burns

It is estimated that 2.5 million people will require medical care for burn injuries in the United States each year. An estimated 100,000 will require hospitalization (Solotkin & Knipe, 1996). The skin is burned from contact with an energy source, such as heat, chemicals, electrical current, or radiation. The extent of the injury is based on the following: the intensity of the energy, the duration of the exposure, and the type of tissue injured. Blood flow is immediately increased to the surrounding burned tissue. Various vasoactive substances are released into the burned tissue, resulting in increased capillary permeability. Edema and hypovolemia occur as a result of fluid shifting from intravascular compartments to the interstitial space.

Treatment of burn injuries is based on numerous factors that define its severity.
The first is the depth of the burn tissue. Burns have been traditionally classified by degree of depth: first-degree, second-degree, and third-degree. A newer classification uses the more explicit definition of partial-thickness or full-thickness skin destruction (Solotkin & Knipe, 1996). The first and second-degree classifications are considered partial-thickness, that is, superficial to involved damage of the epidermis and dermis layers of the skin. Third and fourth-degree burns are now considered full-thickness burns; coagulation necrosis is present with all skin elements and nerve endings are destroyed.

A second factor in burn severity is total body surface area (TBSA), calculated using the Rule of Nines. The Rule of Nines divides the body surface of an adult body into 11 segments of nine percent, with one percent reserved for the perineum. The remaining factors are: location of the burn, age of victim, concommitment injury, and past medical health (Solotkin & Knipe, 1996).

There are three phases to burn management: emergent (resuscitative), acute, and rehabilitative. The present study includes subjects from the acute and rehabilitative groups. Burns with minimal to moderate severity and in which hospitalization is not required are treated in ambulatory burn units. Severe burns which require hospitalization are frequently followed in ambulatory burn units. The duration of the acute phase and rehabilitative phase are dependent on the factors of severity noted above. Dressing changes are a critical factor in wound healing regardless of the recovery phase. Nonviable tissue is removed by either soft debridement (cloth, sponge) or sharp
debridement (scalpel, scissors, forceps). Daily dressing changes require wound cleansing, assessment, and application of treatment (medications, and/or bandages).

Studies on the Pain of Burns

The pain of a burn injury is considered severe. It is a complex situation; the patient not only suffers from the actual injury itself, but the pain associated with therapeutic procedures (Choiniere, Melzack, Rondiar, Girard, & Paquin, 1989). Medical research on burn injuries frequently concerns the repair of dermal tissue damage, or pharmacological therapies. Little research has been done on non-pharmacological treatment of burn injuries. A limited amount of research has been conducted on the patients' ability or inability to cope with their pain, specifically procedural pain. Choiniere et al. (1989) stated, "More research is needed to document and quantify pain experience in burned patients with an approach which takes into account the multiple dimensions of pain" (p.1531).

Choiniere et al. (1989) studied hospitalized patients (N=42) with burn injuries. The researchers analyzed both components of burn pain: i.e., pain from the injury itself and the pain from therapeutic procedures. Qualitative and quantitative analysis was performed on the variables. The interrelationships between anxiety, depression, and pain were examined. The assessment tools used for this study were: the McGill Pain Questionnaire (MPQ), the Visual Analogue Scale (VAS), the State-Anxiety Inventory (STAI-S), and the Beck Depression Inventory (BDI).
Subjects were asked each morning to rate their pain at its worst for the past 24 hours. Prior to a procedure, such as dressing change, the STAI-S and BDI were given. Upon completion of the therapeutic procedure, patients were asked to rate their pain on the MPQ and VAS. The MPQ and VAS were repeated later in the day while the patients were at rest. A significant difference was noted in the MPQ pain ratings at rest and during therapeutic procedures (p = .001). Also, the VAS means almost doubled in value, between the patient at rest and during a therapeutic procedure (p = 0.004).

Studies from Perry, Heidrich, and Ramos (1981), and Szyfelbein, Osgood, and Carr (1985) support Choiniere et al.'s statement that, "the study revealed the most intense pain in burned patients does not relate as much to the burn injury itself as to the trauma caused by the therapeutic procedure" (p. 1537).

Additional results from the Choiniere et al. study that are of interest to the present study are as follows: age, socioeconomic status, and educational level were not predictors of pain severity. The more extensive the burn injury, the more pain the patient reported both at rest and during therapeutic procedures; and patients with high scores in anxiety or depression also rated their pain as high on the majority of measures. A significant correlation (r =0.56, p< 0.001) was noted between the patient’s anxiety scores and the length of time post injury. The researchers concluded that anxiety levels increased with time. A similar, but less statistically significant, trend was noted with depression levels (VAS: r = 0.33, p <0.06; BDI: r = 0.31, p<0.09). The researchers concluded that an interrelationship exists between anxiety, depression, and pain in the burn patient.
Ashburn (1995) supports the conclusions of Choiniere et al. (1989) and states, “Anxiety, depression, and pain are interrelated in patients with burns. They tend to report increasing amounts of pain at rest with increasing anxiety and depression” (p.366).

Foertsch, O’Hara, Stoddard, and Kealey (1998) examined pain and distress during pediatric burn-dressing changes. The pediatric subjects (N = 23) were given an imagery-based (hypnosis) or control (social support) treatment. Levels of distress were measured by the Observational Scale of Behavioral Distress. Results indicated that the children experienced severe pain and distress, despite pharmacologic and psychological interventions. Foertsch et al. recommend further research regarding the alleviation of distress associated with burn pain.

Ptacek et al. (1995) did a prospective study (N = 43) on burn patients examining the relationship between procedural pain during hospitalization, coping strategies, and adjustment one month postdischarge. Subjects had a minimum of five days of daily wound care. Results indicated that coping styles related directly to adjustment. Use of problem-focused methods were associated with lower scores on the Brief Symptom Inventory (BSI). Avoidance was associated with higher scores on the BSI. The results suggested that pain was a strong predictor of adjustment one month post-discharge. Ptacek et al. noted several limitations to their study, specifically the small sample size. They cautioned generalizations of their findings and acknowledged the complexity of the adjustment process in burn injuries.
Summary

The review of literature demonstrates that pain is subjective and highly individualized (Mezack and Wall, 1982). This chapter offered definitions for pain. It also examined prayer, coping strategies, and burn injuries. Numerous studies on coping strategies were reviewed, several included the CSQ tool. Rosenstiel and Keefe (1983) the originators of the CSQ, reported the use of coping strategies was related to adjustment to chronic pain. They noted that praying, hoping, and self-statements were the most frequently used strategies. In contrast, Geisser, Robinson, and Henson (1994) reported that adjustment to chronic pain problem were not related to use of coping strategies. They also noted that praying and catastrophizing were related to poorer adjustment to chronic pain. The need for further research on coping strategies and pain has been noted.

Studies on coping strategies that are spiritual in nature have gained popularity in recent years. This chapter reviewed Saudia et al.'s study (1991) regarding helpfulness of prayer. A growing trend for studies on prayer exist. Prayer is considered alternative medicine, (Chulay, Guzzetta, and Dossey, 1996) and it is estimated that 60 million Americans use some form of alternative medicine (Institute for Natural Resources, 1998). Research on alternative therapies is both timely and valid.

The chapter concluded with a discussion on burn injuries. A brief description of pathophysiology and classification of burns were reviewed. Studies on burn treatment modalities, specifically pain management were discussed. The challenge of managing
procedural pain and the anxiety and distress associated with it was noted. Aggressive management of burn pain is recommended by the Agency for Health Care Policy and Research, and is associated with marked improvement in the pain experience for the burn patient (Ashburn, 1995).
CHAPTER III

CONCEPTUAL FRAMEWORK

Introduction

The Neuman System Model has a wholistic focus, and is the nursing model that guides this study. The client is viewed as a combination of interacting variables. The spiritual variable is an explicit factor of the model and is integrated with the physiological, psychological, sociocultural, and developmental variables of the client. Neuman (1995) considers the spiritual variable influential in the illness and wellness of the client. In addition to presenting the conceptual framework, this chapter addresses the propositions, research questions, definitions, and assumptions of the study.

Theoretical Framework

View of Health

The two major components of Neuman’s System Model are stress and the reaction to stress. Neuman defines stressors as, “tension-producing stimuli with the potential for causing system instability” and states, “... response to stress results in varying degrees of harmony, stability, or imbalance between the client and environment” (p. 22). The client is seen as an open system interacting with intra-, inter-, and extrapersonal environmental influences. The process of this interaction results in a
balancing act between the client and environment (Neuman, 1995).

Wellness is a point on a continuum; optimal wellness is defined as the greatest possible degree of system stability. Nursing interventions are based on assessment of client data, client perception of needs, and functional possibilities within the client's environmental context (Neuman, 1995). The model provides an understanding of the client and the environment within a wide range of nursing concerns.

**View of Person**

The schematic design of the model is seen as a circular expansion from a core. The core/client's system is a concentric circle. The core of the circle consists of basic survival factors, which occur simultaneously. There are five variables within the basic structure which compose the client. These are physiological, psychological, sociocultural, developmental, and spiritual factors. Surrounding the core structure are lines of resistance, represented by concentric broken circles.

Activation of lines of resistance occurs when the normal line of defense has been invaded by environmental stressors such as, extreme heat or chemicals causing a burn injury which damages skin and tissue. Penetration of the normal line of defense creates a reaction (symptom), such as pain. The normal line of defense is a solid line. It represents the usual wellness state of the client; and it is surrounded by the flexible line of defense. The flexible line of defense is a buffer zone. Its concentric circle is depicted with broken lines. The flexible line of defense is a dynamic state; ideally it protects the
system/client from an invasion of stressors and keeps the system/client symptom free (Neuman, 1995).

Environment and Stressors

Neuman (1995) defines environment as, "all internal and external factors or influences surrounding the identified client or client system" (p.30). She categorizes the environment into three categories. The first environment is internal. Here activity occurs within the boundaries of the defined client. The pain experienced by burn patients occurs within their internal environment. Daily dressing changes are interpersonal stressors that affect the internal environment.

The second environment is external. Activities here exist outside the defined boundaries of the client. Examples of external environments are: a home engulfed in flames, or a burn unit waiting room. Stressors in the external environment such as smoke from smouldering ashes or the noise in a burn unit waiting room may influence the client's internal environment. This interaction between the internal and external environment is the third environment, created environment.

The client unconsciously develops the created environment. This environment symbolizes the wholeness of the system. The energy exchange between internal and external environments is used for the maintenance of system integrity. An example of a created environment is a coping behavior such as prayer or meditation.

Interventions

Assessment of the client's coping mechanisms is a significant aspect of spiritual
Neuman (1995) states, "The ultimate goal is to have the client recognize and mobilize personal spiritual resources that maintain stability and strengthen other interacting variables of the client system" (p.85).

The Neuman System Model utilizes three types of interventions which address primary, secondary, and tertiary prevention. These nursing interventions assist the client in maintaining, attaining and retaining an optimal level of health. The present study concerns itself with coping strategies, specifically those that are spiritual in nature. Neuman's spiritual variable is explored in regard to the goals of each level of prevention.

The goal of primary prevention is to strengthen the flexible line of defense to maintain optimal wellness (spiritual well-being). The goal of secondary prevention interventions is to restore spiritual wellness and protection of the basic structure. Interventions in secondary prevention require collaboration between the client and the nurse. Offering of prayer, touch and personal sharing are examples of secondary interventions. Tertiary prevention interventions should support existing strengths. Providing a quiet environment for a burn patient to pray is an example of tertiary prevention. Each level of prevention should be utilized simultaneously whenever possible (Neuman, 1995). The study's variables are applicable to all three levels of prevention.

Application of Neuman's Model to This Study

A burn injury is a stressor with the potential of causing system instability. The insult of the injury invades the protective zone (flexible line of defense) and may
alter the wellness state (normal line of defense). As noted in the Literature Review, coping is essential to well-being (Hodgins and Lander, 1997). Each burn patient has prior experiences of coping with diverse stress encounters. The CSQ utilized in this study measures the subjects’ adaptive response to the stressor of pain. It is assumed that ambulatory burn patients have developed coping behaviors which have evolved over time (previous system behavior). This foretells their response to their present stressor (procedural pain from the dressing change). The specific coping strategy is considered normal for the individual subject. The normal line of defense is defined by Neuman (1995) as an adaptational level of health individualized by the client/system over time, and considered normal for that client. The purpose of the flexible line of defense is to keep the client/system symptom-free; for this study, pain-free (Neuman, 1995).

This study explores what coping strategies (adaptive behaviors) burn patients utilize to stabilize their system from the stressor of pain. System stability in this study is seen as the ability to manage one’s level of pain. This study examines the relationship between coping strategies and the strengthening of the flexible line of defense via pain reduction. This study specifically examines the coping strategies of prayer and pain medication usage, and their level of effectiveness in reducing pain.

The spiritual variable of the client may be highly developed, and of optimal well-being, which for the burn patient is a pain-free or pain-manageable state. Neuman (1995) listed the following variables as influencing factors on the client/system: coping patterns, life-style factors, developmental, spiritual, and cultural make-up. This study examines
selected factors in these areas and their relationship to the clients' level of pain during dressing changes.

Propositions

Two major concepts of the Neuman System Model are stressors and the response to such stressors. The present study proposes that coping strategies employed by ambulatory burn patients can influence how they respond to the stress of daily dressing changes. Specifically, their level of pain associated with dressing changes can be decreased through prayer and pain medication. Because the magnitude and duration of the stressor is an important factor which can alter the individual's response to stress, it is also proposed that the extensiveness of the burn will influence the level of perceived pain experienced during dressing changes.

Research Questions

The following research questions direct this study.

1. What coping strategies are used by ambulatory burn patients to help them cope with their pain?

2. To what extent do ambulatory burn patients perceive that their use of coping strategies decrease their pain?

3. Are ambulatory burn patients' perceptions of the effectiveness of their coping strategies for pain reduction related to their reported level of pain during dressing changes?
4. Do ambulatory burn patients who use prayer before or during dressing changes report less pain than patients who do not use prayer?

5. Do ambulatory burn patients who use pain medication prior to dressing changes report less pain during dressing changes than patients who do not?

6. To what extent are burn characteristics (percentage of burn, degree of burn, and days post-burn) correlated with level of pain reported by ambulatory burn patients during dressing changes?

Definition of Terms

For the purposes of this study, the terms utilized are defined as follows:

**Pain**

Pain is a universal, subjective, unpleasant sensation. It exists whenever the person experiencing it says it does and is defined by the person experiencing it (McCaffery, 1979). It will be measured on the Numerical Rating scale of 0-10.

**Coping**

Coping is defined as specific behaviors or thoughts people use to manage their pain or their emotional reaction to pain. Coping may be cognitive via a thought or behavioral via action (Lin and Ward, 1996). Coping strategies will be measured by the Coping Strategies Questionnaire (Rosenstiel & Keefe, 1983).

**Prayer**

Prayer is a tool of expression of the spiritual dimension of the individual.
(Saudia, Kinney, and Young-Ward, 1991) and includes communication with the Absolute (Dossey, 1996). Belief in the helpfulness of prayer will be measured by the Helpfulness of Prayer Scale (Saudia et al., 1991).

**Burn Characteristics**

Burn characteristics consist of extent of a burn by percentage of total body surface area, degree of tissue injury, and number of days post burn injury. A demographic sheet will be used to record this data.

**Pain Medication**

Pain medication is a pharmacological agent that produces analgesia. Analgesia is a decrease in pain or an increase in pain threshold response to a normally painful experience (Irving & Wallace, 1997). The operational definition of pain medication is any medication taken three hours or less before dressing changes for the purpose of decreasing pain.

**Assumptions**

1. Daily dressing changes of ambulatory burn patients cause some level of discomfort, from mild discomfort to severe pain.

2. Spirituality is an integral part of our humanity; individuals vary in their recognition of such.

3. Coping is a universal behavior, essential for well-being. Individuals can choose which coping strategies they use.
4. Stress can be decreased through use of coping behaviors.

5. Patients will answer questionnaires truthfully.

6. The Coping Strategies Questionnaire measures coping strategies.

7. The Helpfulness of Prayer Scale measures the perceived helpfulness of prayer.

Summary

This chapter addressed Neuman's model as a framework for the present study. Major concepts of the model were discussed. Application of Neuman's Model to this study was examined. The six research questions were presented along with definitions of terms. The chapter concluded with a list of assumptions regarding the study.
CHAPTER IV

METHODS AND PROCEDURES

Introduction

The purpose of this study is to examine the coping behaviors of ambulatory burn patients related to daily dressing changes and level of pain perception. Prayer as a coping behavior is examined specifically by the helpfulness of prayer scale. This chapter will describe the research design, sample, setting, methods of measurement, procedure, ethical considerations, and the plan for data analysis.

Research Design

The research design is nonexperimental, descriptive, and comparative. A descriptive study was chosen for the following reasons: first, the sample did not receive any research treatment by the researcher; subjects were described before and after they received a dressing change; the study is of a single sample; the design identifies a phenomenon of interest; and the study examined variables within the phenomenon. It is comparative because groups were compared on selected variables.

Sample

The convenient sample consisted of volunteer ambulatory patients who were
scheduled for treatment of their burn injuries at an outpatient burn clinic. Data collection occurred on clinic days. Burn clinic days for clients occur weekly or biweekly and consist of scheduled appointments with the patient's physician at the burn unit. The average waiting time for patients to be seen by the physician is 10-30 minutes. Subjects were 18 years of age or older and able to speak or read English.

Setting

The study's setting was a county hospital in the Southwest area of the United States. The hospital is a teaching facility, and has 550 beds. The outpatient burn unit is adjacent to a twelve-bed inpatient burn unit. This burn facility services a large geographic area of several neighboring states. The Burn clinic population is approximately 9,000 patients per year. Data were collected in the burn unit waiting room and in the treatment area. Both areas are well lit and provide a moderate amount of privacy.

Measurement Methods

Data were collected utilizing several tools; the CSQ, the Helpfulness of Prayer Scale, a numerical rating scale for pain, and the demographic data form.

The Coping Strategies Questionnaire

The CSQ was originally presented in 1983 by Rosenstiel & Keefe. This study utilized the 1992 Keefe updated version. As noted in the review of literature, the CSQ is frequently utilized in clinical studies regarding pain, notably chronic pain. Chronic pain
may vary in intensity. A patient’s ability to cope may vary also. Thus, coping strategies were viewed as dynamic processes rather than as enduring traits (Keefe, 1982). Lazarus & Folkman (1984) believed that traditional estimates of test-retest reliability were not appropriate for a process oriented model of coping. They stated that traditional estimates of test-retest are based on a trait model. Therefore, the reliability of coping measures is frequently evaluated on the basis of internal consistency. Cronbach’s coefficient alpha is routinely reported for the internal consistency of the CSQ subscales. Rosenstiel & Keefe (1983) reported an internal consistency alpha coefficients of .71-.85. Burns & Grove (1993) note that coefficients of 1.00 are not desirable. An alpha coefficient of 1.00 would indicate that each item in the instrument is measuring exactly the same thing. Coefficient values of .8-.9 reflect a more sensitive instrument with fine discriminations.

Validity varies from sample to sample and situation to situation (Burns & Grove, 1993). Validity of the CSQ in this study is based on the multiple citing of the CSQ in previous research studies.

The CSQ consists of 46-items; the six subscales regarding cognitive coping strategies are as follows: diverting attention (items 3,10,13,21,30, & 31), reinterpreting pain sensations (items 1,4,11,18,34, & 44), coping self statements (items 6,8,23,26,36, & 37), ignoring sensations (items 20,22,24,27,35, & 40), praying/hoping (items 15,17,25,32,41, & 43), and catastrophizing (items 5,12,14,28,38, & 42), and one subscale on behavioral strategy, increasing behavioral activity, (items 2,7,16,33,39, & 45). Each
strategy subscale is composed of six items. Subjects are asked to report the frequency with which they use a specific strategy using a 7-point scale (0 = never, 3 = sometimes, 6 = always). The last two items on the CSQ question the subject’s ability to decrease the pain (0 = can’t decrease at all, 3 = can decrease somewhat, 6 = can decrease it completely) and the effectiveness of their coping strategy to control the pain (0 = no control, 3 = some control, 6 = complete control).

**The Helpfulness of Prayer Scale**

The Helpfulness of Prayer Scale was developed by Saudia, Kinney, and Young-Ward (1991). The subjects in their study were asked to rate helpfulness of prayer in coping with the stress of cardiac surgery. Subjects were asked to indicate if they had used prayer to deal with the stress of upcoming surgery. Subjects with positive responses were then asked to indicate their perception of helpfulness of prayer on a scale of 0 (not at all helpful) to 15 (extremely helpful). Content validity was established by a panel of three experts with graduate degrees in theology. Test-retest reliability was established by administration of the instrument within a one-week interval to five subjects who had undergone CABG within a previous six month periods. One hundred percent agreement was reported.

**Numerical Rating Scale**

The Numerical Rating Scale (NRS) for pain describes the severity of pain on an interval scale of zero to ten, with zero being no pain, and ten being the worst pain. Pain measurement scales are frequently used with adult burn patients (Marvin, 1995). The
subjects were requested to circle a number on the printed scale provided. Subjects unable to write (patients with newly dressed burns on hands/fingers) reported a number from zero to ten to the researcher. Marvin (1995) noted that NRS and Verbal Rating Scales (VRS) are the easiest to apply in a clinical setting.

Frank-Stromberg (1988) noted that few authors discuss the reliability and validity of descriptive scales. Yet, a majority of authors agree that a subject's rating of pain intensity is obtained.

**Demographic Data**

Demographics included in the study were: age, race, marital status, and level of education which were recorded by the subject. Burn demographics included were: date of injury, depth of burn, body part(s) injured, percentage of total body surface burned, and days post-burn which were recorded by the researcher. Three additional questions were asked on the demographic form specific for this study. These questions consisted of religious preference, frequency of prayer prior to injury, and history of pain medication used prior to dressing change. The demographic data assisted in answering the research questions asked in this study, and describe the sample.

**Procedure**

The following procedure was used for data collection.

1) The researcher offered a survey packet to each burn injured patient in the burn unit waiting room. The packet contained a cover letter/consent form (see Appendix D), the
CSQ, two Numerical Rating Scales, the Helpfulness of Prayer Scale, and demographic data form (see Appendix C). Each packet was identified with a code number.

2) Patients were given sufficient time to read the letter. The researcher was available to answer questions and assist as needed. Participants who signed the consent were instructed to complete the CSQ, and the first Numerical Rating Scale.

3) The subjects were called into the treatment area by the nursing staff. The subject’s dressing was changed by a burn unit staff member.

4) The subjects were instructed to complete the second part of the NRS, the Helpfulness of Prayer Scale and demographic data form. The researcher assisted some subjects who were unable to answer some questions, such as name of ointment used for their treatment.

5) The cover letter/consent form was removed from the remainder of the packet. The cover letter/consent page was disposed of appropriately.

Ethical Considerations

Ethical considerations were reviewed and approval to conduct the study was obtained in the following order: 1) Thesis Committee, 2) The Department of Nursing at the University of Nevada, Las Vegas Human Subjects Rights Committee, 3) The University of Nevada, Las Vegas Human Subjects Rights Committee, 4) and the Administrator of Patient Services at the hospital setting.
Consent and Confidentiality

The participants did not receive any interventions from the researcher. However, they did receive medical treatment from the Burn Unit nurses during the data collection process. Written consent from each subject was obtained prior to data collection. The information letter/consent form informed the participants that all data collected was treated anonymously and reported as a group only. Upon completion of data collection, data were temporarily stored in the researcher’s locked locker in the burn unit and then transferred to a locked file at the researcher’s home residence. Only the researcher had access to the data.

The participants were informed of the risk and benefits of participating in this study. No medical risks were involved in this study. Potential subjects were given the survey packet while they waited for their scheduled treatment. Normally a 10-30 minute wait in the burn unit waiting room is expected before patients are seen. The cover letter stated that refusal to participate or consent to participate would not affect the patient’s treatment in the burn unit. The potential benefits of participating in this study may be that patients reflect upon coping measures following exposure to the questionnaire. The researcher plans to present the results of this study to the burn unit personnel in January of 1999. It is the researcher’s hope that a benefit of the present study will be to expand the burn nurses’ body of knowledge regarding coping strategies of ambulatory burn patients.
Data Analysis

Presentation of the Data

Frequencies and measures of central tendency are used to present data from the
CSQ, the Helpfulness of Prayer Scale, the NRS of Pain, and the demographic form.

Research Questions

The first research question is: What coping strategies are used by ambulatory
burn patients to help them cope with their pain? Frequency distributions and measures of
central tendency are used. A frequency distribution organizes the data allowing for
examination. The coping strategies are listed as a frequency distribution and grouped
from greatest to least used coping strategies. Frequency distributions evaluate the data
for errors in coding and computer programming. Measures of central tendency present a
concise statement of data location (Burns & Grove, 1993).

Measures of frequency distributions and central tendency are also used for
research question two. The second research question is: To what extent do ambulatory
burn patients perceive that their use of coping strategies decreases their pain?

The third research question is: Are ambulatory burn patients' perceptions of the
effectiveness of their coping strategies for pain reduction related to their reported level of
pain during daily dressing changes? A Pearson Product correlation was calculated to
describe the relationship between the variables.

A t-test was chosen for research questions four and five. The t-test gives a
comparison of two groups of subjects with regard to a dependent variable. Research
question four is: Do ambulatory burn patients who use prayer before or during dressing changes report less pain than patients who do not use prayer? Research question five is: Do ambulatory burn patients who use pain medication prior to daily dressing changes report less pain than patients who do not?

Pearson Product correlations were done on the last research question. The sixth research question is: To what extent are burn characteristics (percentage of burn, degree of burn, and days post burn) correlated with level of pain reported by ambulatory burn patients during daily dressing changes? Correlational research is efficient and appropriate for non-experimental descriptive studies. The three items of burn demographics are examined and the relationship of these variables to level of pain are described.

Methodological Limitations

The findings will be limited due to the non-random sample was drawn from one hospital in one geographic area. Thus, generalizations to other populations will be limited. The lack of previous testing of the Helpfulness of Prayer Scale may also limit the study. An additional limitation may be the lack of control regarding pain medication usage.

Summary

This chapter discussed the research design and sampling procedures. A description of the setting was given. The three methods of measurement, (CSQ,
Helpfulness of Prayer Scale, & NRS) were examined and reliability and validity of each discussed. Data collection procedures, ethical considerations, consent and confidentiality were discussed. The chapter concluded with proposed data analysis of each of the six research questions. The study’s limitations were noted.
CHAPTER V

DATA ANALYSIS

Introduction

This chapter presents the results of data analysis. It examines the coping strategies of ambulatory burn patients, and how specific coping strategies influence their level of pain. SPSS-PC was used to analyze data employing descriptive statistics, t-tests, and correlation. The results of statistical analysis are reported according to the six research questions which directed this study.

Sample Number

The sample consisted of adult ambulatory burn patients (N = 136). Data collection began June 1, 1998 and was completed by August 31, 1998. The sample was drawn from one site; an outpatient burn unit located within a Southwestern county hospital. All questionnaires were completed at the setting.

Reliability Analysis

The Coping Strategies Questionnaire (CSQ) by Rosenstiel & Keefe (1983) reported alpha coefficients of .71-.85 for the seven subscales of the CSQ. The present study reports a Cronbach's coefficient alpha range of .71-.86 for the seven subscales.
Ulmer (1997) reported reliability estimates of the seven subscales as .64-85. The present study computed an alpha of .92 for the CSQ in its entirety. (See Table 1).

Demographic Characteristics of the Sample

The age of the sample population ranged between 18 and 79 years of age. The mean age was 40.1 years of age, and the median age was 40.0 with a standard deviation of 12.88 years. The majority (52.9%) of the sample was in the 30-45 year old age group. The sample was predominately male. Ninety-three were male (68.4%) and 43 (31.6%) were female. Racially, the sample was 64.7% White, 15.4% Hispanic, 8.1% Black, 4.4% Asian, 4.4% Other, and 2.9% were Native American. (See Table 2).

The majority of the sample was single (39.7%), with 34.6% married, 18.4% divorced, 5.1% separated, and 2.2% widowed. The majority of the study population had completed high school or the GED equivalent (64%). Thirty-four percent had a college degree or had some college credit. Two subjects (1.5%) reported elementary education as their highest level of education. The religious preference of the sample consisted of 41.2% Catholic. A high percentage listed Other for religion (27.2%), 13.2% listed no religion, while 11% were Protestant, 5.9% were Latter Day Saints, and 1.5% were Jewish. (See Table 3).

Burn Demographics

Seventy-three percent of the sample reported second-degree burns. Seventeen percent reported third-degree burns. However, the degree of burn reported by the subjects was not verified by medical records. Several of the third-degree burns reported by the...
subjects may actually have been diagnosed as deep second-degree burns. The arms were reported as the area burned most frequently (25.5%); followed by legs (18.1%), hands (17.3%), feet (12.8%), back/chest (11.9%), face/neck (7.4%), and abdomen (7.0%). (See Table 4).

A large range existed for the subjects' days post burn. One subject was burned the same day the questionnaire was completed. Another subject had undergone a recent surgical keloid release and had an original burn date of January of 1989. The majority of the subjects (61.8%) had seven or less days post burn injury. (See Figure 1). Excluding the one outlier (N = 135), the mean number of dressing changes the subjects had experienced was 11 with a standard deviation of 15.92. The majority of type of dressing change done was the application of Silvadene (69.9%), followed by the application of an ointment with mesh. No subjects reported the use of accuzyme, a chemical debriding agent that produces a burning sensation for 30 minutes post application. (See Figure 2). The mean for the total body surface area (TBSA) burned was 8.4% with a standard deviation of 10.77. (See Figure 3).

Research Questions Findings

Prior to analysis, an alpha of .05 level of significance was established. Following are the results of analysis pertaining to each research question.

Research Question 1

What coping strategies are used by ambulatory burn patients to help them cope with their pain?
The first question was analyzed using frequencies. Responses were taken from the CSQ. Each item on the CSQ represents one of seven coping strategies. The range of possible scores for each item on the CSQ is 0 (never do that) to 6 (always do that). Scores of 3 (sometimes do that) and higher were considered a positive response. Frequency and percentage of coping strategy used by ambulatory burn patients are listed on Table 5. The most frequently used coping strategy was coping self-statements (87.5%). Praying/Hoping was used by 71.3% of the sample, followed by ignoring pain sensation (63.2%), diverting (60.3%), increased behavioral activity (45.6%), reinventing (41.2%), and catastrophizing (29.4%).

The mean score of coping strategies used by subjects was based on the 0 to 6 scale of the CSQ. Group means are presented in Table 6. Coping self-statements and praying/hoping are the two most frequently used coping strategies with means of 3.83 and 3.13 respectively. The remaining five categories of coping strategies group means were below 3, implying that their usage is never, or almost never, used by burn patients. (See Figure 4).

Research Question 2

To what extent do ambulatory burn patients perceive that their use of coping strategies decreases their pain?

The 48th item of the CSQ addressed the ability of coping strategies used by subjects to decrease pain. The subjects' responses were based on their perceptions that their use of coping strategies could decrease their pain. The range of choices were 0
(can’t decrease it at all) to 6 (can decrease it completely). Eighty-three subjects (61.5%) reported moderate ability to decrease their pain. Moderate ability was identified as a score of 3 - 4 (3 is can decrease it somewhat). Thirty subjects (22.2%) stated maximum ability to decrease their pain (scores of 5-6), and 22 subjects (16.3%) reported minimal ability to decrease their pain (scores of 0-2). (See Table 7).

**Research Question 3**

Are ambulatory burn patients’ perceptions of the effectiveness of their coping strategies for pain reduction related to their reported level of pain during dressing changes?

A Pearson’s Product-Moment Correlation Coefficient (Pearson’s r) was performed for the third research question. An inverse correlation was found between the subject’s perceived effectiveness of their coping strategy to reduce their pain and their reported level of pain ($r = -.282, p = .001$). The subjects who rated their ability to decrease their level of pain in the maximum range reported lower levels of pain.

**Research Question 4**

Do ambulatory burn patients who use prayer before or during dressing changes report less pain than patients who do not use prayer?

The t-test was performed to determine the difference between the two groups; subjects who used prayer, and subjects who did not use prayer, and their level of pain reported. No significant difference was found between the two groups ($t = .988, p = .325$) in their level of reported pain. (See Table 8). Fifty-six subjects (41.2%)
reported using prayer to cope with the pain of their dressing change. The mean score for their reported level of pain was 5.45 with a standard deviation of 3.26. The group who did not use prayer before or during their dressing change reported a mean level of pain at 4.90 with a standard deviation of 3.11. Eighty subjects did not use prayer (58.8%) to prepare for their dressing change. However, the demographic data revealed that 55.9% of the sample reported using prayer fairly or very often prior to their burn injury. A correlation was performed on the group who used prayer and level of pain. A significant inverse relationship was noted ($r = -0.336, p = .011$). Using the Helpfulness of Prayer scale, the higher the rating on the helpfulness of prayer by subjects the lower the level of pain reported.

**Research Question 5**

Do ambulatory burn patients who use pain medication prior to dressing changes report less pain during dressing changes than patients who do not?

The t-test was used to compare the two groups for differences. A significant difference was noted ($t = 3.47, p = .001$) between the group who used pain medication prior to dressing changes, and those who did not use pain medication, regarding their reported level of pain (see Table 9). Seventy-nine subjects used pain medication prior to their dressing change; their mean level of pain was 5.92 with a standard deviation of 2.72. The group of subjects who did not use pain medication prior to their dressing change ($n = 57$) had a reported pain level mean of 4.02 with a standard deviation of 3.44.
The subjects who used pain medication rated their level of pain higher than subjects who did not use pain medication.

The most frequently reported pain medication was Percocet (62%, n = 49), followed by Loratab/Tylenol with Codeine (22.8%, n = 18). Non-narcotic/over the counter medication use was 12.7% (n = 10) and other medications were listed as 2.5% (n = 2).

**Research Question 6**

To what extent are burn characteristics (percentage of burn, degree of burn, and days post burn) correlated with level of pain reported by ambulatory burn patients during dressing changes? Only one burn characteristic, the degree of burn, was statistically significant, \( r = .230, p = .007 \). Table 10 presents the correlation coefficients of the three burn characteristics with level of pain.

Several subjects reported more than one degree of burn, therefore 180 responses were recorded for 136 subjects. The majority of burns recorded were second degree (98.5%). The majority of days post burn were one week or less. The mean percentage of total body surface (TBSA) burned was 8.4% with a standard deviation of 10.77. There were two outliers of patients who had 50% and 70% TBSA burns. Figure 3 illustrates that the majority of burns were 5% TBSA or less.

**Level of Pain Pre and Post Dressing Change**

The Numerical Rating Scale for pain was recorded by subjects pre- and
post-dressing change. The mean score for highest level of pain, for the entire sample (N = 136), pre-dressing change was 4.8. The mean score for highest level of pain, for the entire sample (N = 136), post-dressing change was 5.1.

A paired samples t-test was performed on pain ratings by subjects who did not use pain medication (n = 57) pre- and post-dressing change, no significance was found (t = -0.447, p = 0.656). The pain rating mean score was 3.6 for pre-dressing change and post-dressing change reported a mean of 4.0.

The paired samples t-value of the subjects who used pain medication pre-dressing change (n= 79) was not significant pre-dressing change to post-dressing change (t = -1.205, p = 0.233). The pain rating mean score was 5.78 for pre-dressing change and post-dressing change reported a mean score of 5.9 (See Table 1).

Other Findings

Additional statistical tests were performed to examine other relationships not addressed in the six research questions. A correlation coefficient of 0.1940 (p = 0.024) was noted between age and frequency of prayer. The majority of subjects (52.9%) were in the 30-45 year old age group, and represented the largest group of subjects (N = 25) who used prayer fairly or very often. Females used prayer more often than men (81% v 42%), and subjects with higher education used prayer most frequently of the three levels of education. College educated subjects (55.3%) reported their prayer frequency as very often.

The age group that used pain medication most often was the 30-45 year old
Female subjects used pain medication prior to their dressing change more often than male subjects (72% v. 50%). A Pearson's $r = 6.03$ and $p = .048$ indicated that gender was significant in analgesic usage. Two other correlations done but found to be insignificant were: frequency of prayer and religious preference ($r = -.084$, $p = .326$), and level of pain reported during dressing change and number of previous dressing changes ($r = -.009$, $p = .913$).

**Summary of Findings**

This chapter presented the analysis of data that examined ambulatory burn patients coping strategies, specifically prayer and medication use, the perceived effectiveness of prayer and medication, and burn characteristics in relationship to level of pain reported. Each of the six research questions was discussed. The sample was described, frequencies revealed that majority of the sample was male (68.4%), white (64.7%), their highest level of education was high school, and their mean age was 40 years old.

Research question one determined that coping self-statements (87.5%) and praying/hoping (71.3%) were the most frequently used coping strategies used by the study's sample. Catastrophizing was the least used strategy (29.4%).

The second research question found that the majority of the sample (61.5%) reported moderate ability to decrease their level of pain utilizing a coping strategy. Moderate ability was determined to be a somewhat ability to complete ability of the strategy to decrease level of pain.
Research question three discovered an inverse relationship between the highest level of pain reported and ability to decrease pain ($r = -0.282, p = 0.001$). Research questions four and five had t-test performed. Use of prayer before or during dressing changes was not significant in decreasing pain ($t = 0.988, p = 0.325$). However, subjects who used pain medication reported significantly different levels of pain than subjects who did not use pain medication ($t = 3.47, p = 0.001$).

Research question six concerned burn characteristics. The degree of the burn was the only characteristic that correlated to level of pain ($r = 0.230, p = 0.007$). Days post burn and TBSA were not correlated to level of pain.

The level of pain pre and post dressing change was compared between subjects who used pain medication and subjects who did not use pain mediation. The chapter concluded with additional research findings that were of interest to this study.
CHAPTER VI

DISCUSSION AND SUMMARY

Introduction

This chapter summarizes the study and discusses the significance of the data analysis. The findings are reviewed with regard to the six research questions and conceptual framework of the study. The limitations of the study are addressed. The chapter offers implications for nursing based on findings from the study. Recommendations for further research are offered in the conclusion.

Summary of the Study

The study’s purpose was to examine coping strategies used by ambulatory burn patients for daily dressing changes. Specifically, the use of prayer, and the use of pain medication prior to dressing changes were measured and their influence on level of pain reported. The relationship between burn characteristics (total BSA, degree of burn, and days post-burn) and level of pain was examined. The Betty Neuman System Model (1995) provided the theoretical framework for this study.

The sample consisted of 136 adult patients from an outpatient burn therapy unit at a Southwestern county operated hospital. The study’s participants were given a packet
which included the Coping Strategy Questionnaire (CSQ), two Numerical Rating Scales for pain (NRS), The Helpfulness of Prayer Scale, and the Demographic Data form. Upon completion of the CSQ and first NRS the subject’s burn dressing was changed by a member of the hospital staff. The subject then completed the second NRS, the Helpfulness of Prayer Scale and the Demographic Data form. Data were collected from June 1, 1998 until August 31, 1998.

Discussion of Findings

The Sample

The mean age of the present study sample (N = 136) was 40.1 years old. The sample was predominately male (68.4%). These data are consistent with previous studies on burn patients. Ulmer (1997) reported a mean age of 33 (SD = 14.7) and 78% were male. Ptacek, Patterson, Montgomery, and Heimbach (1995) reported a mean age of 35 (SD = 11) and 83% were male. Geisser, Robinson, and Henson (1994) reported a mean age of 54 (SD = 15.9); however, their sample was predominately female (58.6%).

Several of the mechanisms of burn injuries such as: boiling car radiators, boiling sauces for professional cooking, hot tar or asphalt from roadwork or vehicle accidents involve activities that are associated with men; this may explain the predominance of males in burn studies. The present study excluded patients under the age of 18; this influenced the mean age. The study’s setting reports that children account for 30% of their burn population. However, most studies on burn patients involve only adults.
The subjects of the present study were 64.7% White and 15.4% Hispanic, with the remainder consisting of Blacks, Asians, Native Americans, and Others. This racial profile is consistent with the U.S. Department of Health (1992) profile for the year 2000 (White 72%, Hispanics 11.3%).

The majority of the sample had a high school education or equivalent (64%), with only 1.5% of the sample having elementary school as their highest level of education. The remainder reported some college work or degree. Level of education may have been a significant factor in determining whether or not to participate in the study as reading ability was important to accurately respond to the 48 items on the CSQ.

The burn demographics were consistent with findings of previous burn studies. The mean TBSA of the sample was 8.4% with a standard deviation of 10.77. This is consistent with Choiniere et al.'s (1989) finding of 14.8% TBSA and Ptacek et al.'s (1995) 13.52% of TBSA. The majority of the sample reported second-degree burns (73%). First-degree burns are rarely seen in the hospital setting. The third-degree burns reported by the subjects were not confirmed by medical diagnosis. The majority of these burns were likely deep second-degree burns, which is considered the most painful. True third-degree burns destroy nerve endings and are not painful initially. The mean level of pain reported was 4.82 (highest level of pain today) and 5.12 (highest level of pain during dressing change) on a 0-10 scale, pain scores of 3 or greater are generally treated in the hospital setting.
Examination and Effectiveness of Coping Strategies

Coping self-statements and praying/hoping were the most frequently used strategies of the sample based on the CSQ. These results are supported by Ulmer’s 1997 study of burn patients in which praying/hoping and coping self-statements were the most frequently used. Ptacek et al. did not utilize the CSQ, however, they found a negative correlation between level of pain and positive coping behaviors, such as seeking of support. This sample reported a moderate ability to decrease their level of pain by use of a coping strategy. This finding is supported again by Ulmer’s 1997 study, whose sample had a mean score of 3.4 (moderate level) with a standard deviation of 1.68 for ability to decrease pain.

This study found an inverse correlation between the subject’s perceived effectiveness of their coping strategy to reduce their pain and their reported level of pain. Ptacek et al. (1995) support this finding; their study reported that subjects who relied less on coping strategies reported more pain and poorer post-burn adjustment. In contrast, Ulmer’s study found no correlation (with the exception of catastrophizing) between coping strategy and pain intensity, pain distress, or depressed moods.

Use of Prayer and Level of Pain

The present study found that 41.2% of the subjects reported using prayer before or during their dressing change to cope with their pain. No significant difference was found between the two groups (subjects who used prayer and those who did not) and the level of pain each group reported. The Helpfulness of Prayer Scale used to record prayer
use was developed by Saudia, Kinney, Brown, and Young-Ward (1991). Their study indicated that use of prayer was not significantly related to locus of control in cardiac patients.

The present study’s results do not support prayer as a method to decrease pain. However, the sample reported that 55.9% used prayer frequently. Thus, 14.7% of the sample who did not use prayer prior to or during their dressing change did report using prayer frequently. Considering that 38.2% of subjects reported a pain level of 3 or less (0-10 scale), it is speculated that prayer is not used for mild to moderate pain. There are religious tenets that believe suffering serves a spiritual purpose and this may explain the decrease in use of prayer for pain relief. However, this study found an inverse correlation between level of pain and the group which used prayer, the higher the helpfulness of prayer reported the lower the level of pain reported. Perhaps prayer has a placebo effect; individuals who believe deeply in the benefits of prayer will receive the most benefit from the use of prayer.

**Use of Pain Medication and Level of Pain**

Over half of the subjects used pain medication prior to their dressing change (58%). A t-test was performed and a significant difference was noted in the pain level between subjects who used pain medication and those who did not (t = 3.47, p = .001). This study found another difference between the two groups, the mean for level of pain rating was higher for the groups who used pain medication. This result is congruent with Choiniere et al.’s (1989) study which found that burn patients who received more
analgesia did not necessarily report less pain. However, Ulmer (1997) reported pain intensity scores were lowered in response to opioid analgesia. The study’s setting instructs patients to take their pain medication 30 minutes prior to their dressing change. A possible deterrent to taking pain medication may be the side effect of central nervous system depression associated with many narcotics, such as Percocet, and driving to the burn unit.

**Burn Characteristics and Level of Pain**

The burn characteristics of TBSA burned, degree of burn, and days post-burn were examined for relevance to level of pain. The location of the burn was also evaluated; however, no significance was noted. The only significant Pearson’s $r$ correlation found in this study was between degree of burn and level of pain. This is in contrast to Choiniere et al. (1989) who reported a significant correlation between TBSA and level of pain. However, Choiniere et al.’s also indicated that days post-burn were not significantly related to level of pain, as found in the present study. Choiniere et al. did not address the significance of the different degrees of burns except in context to burn extent.

**Relationship of Findings to Neuman’s Model**

This study’s findings are supportive of Betty Neuman’s Model (1995). Two major components of the Neuman System Model are stress and the client’s response to stress. The system/client is protected from stressors by the flexible line of defense. The
coping strategies examined in this study were used by clients to strengthen their flexible line of defense. This study described which strategies were used to decrease levels of pain.

This study reported an inverse relationship between one’s perceived ability to decrease pain and the level of one’s pain ($r = -0.282, p = .001$). The ability to manage one’s level of pain is seen as system stability. Wellness is defined by Neuman as the greatest possible degree of system stability. This study reported that a majority (83.7%) of the sample believed they had moderate or maximum ability to decrease their pain. The majority of the sample used Prayer/Hoping (71.3%) or pain medication usage (58%) as coping strategies in response to the stress of burn dressing changes.

Limitations of the Study

The study is limited in its generalizability to the Southwestern setting where the study took place. The sample was one of convenience, however, sample demographics were similar to reported statistics from the U.S. Department of Health and Human Services (1992). The burn unit utilized in this study reported that 30% of their population are children who are not represented in the study. It is also possible that a small, but possibly significant percent of the burned population declined to participate in this study due to the amount of reading required.

The Helpfulness of Prayer Scale utilized in this study has had only one previous use, the original study (Saudia et al., 1991), which possibly limits its reliability and
validity for this study. Geisser et al. (1994) noted a limitation of the CSQ, and debated if the subscale of catastrophizing and depression are separate constructs or whether catastrophizing is a symptom of depression.

This study is limited in generalizing its findings for pain management. Procedural pain was the focus in this study; however it is a brief experience for the burn patient who may experience pain throughout the day. Individual nursing technique for dressing changes was not observed; the degree of rubbing while cleaning the burn may account for some variation of level of pain between subjects. The subjects self-reported their degree of burn; this may have hindered results. The final limitation noted was the sample size, although sufficient on several counts, the limited number of minorities restricted this study's ability to investigate cultural influence on the pain experience.

Conclusions

Through considerations of the findings and the study's limitations, the following conclusions are evident:

1. The results of this study can be generalized to those ambulatory burn patients involved in this study.

2. Use of prayer prior to dressing change was not significant in lowering level of pain. However, the sample's most frequently used coping strategy were coping self-statements and praying/hoping.

3. Subjects who used pain medication prior to their dressing change
demonstrated a slightly higher level of pain than those who did not use pain medication. Pain levels for the total sample increased during the dressing change procedure.

4. The higher the perceived ability of the subject to decrease their pain the lower their level of pain reported.

5. The depth of the burn by degree is significant to the level of pain experienced by ambulatory burn patients.

Implications for Nursing

A significant factor of this study is that it adds to the general body of nursing knowledge. It is assumed that knowledge of pain management is important for nursing care, especially in matters involving painful procedures. The nurse in the burn unit is in a delicate position; she/he creates pain for the patient and is also a source of pain relief. The nurses’ knowledge of analgesia and effective coping strategies should be shared with the patient. In the role of educator the nurse who increases her knowledge of pain management ultimately enhances her patient care.

Burn patients routinely are given discharge instructions during their first visit to the burn therapy unit (all patients receive the same instructions). One part of those initial instructions includes telling clients to take something for pain 30 minutes prior to dressing change. However, during subsequent visits the issue of pain is rarely addressed and/or recorded. Knowledge of the effectiveness of pain medication to decrease pain for
this sample may encourage the burn unit nursing staff to routinely inquire about the
patients level of pain and use of medication.

Knowledge of the coping strategies utilized in this sample may encourage burn
units to evaluate their environment. At present, the study’s setting is a large room with
no separation for age groups, therefore at times the environment is very noisy.
Future remodeling may consider an environment that is conducive to patients using
coping self-statements and prayer.

The study’s finding which indicates there is an inverse relationship between the
clients’ perceived ability to decrease pain and level of pain should encourage nurses to
assess their patients’ confidence level in their ability to decrease pain. Pain is a complex
phenomenon. Knowledge of the patient’s ability or inability to effectively cope and alter
their pain will assist the nurse in providing a plan of care that encompasses the patient’s
weaknesses and strengths.

Recommendations

Recommendations for further research studies are made based upon review of this
study:

1. Replicate the present study using hospitalized burn patients as the sample.
This would allow for stronger control of the type of pain management used. Patients who
received sustained released morphine sulphate versus those who received only pm oral
pain meds could be compared.
2. Replicate the present study examining the use of prayer by patients with a specific level of pain (e.g., 4 or greater on 0-10 scale). Investigate the significance of prayer in relieving moderate to high levels of pain.

3. Replicate the present study using a larger sample which includes more minorities. Cultural groups could be examined for their coping strategies and use of prayer.

4. Utilize a more concise tool than the CSQ. The amount of reading (48 items) and reading comprehension required to complete the CSQ may have excluded a significant number of potential subjects.

Summary

This chapter summarized the study, the study’s findings about the sample, coping strategies, level of pain with regard to prayer, medication, and burn characteristics. It reviewed the findings in relationship to Neuman’s Model. The study’s limitations were noted, conclusion were discussed. The implication for nursing and recommendations for future studies were offered.

This study will be presented to the staff at the study’s setting in January of 1999. It is hoped that the knowledge derived from this research will further develop nurses’ knowledge regarding burn patients and the pain they experience. Nursing research that focuses on patient care is considered by many to be the proper focus for nursing research (Baer, 1997).
References


Graham, B. (1997). What exactly is Buddhism, and why is it so hip now? *Self* (12), 159-175.


Table 1

Cronbach's alpha for the Coping Strategies Questionnaire (CSQ) Subscales

<table>
<thead>
<tr>
<th>Researcher(s) using CSQ subscales</th>
<th>Year of Study</th>
<th>alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosenstiel &amp; Keefe</td>
<td>1983</td>
<td>.71-.85</td>
</tr>
<tr>
<td>Ulmer</td>
<td>1997</td>
<td>.64-.85</td>
</tr>
<tr>
<td>Milonas</td>
<td>1998</td>
<td>.71-.86</td>
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Table 2

Frequencies of Sample Demographics Regarding Age, Gender, and Race (N = 136)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
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<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>30</td>
<td>22.1</td>
</tr>
<tr>
<td>30-45</td>
<td>72</td>
<td>52.9</td>
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<tr>
<td>46-59</td>
<td>21</td>
<td>15.4</td>
</tr>
<tr>
<td>60-74</td>
<td>11</td>
<td>8.1</td>
</tr>
<tr>
<td>75 and older</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Gender</td>
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<td></td>
</tr>
<tr>
<td>Female</td>
<td>43</td>
<td>31.6</td>
</tr>
<tr>
<td>Male</td>
<td>93</td>
<td>68.4</td>
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<tr>
<td>Race</td>
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<td></td>
</tr>
<tr>
<td>Asian</td>
<td>6</td>
<td>4.4</td>
</tr>
<tr>
<td>Black</td>
<td>11</td>
<td>8.1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>21</td>
<td>15.4</td>
</tr>
<tr>
<td>Native American</td>
<td>4</td>
<td>2.9</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>4.4</td>
</tr>
<tr>
<td>White</td>
<td>88</td>
<td>64.7</td>
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</table>
Table 3

Frequencies of Sample Demographics Regarding Marital Status, Level of Education, and Religious Preference (N = 136)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Single</td>
<td>54</td>
<td>39.7</td>
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<tr>
<td>Married</td>
<td>47</td>
<td>34.6</td>
</tr>
<tr>
<td>Divorced</td>
<td>25</td>
<td>18.4</td>
</tr>
<tr>
<td>Separated</td>
<td>7</td>
<td>5.1</td>
</tr>
<tr>
<td>Widowed</td>
<td>3</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Level of Education</strong></td>
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<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>High School/GED</td>
<td>87</td>
<td>64.0</td>
</tr>
<tr>
<td>College work/Degree</td>
<td>47</td>
<td>34.6</td>
</tr>
<tr>
<td><strong>Religious Preference</strong></td>
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<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>56</td>
<td>41.2</td>
</tr>
<tr>
<td>Jewish</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>LDS</td>
<td>8</td>
<td>5.9</td>
</tr>
<tr>
<td>Protestant</td>
<td>15</td>
<td>11.0</td>
</tr>
<tr>
<td>None</td>
<td>18</td>
<td>13.2</td>
</tr>
<tr>
<td>Other</td>
<td>37</td>
<td>27.2</td>
</tr>
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</table>
Table 4

Frequencies of Degree of Burn and Body Part Burned (N = 136)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degree</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-Degree Burns</td>
<td>16</td>
<td>8.9</td>
</tr>
<tr>
<td>Second-Degree Burns</td>
<td>133</td>
<td>73.9</td>
</tr>
<tr>
<td>Third-Degree Burns</td>
<td>31</td>
<td>17.2</td>
</tr>
<tr>
<td><strong>Body Part Burned</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arms</td>
<td>62</td>
<td>25.5</td>
</tr>
<tr>
<td>Legs</td>
<td>44</td>
<td>18.1</td>
</tr>
<tr>
<td>Hands</td>
<td>42</td>
<td>17.3</td>
</tr>
<tr>
<td>Feet</td>
<td>31</td>
<td>12.8</td>
</tr>
<tr>
<td>Back/Chest</td>
<td>29</td>
<td>11.9</td>
</tr>
<tr>
<td>Face/Neck</td>
<td>18</td>
<td>7.4</td>
</tr>
<tr>
<td>Abdomen</td>
<td>17</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Note. Subjects reported more than one response for degree of burn or body part burned.
Table 5

Frequencies of Coping Strategies used by Burn Patients (N = 136)

<table>
<thead>
<tr>
<th>Coping Strategy</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping self-statements</td>
<td>119</td>
<td>87.5</td>
</tr>
<tr>
<td>Praying/Hoping</td>
<td>97</td>
<td>71.3</td>
</tr>
<tr>
<td>Ignoring pain sensation</td>
<td>86</td>
<td>63.2</td>
</tr>
<tr>
<td>Diverting</td>
<td>82</td>
<td>60.3</td>
</tr>
<tr>
<td>Increased behavioral Activity</td>
<td>62</td>
<td>45.6</td>
</tr>
<tr>
<td>Reinventing</td>
<td>56</td>
<td>41.2</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>40</td>
<td>29.4</td>
</tr>
</tbody>
</table>

Note. Frequency scores based on subjects response of 3 (sometimes do that strategy) to 6 (always do that strategy) on Coping Strategy Questionnaire.
Table 6

Mean Scores of Coping Strategies used by Burn Patients (N = 136)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Group Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping self-statements</td>
<td>3.83</td>
</tr>
<tr>
<td>Praying/Hoping</td>
<td>3.13</td>
</tr>
<tr>
<td>Ignoring pain sensation</td>
<td>2.59</td>
</tr>
<tr>
<td>Diverting</td>
<td>2.55</td>
</tr>
<tr>
<td>Increased behavioral Activity</td>
<td>1.97</td>
</tr>
<tr>
<td>Reinterpreting</td>
<td>1.89</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>1.55</td>
</tr>
</tbody>
</table>

Note: The mean score is based on the scale 0 (never do that strategy) to 6 (always do that strategy) on the Coping Strategies Questionnaire.
Table 7

**Frequencies of Burn Patients’ Perceived Ability of Coping Strategy to Decrease Pain**

(N = 135)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal ability</td>
<td>22</td>
<td>16.3</td>
</tr>
<tr>
<td>(0-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate ability</td>
<td>83</td>
<td>61.5</td>
</tr>
<tr>
<td>(3-4)</td>
<td></td>
<td></td>
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<tr>
<td>Maximum ability</td>
<td>30</td>
<td>22.2</td>
</tr>
<tr>
<td>(5-6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Variable categories based on scores from the Coping Strategies Questionnaire.

*Missing data from one subject.
Table 8

*t-test Results of Burn Patients who use Prayer vs. who did not use Prayer and Level of Pain (N = 136)*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest level of Pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-Dressing change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prayer used</td>
<td>56</td>
<td>5.45</td>
<td>3.26</td>
<td>.988</td>
<td>.325</td>
</tr>
<tr>
<td>Prayer not used</td>
<td>80</td>
<td>4.90</td>
<td>3.11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Table 9

*t-test of Burn Patients who use Pain Medication vs. Burn Patients who do not use Pain Medication and Level of Pain Post-Dressing Change*

*(N = 136)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain medication used</td>
<td>79</td>
<td>5.92</td>
<td>2.72</td>
<td>3.47</td>
<td>.001</td>
</tr>
<tr>
<td>No pain medication used</td>
<td>57</td>
<td>4.02</td>
<td>3.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 10

Pearson’s Correlation of Burn Characteristics to Level of Pain during Dressing Change

(N = 136)

<table>
<thead>
<tr>
<th>Variables</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of TBSA</td>
<td>.121</td>
<td>.159</td>
</tr>
<tr>
<td>Degree of Burn</td>
<td>.230</td>
<td>.007</td>
</tr>
<tr>
<td>Days Post-Burn*</td>
<td>-.134</td>
<td>.124</td>
</tr>
</tbody>
</table>

Note. TBSA is a calculated measurement of the total body surface area burned.

* Three cases omitted over 90 days post-burn.
Table 11

One Sample t-test on Levels of Pain (Pre- and Post-Dressing Change) for Subjects who used Pain Medication and Subjects who did not use Pain Medication (N = 136)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects who used pain medication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain pre-dressing change</td>
<td>79</td>
<td>5.7</td>
<td>2.28</td>
<td>22.55</td>
<td>.000</td>
</tr>
<tr>
<td>Pain post-dressing change</td>
<td>79</td>
<td>5.9</td>
<td>2.72</td>
<td>19.35</td>
<td>.000</td>
</tr>
<tr>
<td>Subject who did not use pain medication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain pre-dressing change</td>
<td>57</td>
<td>3.6</td>
<td>2.82</td>
<td>9.72</td>
<td>.000</td>
</tr>
<tr>
<td>Pain post-dressing change</td>
<td>57</td>
<td>4.0</td>
<td>3.43</td>
<td>8.83</td>
<td>.000</td>
</tr>
</tbody>
</table>
Figure 1. Frequency of Days Post Burn.

SD = 16.14
Mean = 10.8
N = 135
Figure 2. Frequency of Type of Dressing Change Done (N = 136).
Figure 3. Frequency of Burned Total Body Surface Area Percentage

SD = 10.75
Mean = 8.5
N = 136
Figure 4. Average Scores of Seven Subscales of Coping Strategies Questionnaire.
Figure 5. Percentage of Samples' Ability to Decrease Pain (N = 136).

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APPENDIX C

INSTRUMENTS

Coping Strategies Questionnaire
Helpfulness of Prayer Scale
Numerical Rating Scale
Demographic Form
COPING STRATEGIES QUESTIONNAIRE

Individuals who experience pain have developed a number of ways to cope, or deal, with their pain. These include saying things to themselves when they experience pain, or engaging in different activities. Below are a list of things that individuals have reported doing when they feel pain. For each activity, I want you to indicate, using the chart below, how much you engage in that activity when you feel pain, where a 0 indicates you never do that when you are experiencing pain, a 3 indicates you sometimes do that when you are experiencing pain, and a 6 indicates you always do it when you are experiencing pain. Remember, you can use any point along the scale.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never do that</td>
<td>Sometimes do that</td>
<td>Always do that</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When I feel pain . . .

_____ 1. I try to feel distant from the pain, almost as if the pain was in somebody else's body.

_____ 2. I leave the house and do something, such as going to the movies or shopping.

_____ 3. I try to think of something pleasant.

_____ 4. I don’t think of it as pain, but rather as a dull or warm feeling.

_____ 5. It’s terrible and I feel it’s never going to get any better.

_____ 6. I tell myself to be brave and carry on despite the pain.

_____ 7. I read.

_____ 8. I tell myself that I can overcome the pain.

_____ 9. I take my medication.

_____ 10. I count numbers in my head or run a song through my mind.

_____ 11. I just think of it as some other sensation, such as numbness.
When I feel pain . . .

_____ 12. It's awful and I feel that it overwhelms me.

_____ 13. I play mental games with myself to keep my mind off the pain.


_____ 15. I know someday someone will be here to help me and it will go away for awhile.

_____ 16. I walk a lot.

_____ 17. I pray to God it won't last long.

_____ 18. I try not to think of it as my body, but rather as something separate from me.

_____ 19. I relax.

_____ 20. I don't think about the pain.

_____ 21. I try to think years ahead, what everything will be like after I've gotten rid of the pain.

_____ 22. I tell myself it doesn't hurt.

_____ 23. I tell myself I can't let the pain stand in the way of what I have to do.

_____ 24. I don't pay any attention to the pain.

_____ 25. I have faith in doctors that someday there will be a cure for my pain.

_____ 26. No matter how bad it gets, I know I can handle it.

_____ 27. I pretend it's not there.

_____ 28. I worry all the time about whether it will end.

_____ 29. I lie down.
When I feel pain . . .

_____ 30. I replay in my mind pleasant experiences in the past.

_____ 31. I think of people I enjoy doing things with.

_____ 32. I pray for the pain to stop.

_____ 33. I take a shower or a bath.

_____ 34. I imagine that the pain is outside of my body.

_____ 35. I just go on as if nothing happened.

_____ 36. I see it as a challenge and don’t let it bother me.

_____ 37. Although it hurts, I just keep on going.

_____ 38. I feel I can’t stand it anymore.

_____ 39. I try to be around other people.

_____ 40. I ignore it.

_____ 41. I rely on my faith in God.

_____ 42. I feel like I can’t go on.

_____ 43. I think of things I enjoy doing.

_____ 44. I do anything to get my mind off the pain.

_____ 45. I do something active, like household chores or projects.

_____ 46. I use a heating pad.
47. Based on all the things you do to cope, or deal, with your pain, on an average day, how much control do you feel you have over it? Please circle the appropriate number. Remember, you can circle any number along the scale.

0 1 2 3 4 5 6
No Some Complete
control control control

48. Based on all the things you do to cope, or deal, with your pain, on an average day, how much are you able to decrease it? Please circle the appropriate number. Remember, you can circle any number along the scale.

0 1 2 3 4 5 6
Can’t Can decrease Can
decrease it somewhat decrease it completely it at all
Helpfulness of Prayer Scale

Instructions:

Several methods have helped people relax while getting ready for their dressing change. Prayer as communication with a Higher Being is one method found to help people cope with the stress of painful procedures like dressing changes. Please indicate whether this method is helpful to you. Rate how helpful on the scale provided.

1. Have you used prayer to help you prepare for the discomfort or pain of your dressing change, or did you pray during the dressing change?

__________YES

__________NO

If YES, how helpful was it?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

not at all extremely
helpful helpful
Numerical Rating Scale Prior to Dressing Change

Please circle the highest level of pain you have experienced today.

0 1 2 3 4 5 6 7 8 9 10

no worse pain
pain ever

STOP! COMPLETE THE FOLLOWING AFTER YOUR DRESSING CHANGE.

Numerical Rating Scale After Dressing Change

Please circle the highest level of pain you experienced during your dressing change today.

0 1 2 3 4 5 6 7 8 9 10

no worse pain
painless ever
DEMOGRAPHIC DATA

1. AGE ___

2. SEX Female ___ Male ___

3. RACE
   Asian ____ Black ____ Hispanic ____ Native American ____ Other ____ White ___

4. MARITAL STATUS
   Married ____ Separated ____ Divorced ____ Single ____ Widowed ____

5. HIGHEST LEVEL OF EDUCATION
   Elementary ____ High School/GED ____ College work/degree ____

6. PRIOR TO YOUR INJURY HOW OFTEN DID YOU PRAY?
   Never (0) ____ Not Often (monthly or less) ____
   Fairly Often (weekly) ____ Very Often (daily) ____

7. PLEASE SPECIFY A RELIGIOUS PREFERENCE
   PLEASE INDICATE WHICH OF THE FOLLOWING
   Catholic ____ Jewish ____ LDS ____ Protestant ____ None ____ Other __________

8. DID YOU TAKE ANY MEDICATION FOR PAIN TODAY FOR YOUR DRESSING CHANGE?
   Type/Name ___________________________
   Dosage ______________________________

9. WAS IT TAKEN IN THE PAST 3 HOURS?
   YES ___________ NO ___________
   IF NOT THEN WHEN? __________________

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DEMOGRAPHIC DATA

10. DATE OF BURN INJURY

11. TODAY'S DATE

12. NUMBER OF PREVIOUS DRESSING CHANGES

13. BODY PART(S) BURNED
   Face/Neck  Back/Chest  Arms  Abdomen  Legs  Feet  Hands

14. DEGREE(S) OF BURN
   1st  2nd  3rd  4th

15. PERCENTAGE OF TOTAL BODY SURFACE BURNED

16. TYPE OF DRESSING CHANGE DONE
   Debridement
   Silvadene
   Sulfamylon
   Accuzyme
   Ointment/Mesh
   Wet-to-dry
   Xeroform
APPENDIX D

APPROVAL LETTERS

Cover Letter

Subjects Consent

Authors Consent

Administration Consent at Setting

Office of Sponsored Programs Consent
Dear Patient,

My name is Renee Milonas. I am a Registered Nurse at the Burn Care Unit. I am also a graduate student at the University of Nevada, Las Vegas. I am conducting research on coping strategies of burn patients who are having daily dressing changes, and I invite you to participate. Any adult burn patient receiving follow-up care at the burn clinic is invited to participate in this study.

The purpose of this study is to investigate how people with burns deal with daily dressing changes. Participation is strictly voluntary and confidential. Your decision to participate or refusal to participate will in NO way affect your care. You may withdraw at any time. There are three steps to this research. 1) Upon signing this consent form, I will ask you to rate your pain today then give you the Coping Strategy Questionnaire to fill out (this should take 5-10 min.). 2) The burn care staff will change your dressing. 3) I will ask you to rate your pain during the dressing change and give you two short questionnaires to fill out (this should take 3-5 min.). I am available to answer questions or assist you as needed. No health risks have been identified from participating in this study.

As the sole researcher I will be the only one to see your answers. I will keep all completed questionnaires in a locked container. There is no particular benefit to you for participating in this study. However, future burn injured patients may benefit from this research. This consent form will be separated from your questionnaires. Your name will not be used and your identity will remain concealed.

Your participation is greatly appreciated. If you would like additional information or have concerns about this study please contact, Dr. Susan Kowalski, at 895-3404. If you have concerns about human subjects rights, please call the Office of Special Programs at UNLV 895-1357.

_________________________ signature
_________________________ date
April 2, 1998

Francis J. Keefe, Ph.D.
Psychology Depart.
Ohio University

Dear Prof. Keefe:

Thank you for your response to my query on March 31, 1998. My thesis title is, Coping Strategies of Ambulatory Burn Patients during Daily Dressing Changes. My sample will consist of 100 outpatient burn patients. Who will receive a cover letter explaining the purpose of the study. Participation will be voluntary and results kept confidential. My study will be approved by my thesis committee and the Human Subjects Rights committee at UNLV before it is implemented.

The subjects who volunteer will be given the following forms: The Coping Strategies Questionnaire, The Helpfulness of Prayer Scale, and demographic data sheet (age, sex, religion, marital status, education level, burn percentage, degree of burn, and total body surface of burn). I will also record a verbal brief pain inventory following their dressing change.

The purpose of my study is to examine the coping behaviors used by ambulatory burn patients to help themselves cope with the painful experience of daily dressing changes. I am requesting permission to use the CSQ because of its high reliability and validity noted in numerous studies.

Thank you again for your assistance. If you are interested in my study results, I will be happy to send you my thesis upon completion. For your convenience I have typed a consent form below.

Sincerely,

Renee Milonas RN, BSN

I (Francis J. Keefe) grant permission to Renee Milonas to utilize the Coping Strategies Questionnaire in her study, Coping Strategies of Ambulatory Burn Patients during Daily Dressing Changes.

Francis J. Keefe

Department of Nursing
4505 Maryland Parkway • Box 453018 • Las Vegas, Nevada 89154-3018
(702) 895-3360 • FAX (702) 895-4807
Theresa L. Collins, Maj, USAF, NC
1441 Ticonderoga Ct
Beavercreek, OH 45434
e-mail: collinsth@medcenoa.wpafb.af.mil
16 March 1998

Renee Milonas
3-431 Bankside Drive
Las Vegas, NV 89129

1. I grant Renee Milonas permission to utilize the "Helpfulness of Prayer Scale" in her research study to assess the use of prayer in burn patients.

2. I am pleased to grant permission to use this scale, since use of this scale with increased numbers of subjects and in a variety of settings is necessary to further validate this newly developed instrument. The instrument was tested on 100 subjects following a pilot study with 10 subjects.

3. Thank you for the opportunity to share this instrument with you. Good luck with your research study. Please send me a copy of your finished product. I am very interested to find if you get the same kind of results with the use of this instrument in another setting. I will be sure to let you know my forwarding address once I know where I will live in Maryland.

Theresa L. Collins, Maj, USAF, NC
Dear Ms. Marrett:

I am requesting permission to perform a research study in the Burn Care Therapy (BCT) unit at UMC. I am a graduate student in the Nursing Department at the University of Nevada, Las Vegas. My thesis concerns the coping strategies of ambulatory burn patients.

My study is a survey using questionnaires. A cover letter will be given to eligible patients. Eligible patients are 18 years of age or older, and able to read and write in English. A written consent will be obtained. The patient will be given a demographic sheet and coping strategy questionnaire to fill out while in the BCT waiting room. After the patient has received their dressing change, the researcher will record their pain rating and helpfulness of prayer. No intervention is performed by the researcher. The consent form will be removed upon completion of the questionnaires to assure anonymity. See attached for consent forms and instruments.

The entire process of completing the questionnaires will take each subject approximately 10-15 minutes. Participation in the study presents no health risk. The cover letter emphasizes that participation or refusal to participate in no way effects their treatment in the BCT unit. I am the only researcher involved in the study. If you have any questions or concerns regarding this study, the University of Nevada, Las Vegas Office of Sponsored Programs (OSP) phone number is 895-1357. A copy of this letter has been written to Elaine Young, Director of Staff Education.

It is my hope that the data collected will add to the nursing knowledge and assist the staff in providing the best nursing care possible at UMC. Thank you for your support.

Sincerely,

Renee Milonas R.N., B.S.N.
DATE: May 27, 1998

TO: Renee Milonas
M/S 3018 (NUR)

FROM: Dr. William E. Schulze, Director
Office of Sponsored Programs (X1357)

REF: Status of Human Subject Protocol Entitled:
"Coping Strategies of Ambulatory Burn Patients
During Daily Dressing Changes"

OSP # 501s0598-040

The protocol for the project referenced above has been
reviewed by the Institutional Review Board Secretary in the
Office of Sponsored Programs and it has been determined that
it meets the criteria for approval under the Multiple
Assurance Agreement for the UNLV Human Subjects
Institutional Review Board. This protocol is approved for
a period of one year from the date of this notification and
work on the project may proceed.

Should the use of human subjects described in this protocol
continue beyond a year from the date of this notification,
it will be necessary to request an extension.

If you have any questions regarding this approval, please
contact Marsha Green in the Office of Sponsored Programs at
895-1357.

cc: S. Kowalski (NUR-3018)
OSP File
VITA

Graduate College
University of Nevada, Las Vegas

Renee Milonas

Local Address:
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Las Vegas, NV., 89129

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Special Honors:
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Zeta Kappa Chapter

Thesis Title: Coping Strategies of Ambulatory Burn Patients During Daily Dressing Changes.

Thesis Examination Committee:
Chairperson, Dr. Susan Kowalski, Ph.D.
Committee Member, Dr. Susan Rush Michael, D. N.Sc.
Committee Member, Dr. Cheryl Bowles, Ed.D.
Committee Member, Dr. William Healey, Ph.D.