CHAPTER 2

LITERATURE REVIEW AND CONCEPTURAL FRAMEWORK

Literatures related to burn injury, stressor and stress appraisal, and coping related to burn injury were reviewed and presented in this chapter as follows :

1. Burn injury
2. Stressor and stress appraisal
3. Coping

Literature review and related researches

Burn injury

Burns is characterized by the damage and loss of skin. The tissue injury from burn injury is related to the coagulation of cellular protein as a result of heat produced by thermal, chemical, electrical, or radiation energy (Cardona et al., 1994). The extent and depth of burns are two important predictors of survival/morbidity. The extent of burns is also a predictor of surgical management, functional outcome, and cosmetic (Cardona et al., 1994). The area of the body most commonly involved is upper extremity (70%), and the next most common area is the head and neck (50%)(Demling, 1989, cited in Helm, 1992). In China

thermal injuries are recorded as the leading cause of adult burns. It was reported that head, neck and extremities were common burned area. Li (1995) found in his study that burn injuries involved face of 52% and hand of 44% of the subjects. Therefore, the left over scars, disfigurement, and disability are common as inevitable consequences.

Extent and depth of burns are two dominant determinants of burn classification. According to the American Burn Association (Soloekin & Knipe, 1996), the severity of burn injury is classified as mild, moderate, and severe levels. Mild burn injury is partial-thickness or second degree burns with less than 15% of body surface area (BSA) or full-thickness or third degree burn with less than 2% of BSA. Moderate burns injury is second degree burns with 15-25% of BSA or third degree burns with 2-10% of BSA. Severe burn injury is second degree burns with more than 25% of BSA or third degree burns with more than 10% of BSA (Lewis et al., 1996).

According to Settle (1996), a superficial burns involves only the thinner outer epidermis layer, the damaged epithelium peels off without leaving any residual scarring. For a partial thickness burns, the entire epidermis and various portions of the dermis layer are heat destroyed. For superficial partial thickness burns, it is an extremely painful trauma, healing through epithelialization with skin

change, but without any scar; whereas, deep partial thickness burns healing usually leaves scar. A full-thickness burns, a destruction of all skin elements, sometimes involves underlying muscle, tendon or bone. The coverage of the wound is characterized with hypertrophy scar (Settle, 1996). At three teaching hospitals of Hunan Medical University, the majority of suffering burned patients ranged from mild to severe burn injury. Therefore, tremendous pain and scar can be anticipated among most patients.

Burn management

Treatment of wound generated from burn injury is an important aspect of burn management. Different methods of treating for the different burned area may be used, mainly depending on the location, size, and depth of the burns. Commonly used methods include the open or exposure method, the semiopen method, and the closed method (Phipps, Cassmeyer, Sands & Lehman, 1995).

For open or exposure method, the burned area is exposed to the air with no covering and without the application of any powders or antibiotics. Patients having exposure treatment complain of pain generated by dryness of the wound and chilling.

Semiopen wound care method consists of covering the wound with topical antimicrobial agent and a thin layer of gauze to keep the agent in contact with the wound. With this

method, there is the need to clean the wound once or twice a day depending on the amount of exudate from the wounds. With this method, patients often suffer more pain and feel awful during the wound care procedure.

At the three teaching hospitals of Hunan Medical University, semiopen method and closed method are commonly used. For semiopen method, topical agents such as 1% silver sulphadiazine cream are routinely used. The dressing change depends on the amount of exudate from the wound. In general, there is no need to clean the wound everyday. For closed method, synthetic dressing and biosynthetic dressing are widely used to cover the wound temporarily. Wound dressing even is not required daily, but is inevitable. Multiple steps of debridement and skin grafting are necessary for burned patients with deep-partial thickness and/or full-thickness burns. Such procedures are painful and seem to be endless until the wound is completely healed.

With the closed method of burn treatment, the dressing consisting gauze impregnated with topical ointment and a gauze wrap are used. Dressing change is needed at least once a day. This method of dressing makes patient condition easy to engage in daily activities. Moreover, they may feel good since they do not see the wound. However, painful suffering is inevitale while removing the dressing from the wound.

In addition to those sufferings, hypertrophic scarring generated at site of deep-partial thickness or full-thickness burns during the healing process is a major concern among the burned patients (Settle, 1996). It causes both contractures and deformities, particularly if it extends across the joint. Therefore, it produces limitation of function and severe disfigurement. Repeated constructive operation will be needed to improve function and appearance. Burn injury should be viewed as a chronic illness in which first hospitalization is only the initial event.

Impact of burn and burn management

Extensive burn injuries are many aspects of the most of all tragedies an individual can experience. An extensive burn has profound impact on physical well-being. Burn survivors often experience severe pain originated from injury as well as it's treatment (Bernstein, 1993, cited in Difede et al., 1993). Scars and contractures are common sequelae of burns. It frequently results not only in severe visible deformity, but also significant functional disability, especially hypertrophic scars that extend across joints (Settle, 1996). Burn injuries at face, neck and hands can result in long-term morbidity owing to functional impairment and altered in appearance (Demling, 1989, cited in Helm, 1992).

On the other hand, burns also result in extensive

impact on psychological, emotional, and social well-being. After recovery from the acute phase of burns, disfigurement and loss of function represent major problems for the burned patients. As the discharge day approaches, the patients' awareness of altered body image and loss of function gradually grows. The concern of future and fear of returning to home community with odd-looking marks are the priorities. Many patients exhibit apprehension, anxiety (Franulic, et al., 1996), and depression (Patterson, et al., 1993). Burned patients with body alteration may feel isolated, excluded, helpless and low self-esteem (Brundage & Broadwell, 1991). Facial disfigured patients have more afflicts and distress (Bull & Rumsey, 1993, cited in McGrouther, 1997); thus, change of personality can be found (Konigova & Pondelicek, 1987). Some of burned patients may deal with the world by withdrawal (Bernstein, Connell, & Chedekel, 1992). Burn scar is more likely to evoke public avoidance or revulsion than sympathy (Settle, 1996); hence, burned patients with altered appearance and function may suffer from different degrees of social discrimination.

Stressor and stress appraisal

Stress is conceptualized in several ways. Lazarus and Folkman (1984) viewed stress within a transactional model. This Model views the persons and

environment in a dynamic, reciprocal, and interactive relationship. Stress is defined as a transaction between an individual and his/her environment that is appraised by him/herself as taxing or exceeding his/ her resources and endangering his/her well-being. According to this view of stress, the person's interpretation of the event is important to consider. The meaning given to the event by the individual and evaluation of the adequacy of coping resources determine the individual appraisal of a situation as stressful.

In this model, cognitive appraisal is an assessment activity that evaluates whether and to what extent the transaction is stressful to the individual. There are three kinds of cognitive appraisal: primary, secondary, and reappraisal. During primary appraisal, demands are perceived as irrelevant, benign-positive or stressful according to the possible impact of the stressor on the individuals' well-being. Stressful appraisal includes harm/loss, threat, and challenge. For harm/loss, some damage to the person has already been sustained, as in an incapacitating injury or illness, recognition of some damage to self- or social esteem, of loss of a loved or valued person. The most damaging life events are those in which central and extensive commitments are lost. Threat concerns harms or losses that have not yet taken place, but, are anticipated,

Even when a harm/loss has occurred, it is always fused with threat because every loss is also pregnant with negative implications for the future. Challenge has in common with threat in that it too calls for the mobilization of coping efforts. The main difference is that challenge appraisals focus on the potential for gain or growth in an encounter and they are characterized by pleasurable emotions such as eagerness, excitement, and exhilaration, whereas threat centers on the potential harms and is characterized by negative emotions such as fear, anxiety, and anger. Secondary appraisal considers available coping options and their potential efficacy in reducing potential harm. Reappraisal refers to a changed appraisal based on new information from the environment and/or the person.

An individual's stress level is the net result of the primary and secondary appraisals, and reappraisal of his or her personal and external environmental demands, coping resources and coping constraints at that moment. The person-environment transaction is an ongoing process. Reappraisal may occur at any time as the person's situation changes.

In the transaction model, cognitive appraisal is perceived a determinant of consequence of transaction between person and environment. Some studies revealed burn stressors and stress response among burned patients. However, few studies have been done on stress appraisal of

burned patients which generated different outcome as stress responses. This transaction theory clearly explained individual's difference in stress appraisal under comparable situation.

Measurement of stressor and stress appraisal

Within the transaction model, only few stress instruments reflecting stressor and stress appraisal are available. Hassles Scale developed by Kanner, Coyn, Schaefer and Lazarus (1981), based on transaction theory of Lazarus and Folkman (Eckenrode & Bolger, 1995), is one of the common instruments. This scale was originally developed on the basis of stress that community residents experienced in their past month. Most of the items in the scale focus on daily hassles in normal life of people.

Burns is a major life event and brings tremendous changes to survivors. Daily stressors they facing are quite different from others. Few items can be applied to the hospital situation of the burned patients. The researcher developed Stress Appraisal Scale (SAS) based on the stress concept used in the Hassles Scale and the review of the literature related to burned patients. The SAS consists of 33 items including two dimensions: personal stressor for 19 items and environmental stressor for 14 items. Appraisal towards each of the stressors among items was assessed. It was used to measure stressor and stress appraisal of adult

burned hospitalized patients who were scheduled to be discharged in this study.

Stressor and stress appraisal among burned patients

Burns is among the most devastating of traumatic injuries (Baker, Jones, & Sanders, 1996). It is sudden in onset. Burned patients enter the situation unprepared. They are exposed to overwhelming stimuli or stressors, such as daily dressing changes, wound debridement, long-term range of motion restriction, repeated surgeries, and uncertain feeling (Patterson et al., 1993). In addition, burn injury brings about various losses such as loss of appearance, loss of functional ability (Blumenfield & Schoeps, 1992) and loss of property (Difede et al., 1997). The victims are plunged into physiological and emotional crisis (Lewis & Collier, 1993). They often experience severe pain originated from the injury and its treatment (Bernstein, 1993, cited in Difede, et al., 1997). Emotion distress is found to have high correlation with pain perception. The more perception of pain, the more psychological distress (Difede et al., 1997).

At acute phase, post-traumatic stress symptoms are almost universal (Neyes, & Andreasen, 1971, cited in Tucker, 1986). Anxiety, increased startle, insomnia, nightmare of the fire (Tucker, 1986) in addition to severe physiological stress, such as anoxia, electrolyte imbalance, infections, and edema (Settle, 1996) are commonly found.

Patterson and colleagues (1993) found that many burned people who were hospitalized showed a variety of symptoms suggesting various levels of distress which were manifested by anxiety, depression, delirium, and pain. Their finding revealed that between 19% and 61% of burned patients reported the experience of mild depression, and up to 47% reported the experience of anxiety.

Choiniere and colleagues (1989) studied the experience of 42 hospitalized burn patients. There were 34 women and 8 men participated in their study. The finding showed that 30% of the patients exhibited moderate to severe depression. In addition, they found that resting pain of the burned patients positively correlated with anxiety and depression. These findings were supported by the reports from other studies that high level of psychological disturbance and high depression among burned patients were commonly found during their hospitalization (Clark, Minas, & Stuat, 1997; Pruzinsly, Rice, Himel, Morgan, & Edlich, 1992).

Burned patients have to cope with the sudden changes of their body appearance, function, and environment during the first period of hospitalization and gradually get used to it. However, as the wound heals, body changes become more and more apparent. Newly-healed skin with changed color, gradually raised scars, and limitation of function are

recognized as new stressors.

Discharge means returning to the patients' home community. It should be the joyful situation for most of the patients. Some of them usually eager to go back home. Unfortunately, it is completely different for burn patients. The burn unit and whole hospital is a cocoon of comfort and acceptance in which the patient's scars and injuries are not a subject of interest, remark, or question. However, the outside world from which the patient has been insulated is a very different matter. Others' reaction to their odd-looking marks and the functional implication for the future are predominant concerns for burned patients (Partridge & Robinson, 1995). They are forced to face with the transaction from hospital environment to home community. The successful transaction depends on individual appraisal of the event and the coping stretegy he/she uses. Therefore, some studies reported the evidence that this group of the patients exhibited different stress responses (Tucker, 1987; Patterson et al., 1993; Patridge & Robinson, 1995; Wallace & Lees, 1988).

As the discharge day approaches, the burned patients exhibit anxiety (Tucker, 1986; Patridge & Robinson, 1995), apprehension, and fear (Patridge & Robinson, 1995). Tucker (1987) found that anxiety and depression were moderately elevated among 22 pre-discharge burned patients,

consequently, dropped to low or normal with the passage of time. This finding indicated that discharge was anxiety-provoking stimulus because cocoon of hospital had to be left behind.

Wallace & Lees (1988) conducted an investigation among sixteen burned patients at their first discharge, six months later, and 2 years after. The result showed that 31% of sample at discharge, 38% of 6- month sample and 40% of 2-year sample had scores indicative of significant depression and/or anxiety. In addition, there was a high significant relationship between depression and anxiety scores at discharge and six months, suggesting that there was no improvement over time. Taal and Faber (1998) revealed that at two years later following discharge, 33% of subjects among 174 adult burned patients suffered severe stress.

The above studies have shown that most of burned patients have a stressful experience during hospitalization as well as at discharge. Little was found on stressor and stress appraisal among burned Chinese patients who were scheduled to be discharged. Such study was needed.

Factors influencing stress appraisal

Factors influencing stress appraisal includes personal and environmental factors. Personal factor involves age, gender, site and severity of burn injury. Environmental factor consists of duration of

hospitalization, relationship with significant others, and economic status. Different age groups have different stress appraisal. Demands of social roles facing younger and older persons and life experience are pretty different. Their expectations about their respective future shape how they deal with similar stressful situation and end up with having quite different stress appraisal. However, Mateu and Hernandez (1996) found that age of adult burned hospitalized groups was not significantly related to psychological disturbance.

Gender is another factor that has influence on stress appraisal. Female patients who were visibly disfigured reported more subjective distress than male patients (Patterson et al., 1993). Girls and young women reported greater levels of depression than boys and young men (Orr, Reznikoff, & Smith, 1989). Another study sevealed that depression was prevalent after burn injury. Result from the interview showed that 20.6% of the males had some degree of depression, whereas 27% of the females had mild to moderate or severe depression (Ward et al. 1987, cited in Pruzinsky et al., 1992).

The patients with burned injuries and disfigurement at face and hand need to adapt more than others (Tucker, 1986). Facial disfigured patients have more afflicts and distress resulting from pressure in modern cosmopolitan

society to confirm to an idealized appearance (Bull & Rumsey, 1993, cited in McGrouther, 1997). Visible burns contributed to approximately one-third of the total variable in measuring of depression and posttraumatic stress (Williams & Griffiths, 1991). Burns to hands and face predisposed patients to depression and patients with physical deformities took longer time to adapt and return to work compared to those with no visible deformities (Chang & Herzog, 1971, cited in Patterson et al., 1993). However, White (1982) found no relationship among anxiety, depression, and site of burns.

It might be expected that the larger the surface area of the burn, the more psychological distress the patient will be. There was evidence that patients with burns exceeding 40% of total body surface area (TBSA) had higher mean scores of dysfunction on the Burn Specific Health Scale in the affective and body image domains (Blades, Mellis, & Munster, 1982).

Extent and depth of burns are two important determinants of severity of burns. There is commonly belief held that the degree of psychological reaction is related to the severity of the burns. This had been reported by Cobb, Maxwell, and Silverstein (1990). Mateu and Hernandez (1996) found that the extent and depth of burn injury influenced emotional function at discharge. However, Some studies found

no relationship between severity of the burns and subsequent psychological adjustment (Browne et al., 1985; Qested et al., 1988, cited in Settle, 1996; and Wallace & Lees, 1988). Franulic and colleagues (1996) reported that there was no significant correlation among extent of burns, anxiety, and depression among 25 adult hospitalized burned patients. One explanation for this contradiction was that psychological adjustment was determined by the site of the burn and the degree of disability produced rather than its actual severity (Browne et al., 1985; Sheffield, Irons, Mucha, Malce, Ilstrup, & Stonnington, 1988).

Length of hospital stay was one of environmental factors influencing psychological problems (Mateu & Hernandez, 1996). Length of stay per se is not related to psychological function, but it predicates physical function. That is, those patients who stay longer in the hospital reported lower physical functioning and vice versa (Baker et al., 1996).

Good relationship with significant others helps to blunt emotional distress (Orr et al., 1989). Tucker (1986) reported that the most prominent ameliorating factor was good significant support from peers or other burned patients, family, and staff. Therefore, patients who have regular visits from family and social interactions with staff may all mitigate emotional problems in the burn unit.

One study demonstrated that the maintenance of a person's physical and psychological well-being was strongly influenced by the significant other's support he/she received (Packa, 1989, cited in Kaba & Shanley, 1997).

It has been found that degree of anxiety, one of the stress responses, had significant negative correlation with income (Franulic et al., 1996). Burned patients who came from families with lower socioeconomic status experienced more stress (Orr et. al., 1989).

In summary, factors influencing stress appraised by burned patients include age, gender, location of burn, extent and depth of burns, length of hospital stay, significant other's support, and economic status.

Coping

Lazarus and Folkman (1984) defined coping as constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person. Coping is a process that serves to manage a problem and modulate the emotional response to that problem. Coping has two major functions: problem-focused coping and emotion-focused coping. The first aims at changing or managing the situation while the second one aims at the individual's reaction to the situation. They include such behaviors as

planed problem-solving, seeking information, and aggressive efforts to alter the situation. Problem-focused coping tends to be used more when dealing with aspects of a situation that are appraised as changeable. Emotion-focused coping aims at changing or managing the individual's reaction to the situation. They include such behaviors as wishful thinking, escape or avoidance behaviors (e.g. drinking, using drugs, exercising), rationalization, accepting, and responsibility. Emotion-focused strategies are used more when the individual sees few, if any, options for affecting the outcomes. The way a person cope is determined in part by his or her resources. Those resources include health, energy, positive belief, commitments, problem-solving skill, social skills, social support, and material support. Constraints that inhibit the use of resources also influence coping option. Problem-focused and emotion-focused coping strategies influence and facilitate each other through a stressful encounter.

Measurement of coping

Jalowiec developed an instrument named Jalowiec Coping Scale (JCS) in 1979, based on Lazarus and Folkman's coping theory. This Coping Scale consists of 40 items involving two strategies: problem-focused coping and emotion-focused coping. This scale was designed to assess coping strategies that subjects commonly used.

The Jalowiec Coping Scale (JCS) (Jalowiec, 1979) was originally developed on the basis of the coping data collected from 1,400 subjects coming from diverse population including patients with a variety of diseases, nurses, family members of patients, and graduate students. Thus, JCS covers a wide range of coping strategies, and may be used with diverse populations.

It may be used in assessing either general coping behavior or situation-specific coping (Heinrich, & Schug, 1984, cited in Wegmann, 1992). In addition, JCS is self-report measurement which is easy to be used with the patients. However, some of the original items that were not applicable for Chinese adult burned patients who were scheduled to be discharged, such items were either dropped out or modified accordingly. The measurement tool was called the modified JCS (MJCS). The MJCS includs 35 items: 15-items of problem-focused coping, and 20-items of emotion-focused coping. The possible total score ranged from 15 to 60 and 20 to 80 for the first and second categories, respectively.

Alpha reliability coefficients for total coping scores of the JCS and for problem and emotion subscale scores ranged from 0.75 to 0.86 (Jalowiec, Murphy, & Powers, 1984; Powers & Jalowiec, 1987). Retest-reliability coefficients ranged from 0.78 to 0.91 (Foster, 1984, cited in Jalowiec, 1988; Jalowiec, 1979; Langner, 1983, cited in

Jalowiec, 1988).

Coping among burned patients

Burned patients often utilized their own specific defense coping strategies and might experience different phases of dissociation, repression, denial, rejection, projection, bargaining, and acceptance (Roberts & Appletion, 1989).

Fong (1997) conducted a time-series study on coping of 26 burned patients (13 men and 13 women) by using Revised Ways of Coping Scale at 2, 8 and 16 weeks postburn, respectively. The result showed that all subjects used both problem-focused coping and emotion-focused coping.

Craven and Hirnle (1996) revealed that burned patients with altered appearance tried to avoid social situation, and minimize interaction with others, and showed little interest in recreational activities. Browen and colleagues (1985) reported that well-adjusted adult burned patients used a variety of cognitive and emotional strategies. While poorly adjusted adult usually utilized avoidance style of coping and lack of social support.

It can be concluded that adult burned patients usually used either problem-focused, emotion-focused coping or both to deal with difficulties resulting from burn injury. However, at discharge time, there is no consensus whether what coping is the domination.

From literature review, it was known that burned patients suffered from a lot of stressors and exhibited stress responses, they used either problem-focused coping , emotion-focused coping or both, but little information was known about stress appraisal and coping among burned patients who were scheduled to be discharged. This study was aim at identifying stress appraisal and coping among burned patients.

Factors influencing coping

The effectiveness of coping in reducing stress depends on a balance between coping resources and constraints as well as strategies. The way a person copes is determined in part by his or her resources.

Coping is also determined by constraints that mitigate the use of resources. Personal constraints include internalized cultural values and beliefs that proscribe certain ways of behaving and psychological deficits. Environmental constraints include demands that compete for the same resources and agencies or institutions that thwart coping efforts. High levels of threat can also prevent a person from using coping resources effectively (Lazarus & Folkman, 1984). For burned patients, factors influencing coping include the following aspects.

After a major burn injury, burned patients who maintained a sense of hope for the future easily resumed a

normal life. In contrast, burned patients with pessimistic attitude towards future life had a sense of failure, an inability to cope, a loss of gratification from interpersonal relationships and a sense of disruption (Kolman, 1991, cited in Bernstein et al., 1992). Appraising oneself as helpless in a situation may inhibit coping attempts and result in higher levels of psychological morbidity (Parle, Jones, & Maguire, 1996).

Folkman & Lazarus (1980) instituted that women encountered more stressful situation in health contexts and used more emotion-focused coping than men. Fong (1997) revealed that at appraoching discharge time, female burned patients used more emotion-focused coping than males. It is possible that at 8 weeks postburn, most burned patients would have recently been discharged from hospital or pending discharge and embarking on re-entry into daily living or work. It may be that females experienced or appraised more stress in this re-entry process, needing to assume the roles of home-keeper, mother, and wife in most cases. Conversely, males may not have as many roles at home environment to re-assume.

Location and depth of burns do influence psychological functioning (Blalock et al., 1994). Many disfigured burned patients dealt with the world by withdrawal, and disappear socially, experiencing what

McGregor call"social death". Others might show more modest forms of this syndrome (Bernstein et al., 1992). One study showed those patients with scarring and burn hands made poor adjustment than others (Malt & Uglnad, 1989). However, Fong (1997) reported that among 26 subjects, although half of them had burn scar exposure at face, neck, and lower arms/hands, found that disfigurement appeared not to affect the coping of this group. In addition, Taal and Faber (1998) conducted a survey on posttraumatic stress and maladjustment among 174 adult burned survivors revealed the similar result that visible disfigurement did not result in changes in overt social behavior, and no burned patients with visible scars reported a withdraw lifestyle.

On the other hand, burned patients who were lack of social support had poor adjustment (Browne et al., 1985; Kolman, 1991, cited in Bernstein et al., 1992). Significant others' support such as family, friends, and professionals facilitated burned patients' efforts to come to terms with their injuries and to reach a better adjustment (Khamis, 1993).

Financial status also influences the person's adjustment. Socioeconomic factors such as loss of occupation and unemployment was found to be related to maladjustment after injury (Browne, et al., 1985).

In conclusion, factors influencing coping include

gender, location and depth of burns, social support, and economic status.

Conceptual framework

Transaction model of stress and coping (Lazarus & Folkman, 1984) was used as the framework to study appraisal of stress and coping among burned patients.

Burn injury is an unexpected and devastating life experience. As schedule to be discharged, the stressors generated from tremendous changes both within the patients and their hospital environment on top of the anticipating stressors outside hospital, namely social reaction, economic, and community resources, make the transition from hospital to home community become difficult. Such transition brings the demands that may be appraised as taxing or exceeding the resources of the patients. Therefore, those patients need constantly changing cognitive and behavioral efforts to manage such demands in order to alleviate stress. The more stress is generated, the more coping need to be mobilized unless well-being of the patients cannot be maintained.