CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Literature review

For this study, the literature review covered the following topics:

1. Renal transplantation and its impact on patient;
2. Social support among renal transplant patients;
3. Quality of life among renal transplant patients; and
4. The relationship between social support and quality of life.

Renal transplantation and its impact on patient

Renal transplantation was the surgical transfer of a human kidney from one individual to another. This procedure involves the removal of healthy kidneys from a donor, so that they can be used to replace the diseased or damaged kidneys of other patients. End stage renal disease is a chronic condition which reduces the life-span of its victims. Currently, renal transplantation is broadly recognized as the most successful treatment choice for end stage renal disease patients. Twenty-six percent of ESRD

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patients underwent transplantations, and about 9,000 renal transplantations are performed each year in the United States. The one-year and three-year survival rates are about 90% and 85%, respectively, (McCarley & Lewis, 1996). In the hospital all over China, approximately, 2,000-2,500 ESRD patients receive renal transplantation annually, the patient and graft survival rates are similar to those of the United States (Xia, 1996). As previous mentioned, receiving renal transplantation is life changing event at times and having impact on patient's health and functioning, psychological/spiritual, socioeconomic, and family and quality of life as a global point of view.

Health and functioning domain

According to Ferrans and Powers (1985), health and functioning domain consists of many specific aspects such as physical independence, personal health, leisure activities, travel, long life, sexuality life, health care, and discomfort/pain. A number of potential physiological drawbacks of renal transplantation accompany and threat patients' lives for life long time. These include the constant risk of rejection, infection, malignancies and other complications such as cardiovascular problems (Chan & Kam, 1997).

Infection remains a major hazard for the transplant patients. Rejection is the second main factor that threats transplant patients' lives. The incidence of acute and subacute rejections is about 28-33%. The chronic rejection occurs with 35% and 43.8% in one year and three years, respectively. Malignant incidence is 29-fold increase as compared with the normal group (Chan & Kam,1997).

Sutton and Murphy (1989) emphasized that transplantation is not a perfect solution because some dietary restrictions continued, medications with unwanted side effects are required, and some problems such as bone disease may persist. Chan and Kam (1997) reported more than 90% of diabetic transplant patients suffered eyesight problems. The problems critically limit patients' daily functioning. Immunosuppressant may cause patients' sexual incompetence or hinder sexual function recovery (Zhang & Shen, 1996). These physical discomforts and impaired functioning also result in patients' various psychological difficulties.

Psychological/spiritual domain

Psychological/spiritual domain concerns about life satisfaction, happiness, usefulness to others, stress, responsibilities, self, goals, peace of mind, personal appearance, faith in God, and control over life. Fear of rejection and death can cause significant stress and anxiety both before and after transplantation (Blagg, 1983; Sutton & Murphy, 1989). Frey (1990) identified that renal transplant patients experience various stressors, for example, repeated hospitalization, possibility of infection and organ rejection, medical cost, uncertainty about the future, and side effects of medications. These stressful situations negatively influence patients' quality of life (White, Ketefian, Starr & Voepel-Lewis, 1990).

Dissatisfaction with appearance is another important factor (Simmons, 1985). Disturbances of self-concept and body image are the common problems in transplant patients. These are as the result of not only the surgical incision and palpable kidney lying just beneath the skin, but also feeling of appearance changed such as excessive weight gain, hair growth and acne. Landis (1996) stated that the spiritual well-being was pertinently represented in a sense of purpose and satisfaction in life. Therefore, to some extent, those problems easily disrupt patients' peace of mind and lead them to withdraw from society and isolate themselves from social network (Beer, 1995).

Socioeconomic domain

Socioeconomic domain focuses on social integration, financial independence, job/unemployment, neighborhood, home, friends, and education. Frauman, Gilman and Carlson (1996) found "social adaptation" of renal transplant patients were significantly different from those of normal group of the same ages. Melzer and colleagues (1989, cited in Holeckek et al., 1995) compared the social networks, self-esteem, and body image of adolescent renal transplant patients with those of healthy teenagers. They found that the transplant patients identified significantly fewer people in their total social networks and named significantly fewer opposite-sex peers.

Molzahn (1991) found that 75% of renal transplant patients reported that they were able to work. However, it was noted that less than 50% of these patients actually did work. There are many possible reasons for this observation, such as concerns of employers regarding absenteeism and financial problems of patients. Additionally, expensive immunosuppressive drugs and endless follow-up expense, all can decrease the level of independence of renal transplant patients in the family as well as in the society.

Family domain

Family domain includes family happiness, children, spouse, and other family members. Chowanec and Bink (1982, cited in Lewis, Starr, Ketefian & White, 1990) studied spouse or other family members' adjustment to taking care of posttransplant patients and reported that insecurity were common among the spouses and other family members. In the same study, the main concerns of family members were fear of deterioration of the patients' medical status, the decreased ability of the patients to take care for self, particularly adherence to the strict life-long immunosuppressive protocols to prevent organ rejection.

On the other hand, repeated hospitalizations of transplant parents and endless trips to hospital for follow-up severely disturb normal family life and usually cause children's anxiety and loneliness (Hauser, Williams, Strong & Hathaway, 1991). Sexual dysfunction is another big problem concerned by both patients and their spouses, and also threats marital relationships (Lewis et al., 1990).

In conclusion, renal transplantation may bring some negative outcomes. These anticipate to have an impact on patients' quality of life globally.

Social support among renal transplant patient

Definition of social support

Social support is a multi-faceted concept that has been difficult to conceptualize and define. Although this concept has been extensively studied in the last 20 years, there is little agreement on its theoretical and operational definition. Hupcey (1998) examined the major theoretical definitions of social support and classified into five categories.

In the first category about the type of support provided, Cobb (1976) defined that social support is information leading a person to believe that he/she is cared for and loved, esteemed and valued, and/or that he/she belongs to a network of communication and mutual obligation. Cohen and Syme (1985) defined social support as the resources refer potentially useful information or things.

The second category is related to recipients' perceptions. Procidano and Heller (1983, cited in Hupcey, 1998) defined social support as the extent to which an individual believes that his/her needs for support, information, and feedback are fulfilled. Tilden (1985) composed the definition to social support as a construct referring to interpersonally supportive behaviors and relationships.

The third category is the intentions or behaviors of the provider of support. An example of this type of definition is that social support is an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipients' (Shumaker & Brownell, 1984, cited in Hupcey, 1998).

Category four is related to reciprocity. Kahan and Antonucci (1980) viewed social support as interpersonal transactions that include one or more of the following three key elements such as affect (expression of liking, admiration, respect, or love), affirmation (expression of agreement or acknowledgment of the appropriateness or rightness of some act or statement of another person), and aid (transaction of direct aid or assistance, such as money, information, time, and entitlement). House and Kahn (1985) defined social support as four subconcepts: (1) emotional support (esteem, affect, trust, concern, and listening); (2) appraisal support (affirmation, feedback, social comparison); (3) informational support (advice, suggestion, directions, information); and (4) instrumental support.

Category five is listed in terms of social network. Kaplan, Cassel and Gore (1977) defined social support as a support system for formal and informal relationships when an individual receives the emotional, cognitive and material supports necessary to master stressful experiences. Social support may be defined as support accessible to an individual through social ties to other individuals, groups, and the large community (Lin, Ensel & Simeone, 1979). Bloom (1982, cited in Bloom, 1990) encompassed five components of social support as feedback to the individual about himself or herself, and the expression of acceptance and affection, tangible, informational, and affiliative support.

Weiss (1974) defined social support as relational provisions for attachment/intimacy, social integration, opportunity for nurturant behavior, reassurance of worth, a sense of reliable alliance, and the obtaining of guidance. Based on Weiss's concept, Brandt and Weinert (1981) defined social support as the relational provisions for attachment/intimacy, social integration, opportunity for

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nurturant behavior, reassurance of worth as an individual and in role accomplishments, and the availability of informational, emotional, and material help. Attachment/intimacy refers to a sense of security and love. Social integration is the sharing of concerns, information, and ideas among the social participants. Opportunity for nurturance refers to opportunity for taking responsibility for the well-being of another. Obtaining informational and tangible help can modified the health behavior and easily adapt to the stressful situations.

In summary, as a multidimensional concept, no single and simple definition of social support can prove adequate. In general, social support encompasses three constructs: support networks, supportive behaviors, and a subjective appraisal of support.

Importance of social support

There was literally evidence that social support is linked with many aspects of health and illness recovery (Lenz et al., 1995, cited in McClure, Catz, Prejean, Brantley & Jones, 1996). Social support can be a good moderator to protect people in crisis from a wide variety of pathological status and help patients justifying their stressful situations (Bloom & Spiegel, 1984). Furthermore, Cobb (1976) suggested that social support could reduce the amount of medication required, accelerate recovery, and facilitate compliance with prescribed medical requirements.

According to Bloom (1990), the individual integration into the social network was critical to his or her health and well-being. Mutual obligations and responsibilities tied the individual to the social group. Persons without such ties were likely to experience a sense of isolation and loneliness.

White, Richter, and Fry (1992) found that social support was a significant predictor in the process of adjustment to chronic illness. The greater the perceived social support, the better the psychosocial adjustment to illness in 193 chronic disease patients. Similarly, Catalan and associates (1996) described that greater satisfaction with social support is associated with less current depression and less increase in future depression among chronic illness patients, particularly satisfaction with informational support regarding the suffering disease.

The possible mechanism of social support was theoretically specified by Cohen (1988) as (1) Biological process model in which increased support is presumed to result in suppression of neuroendocrine and hemodynamic response and increasing immune competence. (2) Stress-buffering model is presumed that social support may alleviate the impact of stress by providing a solution to the problem, reducing the perceived importance of the problem. (3) Main-effect model is in terms of providing services or information regarding the benefits of behaviors that positively influence health and well-being, and by social integration to increase feelings of self-esteem, of self-identity, and control over one's environment.

In conclusion, social support is a very important factor that contributes to quality of life. Many researchers have claimed that it can promote physiological health, improve psychological well-being as well as social integration of individuals by biological process, stress-buffering and main-effect three kinds of possible models.

Measurement of social support

Since social support is a multidimensional concept, there is no universal instrument to measure it. Different studies use the different instruments in accordance with the defined concept.

Personal Resource Questionnaire-85 (PRQ-85), was one instrument developed by Weinert and Brandt (1987). It measures multidimensional characteristics of social support. The instrument consists of two parts. Information about the person's resources and person's satisfaction with the resources is obtained from part one. The second part is based on Weiss' (1974) social relational model, and defined by Brandt and Weinert (1981) as composed of five dimensions: provision for attachment/intimacy; social integration, being an integral part of a group; opportunity for nurturant behavior; reassurance of worth as an individual and in role

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accomplishments; and the availability of informational, emotional, and material help.

The PRQ-85 Part 2 had high internal consistency reliability coefficient (α =.89) in a sample of 149 adults, white, middle class spouses of individuals with multiple sclerosis (Brandt and Weinert, 1981). In this sample, the preliminary testing for construct validity was found statistically significant correlations between the Self-Help Ideology (SHI) and three of the five dimensional subscales of PRQ-85 Part 2: intimacy ($r = -.25$, $p < .001$); assistance ($r = -.23$, $p < .01$); social integration ($r = -.14$, $p < .05$)

Weinert and Brandt (1987) tested PRQ-85 Part 2 in 100 adults, ages ranging from 30 to 37 years, who were obtained from a university alumni list. For this sample, an alpha of .93 was obtained for the full 25-item scale. The alpha coefficients for each subscales ranged from .70 to .88. The construct validity was found to be significantly related to the mental health measures and to the personality indicators. Low-to-moderate inverse relationships were obtained between perceived support and the mental health measures of anxiety ($r = -.42$, $p < .001$). A low inverse relationship ($r = -.28$, $p < .001$) was found between the personality measure of neuroticism and perceived support.

PRQ-85 Part 2 in Chinese was modified and translated by Yan (1997) as 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The readability of it in Chinese was assessed by a nurse expert and a physician who were good both in Chinese and English. Reliability of this instrument was tested among 15 COPD patients (α =.82).

Norbeck Social Support Questionnaire (NSSQ) was another instrument developed by Norbeck, Lindsey and Carrieri (1981), based on Kahan and Autonucci (1980) conceptual definitions of social support. The instrument covers three major components: functional, network, and loss. Functional aspects measure affect, affirmation, and aid. Number in the network, duration of relationships, and frequency of contact are the network properties measured. Total loss includes the occurred and the perceived amount of support lost. The NSSQ includes items to tap the three supportive transaction components (affect, affirmation, and aid) and to assess representative convoy or network properties (number, frequency, and duration of relationship).

Some other instruments such as Social Support Questionnaire (SSQ) was developed by Sarason (cited in Lindsey, 1992). Score for the perceived numbers of social support and satisfaction with the social support available are obtained by using the SSQ. The Inventory of Socially Supportive Behaviors (ISSB) (Barrara, Sandler, & Remsay, 1981 cited in Lindsey, 1992) was developed to measure the frequency with which the respondents were the recipients of supportive actions. The Perceived Social Support from Friends (PSS-Fr) and from Family (PSS-Fa) (Procidano & Heller, 1983 cited in Lindsey, 1992) were to measure the satisfaction of the support from both friends and family.

In summary, because of multidimensional feature of social support, the measurement remains varied. The final selection of an instrument must be based on the congruency between what variables the investigator wants to measure and what dimensions an instrument has been designed to assess. In this study, PRQ-85 Part 2 was used because the dimensions included are congruent with the features of renal transplant patients from the widely literature review.

Social support among renal transplant patients

From the literature review, there were many studies on social support among various group of patients. However, few studies have been found on social support in renal transplant patient.

Melzer and colleagues (1989, cited in Holeckek et al., 1995) compared the social networks, self-esteem, and body image of adolescent renal transplant patients (N=48) with those of healthy teenagers. They found that the transplant patients identified significantly fewer people in their total social networks and named significantly fewer opposite-sex peers. They also cautioned that these groups of patients are at high risk for social isolation.

Benjakul (1995) conducted a descriptive research to study the hardiness characteristic and social support, and adaptation in post renal transplant patients (N=90). The Health Related Hardiness Scale (HRHS) was used to describe the hardiness. The Personal Resource Questinnnaire-85 Part 2 was used to identify the perceived social support of renal transplant patients. Results of the study indicated that post renal transplant patients had a high hardiness characteristic. Regression analysis revealed that social support negatively correlated with hardiness, and positively related to adaptation in post renal transplant patients.

Frey (1990) found transplant patients usually are unable to return support to others in the network. Thus, reciprocity, which is so important for balanced and healthy relationships, becomes impaired. Also, these patients, unlike healthy people who can terminate relationships that fail to satisfy their needs, often are locked into unsatisfactory relationships. Consequently, the conflicted support relationships do occur and then generate stress, dissonance, or ambivalence.

As Lewis and colleagues (1990) stated that transplant patients represent a population of chronically ill individuals for whom both the social networks that provide support and the quality of support are very important. However, they often experience altered physical appearance or body image and self-concept disturbance, financial depletion, and other limitations which all contribute to social impairment.

Tilden (1985) presented that social relations are frequently disrupted and may disintegrate under the stress of chronic situation and its management. Chronic conditions often involve disfigurement (e.g. Cushingoid's syndrome of transplant patients), limitations in mobility, loss of control of body functions, the need for additional rest, and an inability to maintain employment. The factors tend to reduce one's ability to develop and maintain a network of supportive relationships. As their conditions encapsulate more of patients' time and energy, for instance managing their complex medication every day, monitoring kidney functioning, and trip to hospital for follow-up frequently. Only the most loyal friends may persist in offering support (Simmons, 1985).

Fallon, Gould, and Wainwright (1997) also noted that little research about the social support has been undertaken with patients following renal transplantation. Almost all reports describe a significant increase in quality of life after transplantation, however, apparently, patients have a number of concerns, of which fear of rejection is the most frequently mentioned, the stress caused by altered body image, and others. All of these need to be buffered by various supports from society.

In conclusion, transplant patients represent the chronically ill individuals. Social support is very important to help them who encounter with the illness condition.

Quality of life among renal transplant patients

Definition of quality of life

Quality of life has been an interesting subject to be studied and defined by many researchers as both objective and subjective terms. WHOQOL(1996) emphasized that quality of life should be defined as individuals' perception of their position in life in the context of the culture and value systems where they lived and in relation to their goals, expectations, standards and concerns. It is, of course, colored by physical health, psychological status, level of independence, social relationships, environmental factors, and personal beliefs. Many terms are used synonymously with quality of life in the literature, such as well-being, happiness, conditions of living, and life satisfaction.

The broad definition of quality of life defined by Lewis (1982) as the degree to which one has self-esteem, a purpose in life and minimal anxiety, and by Hornquist (1982,

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cited in Goodinson & Singleton, 1989) as the degree of need-satisfaction with the physical, psychological, social, material, and structural areas of life. Abrams (1973, cited in Farquhar, 1995) defined quality of life as the degree of satisfaction or dissatisfaction felt by people with various aspects of their lives.

Andrews (1974) related quality of life to the extent to which pleasure and satisfaction characterize human existence. Similarly, Dalkey and Rourke (1973, cited in Goodinson & Singleton, 1989) defined quality of life as person's sense of well-being, his satisfaction/ dissatisfaction with life or happiness/unhappiness in dimensions of health, activity, stress, life goals, self-esteem, depression, social and family support.

Campbell, Converse and Rodgers (1976) argued that happiness and satisfaction are conceptually different, stating that happiness suggests an experience of feeling or affects, while satisfaction implies a cognitive judgment therefore, satisfaction is more subjective in terms of individual's quality of life. This idea was supported by Ferrans and Powers (1985).

Tartar and associates (1988, cited in Frank-Stromborg, 1992) had a very comprehensive idea of quality of life. They conceptualized quality of life as a multifaceted construct, emotional well-being, and abilities requiring the performance of domestic, vocational, and social roles.

Quality of life has been defined in purely objective terms by meanings such items as income, housing, physical function, and purity of air, while in subjective terms, like well-being, psychological affect and life satisfaction (Oleson, 1990).

From various definitions of quality of life, Meeberg (1993) identified four critically basic attributes of quality of life. They are (1) a feeling of satisfaction with one's life in general; (2) the mental capacity to evaluate one's own life as satisfactory or otherwise; (3) an acceptable state of physical, mental, social and emotional health as determined by the individual referred to; and (4) an objective assessment by another that the person's living conditions are adequate and not life-threatening.

In 1984, Ferrans (cited in Ferrans & Powers, 1985) developed the quality of life conceptual framework based on the intensive literature review. She defined quality of life as a person's sense of well-being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her. The definition addresses the fact that people's values make various aspects of life have variation impact on individuals' quality of life, and categorized quality of life into four major domains: health and functioning, psychological/spiritual, socioeconomic, and family domain.

In summary, the conceptualization of quality of life remains diversity. But as Ferrans and Powers (1992) stated that the subjective-base concepts of quality of life define more precisely the experience of individual's life.

Measurement of quality of life

Scrutiny of the literature on quality of life, it showed the tremendous instruments being used to evaluate quality of life from different views. Karnofsky Performance Index (Karnofsky, 1949, cited in Goodinson & Singleton, 1989) is the most commonly used by clinicians. It assesses health performance status in relation to physical activities only, hence the single dimension used to assess quality of life is a major limitation on its usefulness.

Spitzer's (1981, cited in Goodinson & Singleton, 1989) assessment tool used a unique Apgar-like' scale to measure quality of life. Dimensions (5 only) were investigated: activity, daily living, health, support, and outlook. Visual (Linear) Analogue Scales (VAS) was used for quality of life assessment. This form of measurement utilizes lines 0-100mm long, denoting a continuum of dimensions in emotional, physical or social experience, with anchor words or phrase marking the extremes.

In Young and Longman's (1983) pilot study of quality of life in person with melanoma, the researchers developed a short Quality of Life Questionnaire (QLQ) with a 6-point Likert scale. This instrument was found to correlate positively with behavior morale and negatively with symptom distress and social dependency. As quality of life was ranked higher, symptom distress and social dependency were ranked lower.

Padilla and Grant (1983, cited in Frank-Stromborg, 1992) developed a subjective self-evaluation questionnaire, the Quality of Life Index (QLI). They viewed quality of life as a broad concept, and the scale includes three general areas: psychological well-being (general quality of life, fun, satisfaction, usefulness, sleep), physical well-being (strength, appetite, work, eating, sex), and symptom control (pain, nausea, vomiting). The Quality of Life Index has been widely used by nursing researchers to measure patients' quality of life, especially in cancer and chronic disease patients (Padilla & Grant, 1985). However, this instrument left out social, economical, and family aspect, which are very important for chronic patients.

Ferrans and Powers Quality of Life Index (QLI)(1985) was developed to measure the quality of life in healthy people as well as those who were experiencing an illness. Only one item was specifically modified for renal transplant patients in QLI-Kidney Transplant Version. There are 32 items on the instrument that assess for these followings: life goals, general satisfaction, stress, and physical health. The instrument consists of two sections. One section measures satisfaction with various domains of life,

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and the other measures how importance those domains to the individuals.

Content validity of QLI was supported by the way in which the items were developed. These items were based on an intensive review of the literature and dialysis patients' responses to open-ended questions asking about quality of life (Ferrans & powers, 1985). Concurrent validity was supported by correlation of .65 and .77 between overall scores and a measure of life satisfaction (Ferrans & Powers, 1985; Ferrans & Powers, 1992).

Stability reliability of QLI was tested in 1985 within the similar group by a test-retest correlation of .81 with a 1-month interval. Internal consistency reliability of the QLI was supported by Cronbach alphas of .90 for the overall scale, and alphas of .87, .90, .82, and .77 for the health and functioning, psychological/spiritual, social and economic, and family subscales, respectively. The result showed that there were significant differences between subscales.

In conclusion, measurements of quality of life are diversity. But Ferrans and Powers (1992) argued that subjective measures have the great advantage of assessing the individual's sense of well-being and the degree to which he or she can participate in human experience. Moreover, Ferrans and Powers Quality of Life Index-Kidney Transplant Version was developed specifically for renal transplant patients. Therefore, in this study, the instrument for measuring quality of life among renal transplant patients is Ferrans and Powers Quality of Life Index-Kidney Transplant Version.

Quality of life of renal transplant patient

Quality of life has received considerable attention in the literature over the last 20 years. In the area of QOL of individuals with renal transplantation, most of the research has focused on the comparisons of various treatment modalities. It has generally found that the QOL of transplant patients is higher than that of dialysis patients, and that of home therapy patients.

Simmons, Anderson and Kamstra (1984) conducted descriptive comparison study to compare the quality of life of patients on continuous ambulatory peritoneal dialysis, hemodialysis, and after transplantation (N=458). The dimensions include physical well-being, emotional well-being, and social well-being. The preliminary findings indicate that on almost all measures, renal transplant patients appear to have the highest quality of life.

Johnson and associates (1982) evaluated the quality of life of hemodialysis and transplant patients. Physiological and psychological measures were combined (Modified Quality of American Life Questionnaire) to assess the quality of life of 59 patients treated for end-stage

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renal disease. Patients with successful transplants gave evidence of better physical and occupational rehabilitation than patients on chronic hemodialysis. On measures of subjective quality of life, however, successful transplant and hemodialysis patients were similar in reporting normal affect whereas failed transplant patients showed a diminished quality of life. These results suggest that transplantation may have limited value as an intervention to improve quality of life for patients with ESRD.

Hauser and colleagues (1991) conducted a study with an exploratory-descriptive design to examine predicted and actual quality of life changes following renal transplant (N=39). Quality of life was measured by a quality of life of Inpatient Transplant Interview Guide which include the number and type of problems and impact on overall life satisfaction of transplant patients. T-tests examined the differences between pretransplant quality of life expectations and posttransplant quality of life changes. Results indicated that an expected quality of life change that has not all become a reality in the posttransplant period. Patients did expect fewer negative problems than that actually occurred ($p <.001$).

Another study on quality of life of dialysis and transplant patients was conducted by Kaplan and Shanan (1980). Twenty dialysis patients and 11 transplant patients who received the dialysis or transplantation for one year were included in this study. Quality of life measurement regarded three aspects (vocational rehabilitation, social activities, and psychological condition). The results showed that vocational rehabilitation of the transplant patients was better than that of the dialysis patients. There was no difference in the social activities or psychological complaints of the two groups (p <.001). When compared with 59 normal subjects, results indicated the group underwent transplantation had significantly lower self-esteem, lower actual rehabilitation, and the total quality of life remarkably lower than that of normal group (p <.001).

There were some other studies' results showed impaired quality of life of renal transplant patients from different one or more aspects of quality of life. Frey (1990) used Kidney Transplant Recipient Stress Scale to identify stressors that renal transplant patients and their quality of life in the 6 weeks of posttransplantation. The researcher found that transplant patients experienced many stressors which negatively associated with quality of life.

Lepark (1991) conducted a study to measure functional capacity and activity level among 9 renal transplant recipients prior to transplantation (T1), and 6 weeks (T2) and 16 weeks (T3) after transplantation. Functional capacity was measured by a symptom-limited treadmill level. The Human Activity Profile was used to obtain self-reported activity level. A 24% improvement in functional capacity was found from T1 to T2 with only a 5% improvement from T2 to T3. In contrast, significant improvement in activity level was not presented until after T2. Although activity level increased from T1 to T3, it continued to be low in comparison with age/gender matched normative data.

In conclusion, renal transplantation generally improve the quality of life compared with other treatment methods in ESRD patients. However, the various variables impact different domains of quality of life of transplant patients.

Relationship between social support and quality of life

There were a number of empirical studies in which the presence of support relationship protects individuals encountering stressful life circumstance from physical and emotional decline; conversely, lack of social support contributes to physical illness and psychopathology (Kaplan et al., 1977; Schaefer, Coyne, & Lazarus, 1981). From the intensive literature review, several studies were found directly concerning the relationship between social support and quality of life.

Courten, Stevens, Crebolder and Philipsen (1996) designed a longitudinal study on quality of life and social support in 51 newly diagnosed cancer patients and followed for one year. The result indicated that emotional support was positively related to quality of life ($p < .01$). Moreover, a tendency was found to indicate that patients with a deterioration in quality of life perceive a larger decrease in emotional support than patients with a positive course. The amount of perceived instrumental support did not change significantly.

Friedman and King (1994) studied the relationship between emotional and tangible support to psychological well-being among 80 older women with heart failure. They found that higher symptom severity was related to greater negative affect and less satisfaction with life; higher emotional support was related to higher positive affect and greater satisfaction with life, while tangible support was related to less negative affect.

Friedman (1993) conducted a study to examine the relationship between social support sources and psychological well-being in older women with heart disease (N=80). Results showed that women without spouses perceived less tangible and emotional support and resulting in more decreased psychological well-being than women with spouses.

Tell, Mittelmark, Hylander, Shumaker, and Burkart (1995) studied social support and health-related quality of life in 256 dialysis patients. The multivariate regression analysis showed that lack of social support was significantly related to poor health-related quality of life. Good social support was one of the greatest predictors of more positive response to each of the health related quality of life indicators after controlling for the effects of the other factors.

A correlational descriptive study was conducted by Yan (1997) to examine the relationship between social support and quality of life of Chinese chronic obstructive pulmonary disease patients (N=73). The result indicated that there was a moderately positive relationship between social support and quality of life (r =.47, p <.001).

In summary, the enormous evidences supported that there is generally positive relationship between social support and quality of life. However, no study report has been found directly to investigate the relationship between these two variables in renal transplant patients.

Theoretical framework

The theoretical framework of this study is derived from the Ferrans' (1984, cited in Ferrans and Powers, 1985) concept of quality of life and social support defined by Brandt and Weinert (1981).

According to Ferrans (Ferrans & Powers, 1985), quality of life is a multidimensional construct that consists of four major domains: health and functioning, psychological/spiritual, socioeconomic, and family. As previous mentioned, renal transplantation could influence all quality of life domains of patients in different ways. Many complications and side effects of immunosuppressive drugs greatly affect patient's health status and functional capacity. Appearance and body image changed, uncertain future, fear of rejection, and adherence to the strict medical regimen, all impact psychological/spiritual life. Changes in responsibility and role in the family as well as in social activities may influence patients' family life domain. On the other hand, operation and immunosuppressive drugs usually bring big economic burden to patients and influence their social and economic status.

Brandt and Weinert (1981) defined social support as relational provisions which consists of five dimensions: attachment/intimacy, social integration, opportunity for nurturant behavior, reassurance of worth as an individual and in role accomplishment, and the availability of informational, emotional and material help. Each dimension provides different benefits to patients. Intimacy and social integration directly provide a set of identities and basis for a sense of being loved, accepted, comfortable and enjoyment. Opportunity for nurturant behavior and reassurance of worth provide a source of positive self evaluation and give sense of being needed and competence. Getting emotional, informational and material help can give individuals guidance and modify their health behaviors, consequently, improve their health and functioning status.

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Therefore, the total quality of life of patient is presumed to be positively influenced by all the dimensions of social support.

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