END STAGE RENAL DISEASE (ESRD) AND THE MARITAL DYAD

by

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ABSTRACT

The psychological well-being of end stage renal disease (ESRD) patients and spouses was investigated from a dyadic perspective. The responses of patients and spouses from five groups of couples -- illustrating different points in the progression and treatment of ESRD -- were compared both across ESRD groups and between patients and spouses. It was hypothesized that those ESRD groups with the highest levels of illness/treatment intrusiveness, i.e. the two dialysis groups, would exhibit the highest levels of marital role strain and concomitantly the lowest levels of psychological well-being. Despite the fact that the ESRD groups did reflect differences in perceived illness/treatment intrusiveness, no significant differences were found between the ESRD groups, or between patients and spouses, in either marital relations or psychological well-being. However, multiple regression analyses did indicate that marital role strain was a significant predictor of psychological well-being. It explained psychological well-being variance above and beyond demographic, physical health, ESRD group membership and psychological defensiveness considerations. Also, the two dialysis groups evidenced significantly greater correlations between marital role strain and psychological distress than the nondialysis groups. These findings were interpreted as being consistent with a General Systems Theory approach to the conceptualization and treatment of chronic illness.

SOMMAIRE

Le but de cette recherche fut d'étudier la santé mentale de patients atteints de maladie rénale terminale (MRT), ainsi que celle de leur conjoint. Cinq groupes de couples furent constitués, représentant différents stades de progression et de traitement de la MRT, et les réponses des patients et de leur conjoint furent comparées d'une part entre groupes d'appartenance, d'autre entre conjoints. L'hypothèse de départ était que les groupes de patients dont la MRT et le traitement représentaient une intrusion prononcée au sein de leur intimité, i.e. les deux groupes de patients sous dialyse, seraient aussi ceux manifestant la plus forte tension conjugale et, en conséquence, le plus bas niveau de santé mentale. Malgré des différences entre les groupes de MRT dans leur perception de l'intrusion causée par la maladie et le traitement, les groupes ne différaient pas entre eux, pas plus que les conjoints entre eux, au niveau des relations conjugales ou de la santé mentale. Cependant des analyses de régression multiple montrèrent que la tension conjugale prédisait significativement l'état de santé mentale, indépendamment des facteurs sociaux, de santé physique, de groupe MRT d'appartenance et de défenses psychologiques. De plus, la corrélation entre la tension conjugale et la santé mentale était significativement plus élevée chez les groupes sous dialyse que chez les autres. Ces résultats confirment la validité de l'approche basée sur la théorie générale des systèmes pour la conceptualisation et le traitement des maladies chroniques.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

End Stage Renal Disease (ESRD) and Its Treatments

The main functions of the human body's two kidneys are to eliminate metabolic waste products and to maintain the body's optimal fluid and chemical balance. A progressive diminution of functioning nephrons, the kidney's basic excretory unit, produces a syndrome known as irreversible chronic renal failure (First, 1982). This syndrome can develop at any age, although it is relatively rare up to 15 years of age (Posen, 1982). While it is often difficult to establish the exact cause of renal failure, the four most common causes appear to be: glomerulonephritis, primary hypertensive disease, diabetic nephropathy and polycystic kidney disease (Burton & Hirschman, 1979; Lewis, 1981; Samuels, Charra, Olheiser & Blagg, 1974).

Due to the kidney's vast reserve of function, patients with chronic renal failure usually remain relatively symptom-free until they have lost more than 75% of their total renal function (Rosenbaum, 1979). The usual method for determining overall renal function is to measure blood serum creatinine or creatinine clearance levels (Eisenger, 1981; Lewis, 1981). In people with normal renal function the usual serum creatinine level is 1 mg/dl. Overall renal function is estimated by the reciprocal of the serum creatinine level (Lewis, 1981); thus, a loss of 75% of renal function would be indicated by a serum creatinine level of 4 mg/dl. Therefore, once the underlying disease is known, through charting the increase in

serum creatinine levels it is usually possible to make a rough estimate as to when dialysis will be required (Eisenger, 1979; Friedman, 1979; Rutherford, Blondin, Miller, Greenwalt & Vavra, 1977). However, since most of the diseases that destroy the kidneys do so painlessly over a period of years, patients are often unaware of their condition until quite late in its progression.

The symptoms associated with the early stages of renal failure are nonspecific. They include fatigue, drowsiness and an inability to concentrate (Marshall, 1979). When renal failure becomes more pronounced, it results in a wide range of metabolic abnormalities collectively called the uremic syndrome. The clinical manifestations of this syndrome are evidenced throughout the body, including the cardiovascular system, the gastrointestinal tract, the skeletal system, the endocrine system and the central nervous system (First, 1982; Friedman, 1978; Rosenbaum, 1979; Teschan, Ginn, Bourne, Ward, Hamel, Nunnally, Musso & Vaughan, 1979). As the patients enter the near terminal state, they exhibit increased drowsiness, lethargy and disorientation culminating in the onset of stupor, convulsions and coma. If left untreated, the ultimate outcome of this process is death (First, 1982).

As chronic renal failure progresses to its more advanced stages, the initial treatment program consists of medications and dietary management (First, 1982; Liddle, 1983). Since renal failure results in the retention of metabolic by-products, the diet is constructed to meet the person's nutritional needs

while minimizing waste products (Adams, 1979; Rodriguez & Hunter, 1981). However, dietary management does not improve overall renal function and eventually it may deteriorate to the point where the person requires more active treatment -- either dialysis or transplantation (First, 1982; Liddle, 1983). While the decision when to start dialysis is not an absolute, treatment usually begins only after the serum creatinine level is greater than 10 mg/dl (First, 1982; Gibson, 1983). The symptoms associated with end stage renal disease (ESRD) are controlled and improved by adequate dialysis and are improved further with a successful kidney transplant (Teschan et al., 1979).

Long-term hemodialysis for ESRD became feasible in the early 1960's with the introduction of the arteriovenous shunt (Czaczkes & Kaplan De-Nour, 1978). However, it wasn't until the early 1970's that chronic hemodialysis became widely available. In 1981, it was estimated that approximately 55,000 Americans were being treated with hemodialysis (Gutman, Stead & Robinson, 1981).

In hemodialysis, the patient's blood is filtered extracorporeally by circulation through an artificial kidney machine. The blood passes through a semipermeable membrane made of cellulose and by diffusion and osmosis water and waste products are removed (First, 1982; Ceccarelli, 1981). In general, a typical hemodialysis prescription consists of 2 to 3 treatments per week of 5 to 6 hours each, for a weekly total of between 10 to 18 hours (First, 1982; Manis &

Friedman, 1979). These treatments may be performed at a dialysis unit or in the patient's home. However, for a variety of reasons, including the availability of a dialysis partner, patient and partner trainability, patient and spouse preferences, and physician preferences, the home is the less common of these two treatment settings (First, 1982; Gibson, 1983; Posen, 1982).

While maintenance hemodialysis can restore relatively good health, the dialyzed patient is still potentially subject to many complications due to either the hemodialysis procedure itself or the underlying disease process. Potential complications associated with the hemodialysis procedure include hypotension, air embolism, vascular access infections and viral hepatitis (Gibson, 1983). Also, despite marked improvement certain physical abnormalities persist such as anemia and renal osteodystrophy (bone disease) (First, 1982; Papper, 1978).

Furthermore, the hemodialysis patient must still follow a strict dietary regimen. The diet primarily restricts the amounts of sodium, potassium and protein which may be consumed. Fluid intake is also severely limited (Adams, 1979; Czaczkes & Kaplan De-Nour, 1978; First, 1982; Rodriguez & Hunter, 1981). Failure to adhere to the dietary regimen stresses the person's physical tolerance and with gross overindulgence may even result in sudden death (Czaczkes & Kaplan De-Nour, 1978; Boulton-Jones, 1981).

The overall annual mortality rate in maintenance hemodialysis

patients, in the United States, has been estimated to be about 10% (Burton & Hirschman, 1979; Gibson, 1983). Direct complications of the hemodialysis treatment are estimated to account for only 2% of total deaths (Burton & Hirschman, 1979). Samuels, Charra, Olheiser & Blagg (1974) reported that the primary causes of death in their sample of hemodialysis patients were cardiovascular disease and infections. Given that almost half of hemodialysis patients are between 45 and 65 years of age (Burton & Hirschman, 1979) it seems that in terms of overall survival, maintenance hemodialysis must be considered a success (First, 1982; Gutman, Stead & Robinson, 1981).

More recently, a new form of dialysis has been developed: continuous ambulatory peritoneal dialysis (CAPD). The first clinical trials of CAPD were conducted in 1975, but it was only after technical advances in 1978 that CAPD became a widely used treatment (Khanna, Oreopoulos, Dombros, Vas, Williams, Meema, Husdan, Ogilvie, Zellerman, Roncari, Clayton & Izatt, 1981; Mion, 1981; Nolph & Sorkin, 1981; Weinman, Senekjian, Knight & Lacke, 1980). One of its main attractions is that -- in contrast to the intermittent schedule of hemodialysis -- it is a continuous dialysis. In this way, CAPD more closely resembles the functioning of normal kidneys (Nolph, 1981; Nolph, Popovich & Moncrief, 1978).

In CAPD, a collapsible, plastic bag containing 1 to 2 liters of dialysate is connected to a permanent tube inserted into the abdominal cavity and the solution flows from the

bag into the cavity. After inflow, the bag remains attached to the connection tube and is carried rolled up under the clothing. While the fluid is in the abdominal cavity, there is a movement of water and waste products across the peritoneum by diffusion and osmosis. At the end of this period, the dialysate is drained into the same bag and then discarded (First, 1982; Rosenbaum & Wicks, 1979; Sorrels, 1981).

This fluid exchange must be done 4-5 times a day, 7 days a week. The exchange procedure of drainage, bag change and instillation of fluid from a new bag usually takes approximately 30 minutes. Theoretically, between exchanges the patients should be able to carry on with their usual daily routines (First, 1982; Nolph & Sorkin, 1981).

Since CAPD exchanges are done away from the dialysis unit, it is considered a form of home dialysis. Its advantages, compared with hemodialysis, include freedom from the kidney machine, fewer dietary restrictions and "ad lib" fluid intake (First, 1982; Khanna et al., 1981; Weinman et al., 1980). However, the necessity of frequent sterile exchanges still requires a large time commitment; and with CAPD, there are no nondialysis days. Also, these patients are required to come to the hospital for monthly check-ups.

During these monthly visits, the connecting tube is changed. This is an important procedure for limiting the incidence of peritonitis -- an inflammation of the peritoneum -- the primary complication with CAPD (Nolph & Sorkin, 1981). Other complications associated with CAPD include hernias, various

gastrointestinal disorders and respiratory distress (Nolph, 1981; Oreopoulos, Khanna, Williams & Dombros, 1981; Sorrels, 1981).

At this time, CAPD is still in its infancy and it may still be many years before its role in the treatment of ESRD becomes totally clear. While it appears to be as effective as hemodialysis, there is little data on long-term survival on CAPD (Oreopoulos, 1980; Shaldon, 1980; Nolph & Sorkin, 1981). Since its introduction, CAPD has become more and more popular. In the U.S.A., as of August 1982, more than 6,000 patients were receiving CAPD therapy (Nolph, Boen, Farrell & Pyle, 1983). Still, at present there is a bias towards selecting people for CAPD who are less suitable for hemodialysis. This includes diabetics and patients with severe cardiovascular complications (Mion, 1981; Oreopoulos, 1980; Oreopoulos et al., 1981; Rubin, Barnes, Burns, Ray, Teal, Hellems & Bower, 1983).

Finally, the most complete form of treatment for ESRD is renal transplantation. This procedure involves the surgical implantation of an immunologically matched human kidney. The first successful (long-term) kidney transplant was performed in 1954 between identical twins (Merrill, Murray, Harrison & Guild, 1956). With the advent of immunosuppressive drugs in the early 1960's, cadaveric transplants became feasible and transplantation became more common (First, 1982). It has been estimated that presently more than 35,000 transplants have been performed in the United States and that the annual rate of transplantation is 4,800 per year (Schreiner, 1983).

It has also been estimated that one-half of all dialysis patients would like to be considered for transplantation (Burton & Hirschman, 1979). However, the lack of suitable donor kidneys places a severe limitation on the application of this treatment. In addition, not all patients are eligible for transplantation: contraindications include advanced age, any severe concurrent systemic illness, and the presence of a major malignancy (First, 1982; Powers, 1981; Sommer, Ferguson, Davin, Kjellstrand, Fryd, Simmons & Najarian, 1981).

If successful, there are many advantages to transplantation. The new kidney not only frees the patient from the dialysis regimen but also reinstates normal metabolic and endocrine functioning (Rosenbaum & Wicks, 1979). Also, transplant recipients usually have no specific dietary regimen, and if there are no complications the recipient only returns to the hospital for regular check-ups.

However, renal transplantation is simply another form of treatment for ESRD; it is not a permanent cure. The functional two-year survival of kidney grafts has been estimated at 40-45% in recipients with cadaveric grafts and between 65 to 70% in recipients with grafts from a living related donor (Advisory Committee to the Renal Transplant Registry, 1977; Friedman, Delano & Butt, 1978). Furthermore, all transplanted kidneys ultimately fail -- the average functional survival of a graft from a living related donor being seven years -- and the patients must again return to dialysis (Binik, 1983; Burton, 1978; Hutchinson, Thomas & MacGibbon, 1982). While immuno-

suppressive medications help to retard rejection, and therefore must be taken as long as the transplant continues to function, they are also responsible for most of the complications seen in the post-transplant patient -- including an increased susceptibility to infection, cataracts, peptic ulcers and cushingoid syndrome (First, 1982; Johnson, Richie & Niblack, 1983; Powers, 1981).

The first year mortality rate of transplant recipients with grafts from living related donors is comparable to that of hemodialysis patients; both are approximately 10% (Burton & Hirschman, 1979). Cadaveric transplantation, however, represents a much greater mortality risk. The first year mortality rate for patients receiving cadaveric grafts has been placed at approximately 25% (Advisory Committee to the Renal Transplant Registry, 1977; Kjellstrand, Avram, Blagg, Friedman, Salvatierra, Simmons, Williams & Terasaki, 1980). Still, in contrast to dialysis, where the mortality rate remains stable, the mortality risk for transplant recipients decreases after the first year (Samuels et al., 1974). Therefore, over a longer time-span, transplantation is in fact associated with higher rates of patient survival (Kjellstrand et al., 1980). Nonetheless, one must bear in mind that there is a selection bias; ESRD patients eligible for transplantation are in general younger and healthier than the average dialysis patient.

The cost of the ESRD treatment program is quite substantial. The total cost of medical services provided to ESRD patients in the United States has been projected at over $3 billion

in 1984 (Guttmann, 1979). Per patient, the costs for the different forms of ESRD treatment have been estimated to be the following: hospital hemodialysis between $25,000 and $30,000 per year; home hemodialysis and CAPD $14,000 - $15,000 per year (Nolph, 1981); transplantation rarely exceeding $35,000 in total. While transplantation and the two forms of home dialysis are the least expensive treatments for ESRD, the more expensive hospital hemodialysis units must be maintained not only for back-up support but also for the treatment of those patients who, for whatever reason, cannot be transplanted or treated with a form of home dialysis (Bulgin, 1981). Still, cost will probably be an important consideration influencing the future direction of ESRD treatment (Gibson, 1983).

In Canada in 1981, there were 5,719 ESRD patients alive on various modes of treatment for ESRD: 2,362 had a functioning transplant and 3,357 were on dialysis (2,331 hemodialysis and 1,026 peritoneal dialysis patients). The rate of new patients entering ESRD and being treated with dialysis or transplantation was 48.2 per million population (Posen, 1982).

ESRD from a Psychological Perspective

Beyond the issues of costs and survival rates is the issue of quality of life. The ultimate goal of all treatments for ESRD is not just the maintenance of life, but the maintenance of a life worth living. One factor then that has to enter into the equation of the efficacy of any ESRD treatment is its concomitant quality of life; indeed, one of the argu-

ments for transplantation is that presumably it enables patients to pursue more of their normal life activities than they are able to maintain on dialysis. Therefore, it is important to empirically investigate possible differences in psychological well-being associated with the different ESRD treatments.

Also, though usually at a much less dramatic level, all chronic illness populations share similar types of burdens as those faced by ESRD patients. Therefore, information gained about the psychosocial impact of ESRD and its treatments not only has direct relevance for ESRD patients but also has relevance for other chronic illness populations.

What makes ESRD patients a particularly interesting population from a psychological standpoint is the nature of the situation they are confronted with: an incurable, life-threatening illness which requires strict adherence to a very demanding treatment regimen for survival. As Devins (1981) has pointed out, in many ways ESRD represents a natural "stress laboratory." Assuming that before their illness these patients were psychologically similar to their age cohorts -- which there are no reasons for not assuming -- then their situation can provide information about how people adjust to a personally meaningful stressor. Therefore, for both clinical and theoretical reasons, ESRD is an important area of the wider field of health psychology.

As will be detailed later, the present study approaches ESRD to better understand the interrelations between a social

system and a medical stressor. More specifically, this study investigates the impact of ESRD when it occurs within the context of the marital dyad. First however, the literature on the psychosocial adjustments of ESRD patients and spouses is reviewed.

Psychosocial Adjustment to ESRD: Patients and Spouses

Patients. Over the past 15 years, a large number of studies have reported on the psychosocial adjustment of ESRD patients. The vast majority of these studies have focused on dialysis[a] patients. There are three probable reasons for this emphasis: 1.) hemodialysis is the most widely used treatment for ESRD; 2.) there is much interest in the machine-dependent lifestyle necessitated by hemodialysis, and; 3.) most investigators seem to assume that transplantation eliminates the psychosocial difficulties generated by dialysis (Binik & Chowanec, in press).

Considering the severity of ESRD at its near-terminal stage and the extensive requirements of the dialysis regimen, it is not surprising that many of these reports have suggested that the lives of dialysis patients have been adversely affected. The following types of psychosocial difficulties have been reported: vocational disruptions (Goldberg, 1974); a deterioration in financial status, even with Medicare benefits (Campbell & Campbell, 1978; Evans, Blagg & Bryan, 1981); a

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[a]Since CAPD is a relatively new treatment, all the studies cited, with a very few exceptions, have included only hemodialysis patients.

constricted social life (Campbell & Campbell, 1978; Procci, 1981; Speidel, Koch, Balck & Kniess, 1979); psychiatric complications, most commonly depression (Armstrong, 1978; Levy, 1979a; Reichsman & Levy, 1972); an increased incidence of suicidal behavior (Abram, Moore & Westervelt, 1971; Haenel, Brunner & Battegay, 1980); the severe reduction or elimination of sexual activity (Levy, 1979b; Milne, Golden & Fibus, 1978); and the stressing of the family's role organization (Brown, Craick, Davies, Johnson, Dawborn & Heale, 1978; Kaplan De-Nour, 1980; Maurin & Schenkel, 1976).

Still these reports are generalizations based on data and observations with a high degree of individual variation. There are other studies which have emphasized that dialysis patients are able to and usually do adapt well to their situation. This seems to be especially true in the area of psychological well-being. Contradicting those reports that have found numerous psychiatric complications associated with dialysis, Livesley (1979) and Farmer, Snowden & Parsons (1979) found that dialysis patients exhibited no more psychiatric morbidity than that found in general medical-practice patients. Two other studies also specifically failed to find any elevation in dialysis patient's depression scores (Devins, Binik, Hollomby, Barre & Guttman, 1981; Kaplan De-Nour, 1982). Indeed, one study found that overall there was no difference in the way dialysis subjects and healthy subjects perceived themselves (Clark, Hailstone & Slade, 1979).

Spouses. In comparison to the large body of literature on

the psychosocial adjustment of dialysis patients, only a relatively small number of studies have examined the psychosocial adjustment of the spouses of dialysis patients. This neglect is surprising for two reasons: First, as will be developed, it appears that the psychological well-being of married dialysis patients is strongly influenced by the adaptations of their spouses. Secondly, the spouse's position is worthy of study in its own right; the spouse, though not ill, is also confronted with the dialysis situation.

There are several reports of dialysis spouses exhibiting various stress reactions, with feelings of anxiety, frustration, hostility, depression, and pervasive insecurity being noted the most frequently (Shambaugh & Kanter, 1969; Heale, Liesegang & Niall, 1970; Holcomb & MacDonald, 1973; Short & Wilson, 1969). Nonetheless, as with dialysis patients, there are other reports suggesting that many dialysis spouses show few adverse reactions (Farmer, Snowden & Parsons, 1979; Marshall, Rice, O'Mera & Shelp, 1975) and that most are able to make an adequate adjustment over time (Heale, Liesegang & Niall, 1970). Therefore, while for both patients and spouses, dialysis has the potential to be a pervasive influence and stressor, many patients and spouses appear able to adjust to their situation with little psychological distress.

Patients and Spouses. Though most investigators seem to assume that dialysis primarily affects the patient, others have found that the spouse is the more affected partner. Smith, McDonald & De Wardener (1969) concluded that the burden of

home dialysis in particular falls more heavily on the spouse than on the patient. A conclusion supported by one study which found that home dialysis spouses considered themselves under greater stress than their patient-partners (Brown et al., 1978). Malmquist & Hagberg (1974), however, found the same types of stress reactions present in both home dialysis patients and spouses.

Regardless of the exact pattern of patient/spouse adjustments, it does appear that the partners' individual adaptations to dialysis are intertwined. A coping, emotionally supportive spouse seems to be crucial for the patient's successful adaptation to dialysis (Farmer, Bewick, Parsons & Snowden, 1979; Meldrum, Wolfram & Rubini, 1968; Procci, 1981; Steidl, Finkelstein, Wexler, Feigenbaum, Kitsen, Kliger & Quinlan, 1980). Conversely, particularly in home dialysis, the spouse's adaptation appears to be influenced by the patient's adaptation (Atcherson, 1978; Levenberg, Jenkins & Wendorf, 1978; Kaplan De-Nour, Note 1). Therefore, it appears that in order to fully understand the adaptation of either partner, both partners must be taken into consideration.

Dialysis and the Marital Dyad

In addition to affecting patients and spouses as individuals, dialysis also affects them as a couple, i.e. an interactional unit (Blagg, 1972; Hill, 1981; Mass & Kaplan De-Nour, 1975; Mlott & Vale, 1982); and there is some evidence that differences in individual adjustment may be largely influenced by the nature of the couple's relationship and their dyadic

adjustment (Marshall et al., 1975; Brackney, 1975,1979; Czaczkes & Kaplan De-Nour, 1978; Kaplan De-Nour, Note 1). In fact, the adjustments of both partners seem not to be so much a result of their individual personalities but rather a product of their marital combination. Marshall, Rice, O'Mera & Shelp (1975), for example, found that couples where both partners had dependent characteristics had the most difficulty in home dialysis training.

Kaplan De-Nour (Czaczkes & Kaplan De-Nour, 1978; Note 1) has attempted to synthesize findings in the area of couples' reactions to dialysis into a theoretical framework. In reviewing the literature and summarizing her and her co-workers' findings, she stressed four main points concerning rehabilitation and family relationship:

1.) Chronic illness is very stressful to some, but not all, families;
2.) Support by spouse may be beneficial to some but harmful to others;
3.) Though patients' adjustment is determined to a great extent by their personalities, at times it is modified by intrafamily relations;
4.) Unexpected adverse reactions of patients and/or spouses were observed; post factum it was realized that they were caused by insufficient understanding of intrafamily dynamics (Note 1, pg.520).

This framework highlights the fact that familial dynamics and interactions are potent determinants of individual -- the patient's or spouse's -- adjustment to ESRD and dialysis.

Kaplan De-Nour's formulation concentrates on the fulfillment of the marital partners' dependency needs. Both partners are considered in terms of whether their role within the

family is dependent or dominant, whether this role has been assumed by choice or forced upon them, and whether they are the afflicted or non-afflicted member. According to Kaplan De-Nour, individuals who have felt forced into an unacceptable role will with the onset of dialysis use the situation to slip into a more desired role.

In this conceptualization, the stressfulness of dialysis for both partners depends primarily on their previous levels of dependency needs. For couples where the patient has by choice been the dependent member and the non-afflicted spouse has by choice been the dominant member, dialysis is usually not very stressful and may actually reduce stress. On the other hand, dialysis will be very stressful for couples with a non-afflicted dependent spouse and a dominant patient; this being especially true when either by choice or circumstances the patient discontinues assuming the dominant role (Czaczkes & Kaplan De-Nour, 1978; Kaplan De-Nour, Note 1).

Unfortunately, there have been no direct, empirical investigations of Kaplan De-Nour's framework. However, two studies have reported that failures in home dialysis training occurred more frequently in couples where the spouse had a dependent relationship with the patient (Marshall et al., 1975; Streltzer, Finkelstein, Feigenbaum, Kitsen & Cohn, 1976). The fact that several other authors have also noted the potential impact of dialysis on the family's role structure also seems consistent with this formulation (Blagg, 1972; Goldman, Cohn & Longnecker, 1980; Maurin & Schenkel, 1976; Stewart & Johansen, 1976/77).

After interviewing 20 "dialysis families", Maurin & Schenkel (1976) reported that, especially in the areas of household tasks and social relationships, all families were faced with role readjustments. With the onset of dialysis, both partners' social lives contracted and became primarily family centered. Also, within this circumscribed existence, the dialysand usually became the family focus; the needs of the other family members, and especially the spouse's needs, being forced into the background.

While three-fourths of the families acknowledged disagreements concerning these areas, they felt these disagreements were mild. Yet their assessments may minimize the degree of conflict because, as the investigators noted, the partners appeared either unwilling or unable to verbalize their feelings about areas of tension.

This corresponds with Finkelstein, Finkelstein & Steele's (1976) observation that although couples rated their degree of marital discord as low, the investigators, basing their conclusions on the number and types of specific problems reported, rated it as high. In both studies, it appears dialysis was having an effect on the way the couples appraised or reported their marital situation. While an increased defensiveness in these couples is one way of explaining these findings, it could also be that the shared burden of dialysis overshadows those problems that in healthy couples lead to overt disruption. Consistent with the latter is the observation, made by two teams of investigators, that many dialysis partners felt the

situation had brought about an increase in marital closeness (Bergstein, Asaba & Bergstrom, 1977; Palmer, Canzona & Wai, 1982).

Though dialysis' usual effects on marital harmony and appraisal remain unclear, it does seem apparent, especially in home dialysis, that a non-conflictual marital relationship is of the utmost importance for both partners' adjustments (Brackney, 1975,1979; Levenberg, Jenkins & Wendorf, 1978; Mlott, 1976; Mlott & Vale, 1982). A good working relationship is so important within home dialysis because usually the non-afflicted spouse is the dialysis-assistant and therefore shoulders a considerable part of the responsibility for the dialysis treatments (Brown et al., 1978; Bryan & Evans, 1980). One study reported that the spouse's ability to participate in home dialysis "is less affected by the nature of the illness and its attendant difficulties than the potential change in the marital relationship that is imposed by home dialysis" (Streltzer et al., 1976,pg.57). Similarly, Brackney (1975, 1979) has concluded that there seems to be an interaction between psychological, marital and dialysis related factors and the nature of this interaction has important implications for the emotional adaptation and physical well-being of the home dialysis patient and spouse.

Table 1 lists the studies which have investigated the adjustments of patients and their spouses to dialysis. These studies are classified according to their major focus of interest: 1.) focus on the patient, secondarily on spouse;

Table 1[a]

Summary of Studies Investigating Patients' and Their Spouses' Adjustments to Dialysis

Authors	Subjects: N Couples	Subjects: Type of Dialysis Home: H Unit: U	Methodology: Clinical Case Reports	Methodology: Standardized Procedures: Individual[*1]	Methodology: Standardized Procedures: Dyadic[*2]	Methodology: Standardized Procedures: Dyadic Observations[*3]	Results: Descriptive	Results: Statistically Analyzed	Findings
1) Focus on the patient, secondarily on spouse									
Malmquist & Hagberg (1974)	13	H		X			X		Dialysis affected patients and spouses as co-workers on the same team.
Pentecost, Zwerenz & Manuel (1976)	40	H		X		X		X	The patient's success in home dialysis was associated with intrafamily behavior.
Bergstein, Asaba & Bergstrom (1977)	47[b]	H,U		X			X		Spouses experienced strain, yet many felt their relationship had become closer.
Farmer, Bewick et al. (1979)	32	H		X				X	Patient survival was associated with a coping spouse.
2) Focus on the patient's family or spouse									
Shambaugh & Kanter (1969)	14[b]	H,U	X				X		Spouses exhibited extreme emotional closeness to their ill partners.
Friedman, Goodwin & Chaudhry (1970)	20	U		X			X		Good long-term adjustment was achieved by a majority of families.
Goldman, Cohn & Longnecker (1980)	8	H		X			X		Family members underwent role changes to adjust to alterations imposed by dialysis.

Authors	Subjects: N Couples	Subjects: Type of Dialysis Home: H Unit: U	Methodology: Clinical Case Reports	Methodology: Standardized Procedures: Individual *1	Methodology: Standardized Procedures: Dyadic *2	Methodology: Standardized Procedures: Dyadic Observations *3	Results: Descriptive	Results: Statistically Analyzed	Findings
3) Focus on patient and spouse, individually									
Heale, Liesegang & Niall (1970)	24[b]	unspecified	X				X		ESRD can have a considerable impact on the patient's family and financial situation.
Fishman & Schneider (1972)	12[b]	H		X				X	For both patients and their assistant relatives, the expression of emotional problems early in home training was predictive of poor first-year emotional adjustment.
Holcomb & MacDonald (1973)	23	H		X				X	Both patients and their spouses reported feelings of depression and frustration; effects seemed to moderate over time.
Mlott & Allain (1974)	27	unspecified		X				X	The MMPI profiles of dialysis patients were, in general, more elevated than those of their spouses.
Mlott (1976)	35	unspecified		X				X	Patients were prone toward guilt fantasies; sex differences in adjustment.
Brown, Craick et al. (1978)	40	H		X			X		Home dialysis placed considerable strain upon the dialysis partner.
Speidel, Koch et al. (1979)	186[b]	H,U		X				X	"Unit dialysis seems to influence patients and partners towards social incompetence" (pg.241).

Authors	Subjects: N Couples	Subjects: Type of Dialysis Home: H Unit: U	Methodology: Clinical Case Reports	Methodology: Standardized Procedures: Individual*1	Methodology: Standardized Procedures: Dyadic*2	Methodology: Standardized Procedures: Dyadic Observations*3	Results: Descriptive	Results: Statistically Analyzed	Findings
4) Focus on the marital dyad									
Pentecost (1970)	11	H		X	X	X	X		Family study appears to be a useful service for home dialysis centers.
Kaplan De-Nour & Czaczkes (1970)	8	H	X				X		Five factors which influence a patient's resistance to home dialysis: objective aspects of dialysis, attitude of the medical team, patient's personality, attitude of spouse, financial situation.
Bailey, Mocelin et al. (1972)	125[b]	H	X				X		Four basic patterns of reactions in spouse pairs: sharing, obsessive-compulsive, parent-child, master-slave.
Marshall, Rice et al. (1975)	22	H		X				X	Failure on home dialysis training correlated with use of denial by both partners.
Mads & Kaplan De-Nour (1975)	13	U	X				X		Couples displaced their hostility onto the outside environment.
Streltzer, Finkelstein et al. (1976)	16	H	X				X		Success in home dialysis is at risk when the spouse is dependent on the patient.
Maurin & Schenkel (1976)	20[b]	H,U			X	X	X		Withdrawal from social life into a very family-centered existence.

Authors	Subjects: N Couples	Subjects: Type of Dialysis Home: H Unit: U	Methodology: Clinical Case Reports	Methodology: Standardized Procedures: Individual *1	Methodology: Standardized Procedures: Dyadic *2	Methodology: Standardized Procedures: Dyadic Observations *3	Results: Descriptive	Results: Statistically Analyzed	Findings
Finkelstein, Finkelstein & Steele (1976)	17	H,U		X	X			X	The stress imposed by dialysis frequently resulted in marital discord as rated by the investigators, though patients and spouses viewed their marriages as being nearly problem free.
Steele, Finkelstein & Finkelstein (1976)	17	H,U		X	X			X	A strong relationship between severity of depression and severity of sexual dysfunction existed for patients but not for their mates.
Brackney (1975,1979)	12	H		X	X			X	Psychological, marital and dialysis attributes were interrelated for both home dialysis patients and their wife-assistants.
Palmer, Canzona & Wai (1982)	20	H	X				X		Home dialysis often brought the partners closer together; patients seemed particularly satisfied with their marriages.
(Two Studies)	126	H			X			X	

[a] Revised version of a Table originally appearing in Chowanec & Binik (1982).

[b] Not all patients had spouses; in some cases a significant other was used.

[*] Focus of measurements either intra (*1) - inter (*2) - personal or observations of couple interactions (*3).

2.) focus on the patient's family or spouse; 3.) focus on both the patient and spouse, individually; 4.) focus on the marital dyad. Also, for each study, the Table details the number of participant couples, the dialysis mode, i.e. home or unit, the methodology employed, the results format, and a brief summary of the findings.

Critique

Several points are readily apparent from Table 1: the majority of studies in this area have been concerned only with home dialysis patients and their spouses; they have been exploratory in nature; many of them are anecdotal clinical case reports; and they have been monadic in their approach, usually having relied on a comparison of self-descriptive personality features or adjustment measures. While not directly apparent from Table 1, another conceptual limitation associated with almost all of these studies is their superficial survey nature: the problems encountered by dialysis patients and their spouses are described and charted but mediating mechanisms are seldom discussed and never empirically investigated.

While the majority of studies in this area have been exclusively monadic in approach, with a very few exceptions, the remaining have been exclusively dyadic in approach. None of the studies have adequately dealt with the interface of these two approaches: individuals within their dyadic context. Just as the monadic studies have neglected the importance of the marital context, the dyadically-oriented studies have given little consideration to how couple factors translate into

individual adjustment. Most of the latter have simply described a couple's, or family's, typical reactions to dialysis. Of the five studies (Table 1) focusing on the marital dyad which have employed standardized interpersonal measurements only two[b] have examined the relation between individual, couple and dialysis dimensions (Finkelstein, Finkelstein & Steele, 1976; Steele, Finkelstein & Finkelstein, 1976; Brackney, 1975,1979).

To date, the most thorough investigation in this area, at least conceptually, has been conducted by Brackney (1975, 1979). In her study, separate interviews -- focusing on three major areas: attitudes towards hemodialysis, current marital functioning, and individual psychological well-being -- were conducted with 12 male hemodialysis patients and their wife-assistants. Using audio-tapes, two independent raters scored each interview on 20 variables representing various aspects of these three major areas. Other measurements included each partner's assessments of their marriage, ratings of various aspects of adjustment to dialysis by the home dialysis training nurse, and an independent rating of the patient's medical status by a staff physician.

This data was then analyzed using correlational and discriminant function procedures. The primary objective of this analysis was to determine how the interactions between the marital partners affected their "marital satisfaction, degree of psychopathology, physical health, and effective performance of

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[b]Finkelstein, Finkelstein & Steele (1976) and Steele, Finkelstein & Finkelstein (1976) seem to be different reports of the same investigation.

dialysis related tasks" (1979,pg.55). Among the most significant findings of this study was that the level of adaptation to home hemodialysis attained by a couple rested heavily on the physical and psychological well-being of the wife-assistant.

However this investigation has a number of conceptual limitations. By restricting the study to male home hemodialysis patients a number of individual, couple, and treatment dimensions were omitted. Also, while the study did make an attempt to consider the couples' interactions, it still primarily focused on individuals; the partners' marital interactions were only superficially investigated. Accentuating this limitation was the fact that overall the author failed to provide a coherent interpersonal or family systems framework which would have helped integrate the partners' individual responses within their dyadic context.

Still more problematic are the study's methodological shortcomings. The ratings of psychological difficulties were primarily based on the semi-structured interview which had an inadequately validated coding system. Unfortunately a normal control group which would have partially rectified this problem was not included in the study. Also, another major limitation with the study was its small sample size; a sample of 12 couples was entirely inappropriate for the large number of variable measurements that were collected and analyzed.

Brackney's study is not alone in methodological shortcomings, all of the studies cited in Table 1 have serious

methodological limitations. Probably the most basic problem with all these studies is the lack of comparison groups. Only two of the studies make reference to how other groups have scored on the main measures (Farmer, Bewick, Parsons & Snowden, 1979; Steele, Finkelstein & Finkelstein, 1976); none of them employed meaningful comparison or control groups. It, thus, remains unclear whether dialysis patients and their spouses are significantly different from other groups either individually or as a couple.

Many of the studies are based on either unstructured interviews (Table 1: Clinical Case Reports) or on questionnaires which lack adequate validation (Bergstein, Asaba & Bergstrom, 1977; Brown et al., 1978; Heale, Liesegang & Niall, 1970; Holcomb & MacDonald, 1973; Mlott, 1976). Small sample size adds another limitation to many of the studies; the majority of the studies listed in Table 1 have a sample size of less than 21 couples. In addition, a number of the studies fail to clarify their recruitment procedures or detail their participation rate (Finkelstein, Finkelstein & Steele, 1976; Maurin & Schenkel, 1976; Mlott, 1976; Mlott & Allain, 1974; Palmer, Canzona & Wai, 1982; Speidel et al., 1979; Steele, Finkelstein & Finkelstein, 1976).

Though half of the studies listed in Table 1 are reported as having statistically analyzed their data, almost all of them employed inappropriately simplistic procedures. However, in many cases the statistical options seem to have been constrained by the poor quality of the measures and the superficiality of

the inquiry. In other words, some of the studies center around data that simply classified the participants (Farmer, Bewick, Parsons & Snowden, 1979; Holcomb & MacDonald, 1973; Pentecost, Zwerenz & Manuel, 1976), many of them measured only one aspect of the phenomenon they were investigating, and most of the studies collected only limited information on the participants' demographic and illness-relevant characteristics.

Conclusions

Despite the conceptual limitations and methodological problems with the above studies, several consistent themes still emerge from this area. First, many of these investigations have found that the partners' individual adjustments are interrelated, with the more recent studies beginning to explore dyadic factors as an important element in individual adjustment. Secondly, from these studies, it is clear that dialysis should no longer be conceptualized as having simple, direct effects on individual psychological well-being; rather it should be viewed as a salient feature in a larger psychosocial matrix. Finally, though primarily based on clinical observations, it appears that the couple's (or family's) role structure is an important element in both partners' psychological well-being.

In general then, the conclusion one can draw from these investigations is that there seems to be an interrelationship between dialysis, dyadic and individual factors. While dialysis affects dyadic relations, dyadic relations also affect adaptation to dialysis, and both dialysis and dyadic factors appear to be associated with individual adjustment. Therefore, in

addition to considering both the patient's and his/her spouse's individual adjustments to their particular dialysis situation, future investigations should also examine how these variables are interrelated with 1.) each partner's general physical health, marital role satisfaction, and global marital happiness; 2.) the couple's marital context and role organization; and 3.) the degree to which dialysis impinges on the partners' normal activities, both individually and dyadically. The conceptual paradigm which seems best suited for these types of investigations is General Systems Theory.

General Systems Theory

General Systems Theory (GST) is a way of approaching a problem area that stresses that the area must be viewed as an organized whole, a system, which is a product of the dynamic interactions among the component parts. Its historical impetus was the inadequacy of mechanistic science for explaining what one author has referred to as "phenomena of organized complexity" (Laszlo, 1972). These types of phenomena are usually more than the simple sum of the properties of their separate component parts. Therefore, they cannot be explained through the mechanistic concept of isolated linear causality: i.e., A causing B. An example given by von Bertalanffy illustrates this point: "You cannot simply say: If a person is infected with turbercle baccilli, he will contract the disease; it depends on so many factors of constitution, nutrition, and so forth" (von Bertalanffy, 1969,pg.34). This type of problem --

a problem with multiple interactions of many and partly unknown variables -- eventually led to the development of the "systems approach."

The primary assumption of GST is that sets of interrelated events can be treated collectively, as systems manifesting functions and properties on the specific level of the whole (Laszlo, 1972). However, since every system is part of a larger system (up to the level of the universe), it is somewhat arbitrary as to whether something is called a system or not (Churchman, 1979; Kramer & de Smit, 1977). Therefore, a system should be considered as a unit of observation or research (Kramer & de Smit, 1977).

In and of themselves, a set of objects or organisms do not automatically produce a system. They may only be labelled as such when they form "a set of interrelated entities of which no subset is unrelated to any other subset" (Kramer & de Smit, 1977,pg.14). Therefore, it is the nature of the relationship between the components which differentiates between an aggregate and a system. In an aggregate, one component may change or be removed without affecting the other components, however in a system when one component changes or is removed all the other components are also affected (Angyal, 1969). In other words, a system is "more than the sum of its parts."

Although many different definitions of a system exist, the following one by Mattessich (1978) summarizes the most widely accepted features of a system in general.

A system is a set possessing the following

necessary conditions:

1.) It contains two or more elements with specific properties.

2.) It contains relations (connecting the elements of the system with each other) and qualities of those which in turn lend structure, holistic properties, as well as possible regulators to the system enabling also its transformation.

3.) It is embedded in an environment containing additional inter-related elements.

4.) The boundaries between the system and its environment are determined by the system's elements and relations, and are sufficiently sharp and permanent to consider the system as an entity (pg.29).

These are the minimal requirements for a system in the broadest sense of the term. However, two more conditions are necessary for discussing an open goal-oriented system.

5.) It contains at least one relation between an element of the system and an element of the environment (open system).

6.) It has evolved or been created to tend toward a goal (goal-directed system) (Mattessich, 1978,pg.30).

Using this definition, a family (or marital dyad) easily meets the requirements for being referred to as an open goal-directed system. A family is composed of two or more members (elements). The members are linked by bonds of security, support and emotional closeness (relations). It is demarcated by genetic heritage, legal sanction and interpersonal alliance (boundaries). It exists within the context of the larger social community (environment), which it both affects and is affected by (open system). And lastly, it has as its purpose the fulfillment of its members' biological, economic, social and psychological needs (goal-directed system) (Taylor, 1979).

Families, like other systems, exhibit a complex interplay of structure and forces which elaborate and change in response to both internal and external phenomena (Kantor & Lehr, 1975). Consequently, the family is a powerful determinant of behavior and can foster healthy as well as pathological behavior, though the family members may not be directly aware of the processes and impact of these forces (Buckley, 1967; Sager & Kaplan, 1972). The crux of family systems theory then is not to focus on individuals but rather to focus on the product of the relationships between the individuals, the family system.

The family systems theory approach has been applied to two types of problems: psychological -- family therapy (though not all family therapy is based on family systems theory); and medical -- family medicine. The difference between these two disciplines is one of content emphasis; they both view an individual's problems as reflective of a larger family system problem. In family (systems) therapy, psychological disturbance is seen as the single manifestation of the total family problem and therefore treatment includes all the family members and focuses on the family's structure and processes (Bowen, 1961; Madanes & Haley, 1977). Family medicine emphasizes the role of the entire family unit both in the production and treatment of physical illness (Bauman & Grace, 1974; Christie-Seely, 1981; Curry, 1974; Geyman, 1978; Schmidt, 1978; Schwenk & Hughes, 1983).

Biological systems can be conceptualized as forming a hierarchy of systems: The hierarchy begins at the level of

cells and continues through the levels of tissues, organs, the nervous system, the person, the dyad, the family, the community and so forth until it culminates in the largest biological system, the biosphere (Brody, 1973; Engel, 1980). While most physicians work on the person level, the family (systems) therapist or family practitioner works at the level of the family or dyad. From a family perspective, the family or dyad is considered the primary unit for illness and health.

Most of the research on the psychosocial adjustment of ESRD patients has been on the person level. Even those studies which have investigated the psychosocial adjustments of both patients and their spouses have usually lacked a solid interpersonal conceptualization. General Systems Theory (GST), in the form of family systems theory, with its focus on the family system would seem perfect for investigations studying the partners' individual psychological adjustments from a family or dyadic perspective.

However, while GST does provide an excellent conceptual framework, it has two methodological shortcomings: there is no family systems measurement scheme which is both meaningful and reliable (Kantor & Lehr, 1975); it focuses on the whole family unit, thereby giving less importance to the individual family members who comprise the family unit. Therefore, in and of itself, GST is unable to provide empirical information on how the interrelationship between ESRD, family and individual factors translates into the psychological well-being of both patients and spouses. GST concepts are more appropriate

for a macro level analysis, they are less satisfactory at the micro level of analysis (Bertrand, 1972).

Complementary to the GST approach at the micro level of social organization is role theory (Bertrand, 1972). It is concerned with exploring the units of social interaction, therefore it is directly applicable when one is interested in systematically investigating the interrelationships between the component parts of a system. As will be developed, role theory more readily lends itself to an investigation interested in quantifying marital interactions. This thesis then will use GST as the general theoretical approach encompassing the more operational role theory.

Role Theory

As Thomas & Biddle (1966) have pointed out in their thorough review of the area, there is no one grand unifying "theory" in the role area, only certain hypotheses and theories about particular aspects of the area. Yet, while each author may use the concept slightly differently, there are important uniformities of perspective. In essence, a role theory perspective assumes that:

> individuals in society occupy positions and their role performance in these positions is determined by social norms, demands, and rules; by the role performances of others in their respective positions; by those who observe and react to the performance; and by the individual's particular capabilities and personality (Thomas & Biddle, 1966, pg.4).

Unfortunately, most authors when they use role terminology,

rather than explicitly defining the important terms, have the reader sense a meaning from the term's context. Of course this simply adds to the confusion about what a role theory approach entails. To avoid this problem, the following definitions are given:

Norm: the smallest unit of social interaction; it is defined as the required or acceptable behavior (singular) for a given interactional situation; it is translatable into an act, e.g. answering a question (Bertrand, 1972).

Role: a more or less integrated subset of norms; a role is composed of several related norms dedicated to the same function (Bertrand, 1972); a behavioral repertoire characteristic (or expected characteristic) of a person or a position (Thomas & Biddle, 1966).

Role Expectation: the normative dimension of role; an anticipation about a behavior likely to be exhibited by a person or a position (Thomas & Biddle, 1966); what should be done and who should do it (Nye, 1976).

Role Performance: the behavioral dimension of role; the overt activity of a person (Nye, 1976); a person's actual role performance; what is done, who does it, and how it is done.

Status-position: a set of roles; this unit represents the location of a person in a social system, though it is not synonymous with the individual occupying the position at the moment (Bertrand, 1972).

Role Reciprocality: the concept that both people in an interaction have rights and duties; the performance of one role implies and requires the performance of a second role (Bertrand, 1972).

Role Strain: the difference between a role expectation and a role performance; the difference between a person's expectation of how and by whom a role should be performed and that person's perception of how and by whom that role is actually being performed.

Two general frameworks of role theory exist: the structur-

alist viewpoint and the interactionalist viewpoint. The structuralist tradition, initiated by Ralph Linton (1936; cited in Nye & Gecas, 1976), emphasizes the cultural aspects of role. The interactionalist viewpoint which gained impetus from the work of George H. Mead (1934; cited in Nye & Gecas, 1976) emphasizes the emergent quality of role, a conception of roles as behavioral regularities emerging out of social interaction. Of the two viewpoints, the latter more readily lends itself to psychological investigations. Therefore, in this thesis, role theory will be discussed, unless otherwise noted, in terms of the interactionalist viewpoint.

A group, by definition, is composed of individuals who interact in terms of reciprocal role relations (Bertrand, 1972). In our society, the precise definition of the roles associated with any status-position are rarely delineated. Therefore, there are many possibilities for differing conceptions of what the activities associated with a given status-position should be and how they should be performed. To a large degree, the norms and roles associated with a status-position are formulated by the group members' past experiences and present interactions. In time through an accumulation of social experiences, behavioral regularities and expectations, or roles, emerge (Nye & Berardo, 1973).

When a group's status-positions are well integrated the system functions with a maximum of efficiency, i.e. the role reciprocality of the members interactions produces a minimum of role strain. Under these conditions, the group's members

are collectively expected to be experiencing high levels of psychosocial gratification. Optimally, the roles within a group would be integrated in a manner which best serves both the purposes of the group as a whole and the goals of all its individual members.

However, given the composition of a group it can never reach a stage of complete integration. By virtue of their different backgrounds, no two individuals have exactly the same prescriptions for role behavior or interpret a situation in exactly the same manner (Bertrand, 1972). There is a constant state of tension in the system because of this lack of agreement on role behavior. Due to this dynamic tension, every system exists in a permanent process of disorganization and reorganization. In some cases this flux leads to more adaptable forms of integration, in others it can result in dysfunctional systems or even in the dissolution of the group (Bertrand, 1972).

Role Theory and the Family

The family, by its very nature, exhibits both elements of roles, the structural aspects along with the emergent interactional. Since role is a cultural concept, any society may normatively define and enforce role definitions (Nye & Gecas, 1976). Likewise, it is reasonable to anticipate that specific families through their interactions will also develop distinctive norms and roles, and even within specific families, the husband may hold one set of normative definitions about appro-

priate marital roles while the wife holds another set. Within a role theory perspective, the pertinent questions center around the fulfillment of family roles: each members' role expectations and perceptions of role enactments (Burgess, 1926; Nye & Berardo, 1973). A well integrated family system is one where the members' expectations and the actual role performances evidence a large degree of overlap.

The role theory conceptualization of the couple emphasizes the consideration of individuals in their marital context. It considers both the individual's preferences and expectations and the interactional workings of the dyad (Tharp & Otis, 1966). Therefore, it lies midway on the spectrum of ways of conceptualizing the workings of a marriage. It contrasts with the holistic approach of viewing the entire family group as the unit of study through the investigation of such variables as family power structure, communication patterns and problem solving strategies. It also contrasts with the individualistic approach of focusing on the relationship between the partners' personality traits and their marital compatibility (Quick & Jacob, 1973).

Roles are always seen in relation to behavior, hypothetical or real; they refer to either standards for expected behavior or to judgments about actual behavior (Bertrand, 1972). Also, though roles represent individual behavior patterns, they are formed and can only be understood within an interactional setting. The advantages of role theory then, compared to the other methods of conceptualizing the family, are its capacity

to provide a more adequate description and analysis of the internal workings of the family and its ability to deal more effectively with the problems of real behavior (Bertrand, 1972).

Roles and Marital Conflict

A role theory perspective has proven to be a fruitful framework for viewing marital conflict. Early work in the area concentrated on investigating the roles normatively associated with the status-positions of husband and wife (Parsons & Bales, 1955). Implicit within this framework was the assumption that marital partners who more closely conformed to the ideal marital roles would be more satisfied with themselves and their marriages than those with more deviant role beliefs and performances.

Working within this structural viewpoint, Jacobsen (1952) found significant attitude differences between married and divorced couples toward the cultural prescriptions of the marital roles of husband and wife; the married couples exhibited less of a discrepancy in their attitudes toward the roles of husband and wife than were found in the divorced couples. Dyer (1962), in an article on the marital adjustment of newlyweds, hypothesized that in general their marital interactions would go least smoothly if the partners' role expectations and performances were in conflict. In these cases, one or both of the partners would apply negative sanctions against the other. The end result of this situation would be a lower level of marital satisfaction for both members of the dyad.

While this article continued to predominantly view marital roles from a cultural perspective, it also addressed itself to the idiosyncratic role prescriptions that the partners bring to a couple.

This emergent interactionalist framework has been applied most recently by Frank and her associates (Frank & Kupfer, 1976; Frank, Anderson & Rubinstein, 1979;1980). Their approach is to see how well the couple's interactional patterns allow for a concordance between the partners' husband and wife role ideals and expectations and the partners' perceptions of actual family role behavior. No one pattern is considered optimal, rather the idiosyncratic match between these expectations and enactments is considered to be the important element in marital satisfaction.

These investigators have empirically examined the relationship between marital role strain and marital satisfaction by comparing the marital role strain scores of three groups of couples: nonpatient couples, sex therapy couples and marital therapy couples. The partners in the nonpatient group evidenced the least marital role strain, the partners in the marital therapy group evidenced the most and the sex therapy partners fell between these two extremes.

Marital Role Strain, Marital Adjustment and Mental Health

Studies in a number of diverse areas -- including family sociology, medical sociology, family therapy, family medicine, medical psychology and psychiatry -- have reported a strong association between marital adjustment and psychosocial func-

tioning (Adler, 1953; Bird, Martin & Schuham, 1983; Brown & Harris, 1978; Burke & Weir, 1977; Coombs & Fawzy, 1982; Jacobs, 1982; Lee, 1974; Madanes & Haley, 1977; Ward, 1981). The gist of these studies is that a good marital relationship is associated with a low incidence of mental illness and better prospects for recovery. Authors in this area, while being unable to directly demonstrate causality, do feel that marital disturbance precedes psychological disturbance and therefore treat marital adjustment as the independent variable and psychological disturbance as the dependent variable.

Within the family system, the marital partners' relationship appears to be crucial for the family members' psychological well-being. Epidemiological evidence suggests that the quality of the marriage is of key importance not only in determining the partners' mental health but also in determining the mental health of their children (Dominian, 1972). Also, Ward (1981) has found that only the interactions of the marital dyad, not the interactions between parents and children, were associated with the partners' psychological well-being. These studies empirically substantiate the rational belief that the marital dyad is the core of the family unit (Fink, Skipper & Hallenbeck, 1968; Foley, 1979).

Depression is the specific psychological well-being dimension whose relationship with marital adjustment has most often been investigated. Brown & Harris (1978), in a study of 458 British women, found that emotional support from the husband reduces a woman's vulnerability to depression. Vanfossen (1981)

in a study which included both husbands and wives found that depression was more likely to emerge in relationships where the partners were unsupportive. She also found that more husbands than wives reported having supportive spouses. Wetzel (1978), however, found the relationship between the marital relationship and depression to be more complex. While most of the depressed women in her sample were dependent and in an unsustaining marital environment, independent women in relationships with husbands who were not supportive of their independence were also found to be depressed. She interpreted this finding as congruent with a framework emphasizing the importance of the person-environment fit in the production of mental health.

The marital relationship also seems to affect the way a partner's behavior is labelled. Safilios-Rothschild (1968) in a study with 28 Greek couples, found that satisfied and dissatisfied partners did not differ regarding the definition of the disturbed spouse's behavior as deviant: both were more likely to view their spouse's peculiarities as deviant when they clashed with the cultural prescriptions for appropriate marital sex role performance. However, they did differ in regard to the labelling of such deviance as "mental illness." The partners who were satisfied with their marriages tended to minimize the seriousness of the partner's disorder by attributing it to such things as "nerves", whereas the dissatisfied spouses were more willing to accept a psychiatric diagnosis. Also, patients with satisfied spouses had better

rehabilitation prospects than patients with dissatisfied spouses. In many cases, the patient's label of "mental illness" gave the dissatisfied spouse a socially acceptable reason for long-term separation and disassociation.

Tharp & Otis (1966) have developed a theoretical orientation for explaining this link between marital adjustment and psychological well-being based on role theory constructs. The major tenets of this framework are that a family with a psychiatrically ill member contains a dysfunctional marital dyad and that dysfunctional marital dyads are produced by the absence of satisfying role reciprocations.

Individuals, by virtue of their own familial backgrounds, bring to their marriages certain role ideals. Through interactions with their mates, these individuals develop specific role expectations and performances for their own marital situations. These role ideals, expectations and actual role performances are all reflective of the individual's psychosocial needs. A particular marriage at a particular stage is either conducive or detrimental to the fulfillment of these needs. The greater the congruence between a person's perceptions of the actual marital performances and his/her role ideals and expectations -- i.e. a lower degree of marital role strain -- the more the person's psychosocial needs are being met. Concomitantly, this fulfillment of the person's psychosocial needs has a salutary effect on psychological well-being. Therefore, according to Tharp & Otis (1966) even though a person may have a proclivity for a symptom, if in the family

system he/she can maintain sufficient role integrity the person will not manifest psychiatric symptoms.

There have been three direct empirical investigations of the theoretical framework proposed by Tharp & Otis (1966): Crago & Tharp (1968); Quick & Jacob (1973); Jacob, Kornblith, Anderson & Hartz (1978). In each of these studies, it was found that psychiatric patients and their spouses were experiencing more marital role strain than the members of nonclinical couples. Therefore, as Tharp & Otis (1966) hypothesized, it does appear that psychological distress is associated with poor marital relations.

It also appears that a problem within the marital dyad has a more pronounced effect on the wife's level of marital role strain than on the husband's level. Crago & Tharp (1968) reported that in the nonclinical couples neither partner experienced much more role strain than the other. However, in the clinical group, the wives experienced significantly more marital role strain than their husbands. Though Quick & Jacob (1973) did not specifically investigate sex differences, they do report mean scores for the four cells -- group by sex -- which seem consistent with Crago & Tharp's (1968) finding.

Frank, Anderson & Rubinstein (1980) reported a similar finding with couples in marital therapy. While women in a nonpatient group were experiencing no more marital role strain than their partners, the wives in the marital therapy group were experiencing significantly more marital role strain than

their husbands. Therefore, it seems that under circumstances of marital stress the roles associated with the status-position of wife may be more difficult to maintain than the roles associated with the status-position of husband.

Role Flexibility

Whenever a family member becomes ill, all of the family members are affected. The illness produces reactions, counter-reactions and shifts in the family equilibrium (Fink, Skipper & Hallenbeck, 1978; Olsen, 1970; Power, 1979).

Chronic illness is especially disruptive of the usual pattern of family interaction. It may also hinder the family members' abilities to overcome the effects of this disruption. The chronic illness of one family member may create new, or revive former, symptoms in other family members; this is especially prevalent when the situation requires role alterations (Bruhn, 1977). Klein, Dean & Bogdonoff (1967), based on a study with 121 chronically ill patients and 73 of their spouses, concluded that the development of a chronic illness in the family is attended by role disruptions which lead to interpersonal tension and somatic symptoms in both partners.

According to Olsen (1970) one of the primary characteristics of families which are able to make a good adjustment to chronic illness is that "there is a flexibility within and between roles so that shifting can be tolerated with relative comfort" (pg.170). It may be that in less role segregated relationships, the partners are more familiar and comfortable with exchanging roles; thereby allowing them to

find the required role alterations less burdensome (Fengler & Goodrich, 1979). The delicate task for a family faced with a chronic illness is to adjust their roles such that the former functions of the patient are maintained while not burdening the spouse or isolating the patient (Mailick, 1979).

As pointed out previously, several authors have noted the potential impact of dialysis on the family's role structure and the possible psychological reactions associated with this disruption (Blagg, 1972; Goldman, Cohn & Longnecker, 1980; Maurin & Schenkel, 1976; Stewart & Johansen, 1976/77; Kaplan De-Nour, Note 1). The following excerpt from an article by a home dialysis patient and his wife is particularly descriptive of how dialysis disrupts the usual marital role patterns:

> ... Anne experienced considerable role conflict. Whereas before dialysis she had been a wife, lover and companion, she now was sometimes thrust into the strange role combination of nurse, mother and sister. During dialysis she became a "nurse" and often had to respond to crises of pain, shock or malfunctioning of the machine. At other times she was like a mother and gave comfort and strength when self-esteem was low, and at still others, she became a sister or friend because of changes in our sex life and the lack of time to enjoy each other during the week (Campbell & Campbell, 1978,pg.387).

Unfortunately, however, there has been no controlled empirical research on either the effects of dialysis on the family's role structure or the association between role flexibility and psychosocial adjustment; all of the aforementioned articles have been based on clinical case reports. Since it would seem likely that role flexibility is associated with decreased role strain, especially under circumstances requiring role

alterations, it would seem productive to include measures of both when investigating the relationship between ESRD and the marital dyad.

With marital roles to a great extent being sex roles (Bernard, 1982; Parsons & Bales, 1955; Tharp, 1963a), a measure of sex role flexibility should give a good indication of the marital partners' individual and dyadic marital role flexibility. Sex role flexibility therefore would seem to be an interpersonal asset for couples faced with marital disruption. Working with a sample of couples seeking marital therapy, Felton, Brown, Lehmann & Liberatos (1980) found that sex role flexibility was in fact associated with effective coping; nontraditional sex role attitudes were associated with lower levels of psychological distress for both men and women.

Outside of the marital area, Bem (1975, 1979a) has proposed that in general androgynous individuals, high in both masculine and feminine characteristics, are very behaviorally flexible; that they are more able to vary their behavior according to situational demands than individuals who are sex role stereotyped. Based on this flexibility, Bem advances androgyny as the optimal sex role orientation for psychological adjustment (Bem, 1974; 1979b). Therefore, whether it is specifically due to marital role flexibility or simply a result of greater behavioral flexibility, it appears that sex role flexibility should be positively associated with the psychological well-being of both ESRD patients and their spouses.

Goals of the Present Study

Previous studies investigating the psychosocial well-being of dialysis patients and spouses have suggested that couple factors play an important role in each partner's psychological well-being. Unfortunately, these studies possess conceptual, methodological and statistical limitations which cast doubt on their empirical findings. The present study overcomes many of these shortcomings:

Conceptually, the study employs a role theory conceptualization of marriage which has an explicit interpersonal framework; it gives equal consideration to the respective illness status-positions of both patients and spouses; and it uses a multifaceted approach to psychological well-being which goes beyond just the absence of psychopathology. Methodologically, the study uses standardized measures; it has a large sample size which includes relevant nondialysis comparison groups; and it considers the association between illness severity and psychological well-being. Statistically, the study employs multivariate procedures where demographic characteristics are statistically controlled for.

Design

As has been noted, one of the most serious shortcomings of previous research in this area is the lack of comparison groups. The present study uses multiple comparison groups. Earlier in the Introduction, the progression of chronic renal failure was detailed. This progression can be roughly divided into four stages, defined by illness severity and/or treatment

method: 1.) the absence of ESRD, 2.) the presence of ESRD not yet requiring dialysis, 3.) ESRD requiring treatment with dialysis, and 4.) ESRD being treated with a kidney transplant. These different ESRD stages define the comparison groups employed in the present study.

Nephrology Clinic. This group consisted of patients with minor non-ESRD medical problems who were being followed through the nephrology clinic. The types of difficulties they exhibited fell into two general categories: low-level chronic illnesses (e.g. controlled hypertension and mild diabetes) and acute illnesses which had subsided (e.g. minor urinary tract infections and kidney problems associated with pregnancy). However, despite their problems, these patients were still considered to be "basically healthy" by their physicians.

Patients in this group were expected to be little affected by their illness, due to its low severity and limited treatment requirements. At most, the treatment regimen would include check-ups, mild dietary restrictions and medications; at the other end, some of the patients were no longer ill at the time of the interview and therefore had no treatment regimen. Still, since for many patients their first knowledge of having ESRD comes during a visit to a nephrology clinic, it is reasonable to consider this group as representing the first point, the lowest level, in the progression of ESRD. The other unique advantages provided by this group include: 1.) Precise information on the patient's medical status and treatment regimen was available.

2.) There was an identified patient, either male or female, within the couple.

3.) The recruitment procedure, detailed later, was the same for this group as for the other (ESRD) groups, thereby insuring a valid comparison of the groups' participation rates.

4.) Demographically, particularly in age and SES, nephrology clinic patients were felt to be similar to patients in the other (ESRD) groups.

Pre-dialysis. This group was composed of patients with chronic progressive renal failure, objectively defined as having serum creatinine levels between 4 and 8 mg/dl. All of these patients were aware of their condition; they were all also aware of at least the possibility, though some knew it was more of a probability than a possibility, of requiring dialysis in the not too distant future.

At the time these patients were seen the physical effects of the ESRD primarily consisted of non-specific symptoms such as fatigue and weakness. Their treatment regimen included regular hospital check-ups, stringent dietary restrictions and medications. Additionally, these patients and their spouses were also faced with the prospects of chronic dialysis and/or renal transplantation, and the uncertainty about exactly what this would entail.

Dialysis (Home/Unit). Patients being treated with either chronic hemodialysis or chronic CAPD comprised this group. These patients are dependent on regular treatments for their survival. In addition to the problems precipitated by the

underlying disease process, which are not eliminated by dialysis, these patients are also confronted with the complications directly associated with the dialysis (hemodialysis and CAPD) treatment procedures. Furthermore, both hemodialysis and CAPD are demanding and time-consuming treatments.

In this study, dialysis patients were divided into two groups: patients who dialyzed at a hospital dialysis unit and those that dialyzed at home. This latter condition included both home hemodialysis and CAPD patients, a categorization dictated by the need to obtain a sufficient sample size for the home-dialysis group.

Theoretically, the dialysis setting -- home or unit -- should reflect itself in many lifestyle ramifications for both the patients and their spouses (individually and dyadically). Home hemodialysis allows the patients more schedule flexibility than they are allowed at the dialysis unit. CAPD allows even more freedoms: there is no machine, there are fewer dietary restrictions and no fluid restrictions. Yet the freedoms allowed by CAPD are balanced by the necessity of always wearing the dialysate bag and the fastidiousness required for sterile exchanges.

While home dialysis allows greater flexibility, it also introduces the dialysis regimen more directly into the couple's marital context. In this study, within the home hemodialysis group the spouse was almost always the required dialysis-assistant. While CAPD does not technically require an assistant, again for almost all the couples, the spouse was directly

involved with the dialysis regimen.

Ideally, the two dialysis groups -- home and unit -- would have been identical except for the characteristics of the dialysis treatment regimen. However, at the five hospitals included in this study, there are two general considerations which influence whether a patient will receive hemodialysis or CAPD: The first, and more important, is the patient's health and the second is the patient's place of residence. Patients with contraindications for long-term hemodialysis, usually those patients who are in poor health, are more likely to be placed on CAPD, and patients living long distances from the hospital are also more likely to start on CAPD even if they are suitable for hemodialysis. The result is that while not all the CAPD patients are in poor health, as a group they are in poorer health than their hemodialysis counterparts.

It may very well be that the advantages and disadvantages of the home and unit dialysis treatment regimens tend to balance out, with patients and their spouses probably settling on the mode which is least problematic for them. However, compared to the unit-dialysis patients and spouses, the home-dialysis partners -- due to the patients in this group generally being in poorer health -- would seem more likely to view the illness and/or its treatment as being a greater intrusion into their lives.

Post-transplant. This group included only kidney transplant patients who had had a functioning kidney transplant

for at least six months. Since transplant rejection fears, immunosuppressive medications, graft rejection and death are all more prominent in the first few months after transplantation (Chambers,M., 1982; Samuels et al., 1974), the six month requirement was chosen to get a truer indication of the stable post-transplant situation.

A functioning kidney transplant most closely approximates a return to pre-ESRD physical functioning. Therefore, it necessitates fewer treatment requirements than dialysis. Transplant recipients are no longer dependent on time-consuming hours on dialysis and usually there are no dietary restrictions.

However, transplant recipients must take immunosuppressive medications and must have regular hospital check-ups. Further, these patients are aware of the fact that their grafts could be rejected at any time. Therefore, transplant recipients, while receiving the most complete form of treatment for ESRD, are not cured.

ESRD Continuums: Chronological and Intrusiveness

The five groups employed in this study were chosen because they mark discernable points in the chronological progression of ESRD and its treatment, beginning with visits to a nephrology clinic and culminating in a kidney transplant (though not all patients go through each stage). Therefore, they form natural comparison groups. Simultaneously, these groups reflect different levels of treatment demands. One would expect that the more severe an illness and the more

demanding its associated treatment, the more the illness and/or its treatment would intrude into the lives of the patients and their spouses. Based on the objective characteristics of the underlying illnesses and the particular treatment regimens, an ordinal intrusiveness scale was generated: the rank ordering of the groups from lowest to highest levels of intrusiveness is nephrology clinic, post-transplant, pre-dialysis, unit-dialysis and home-dialysis. The two continuums -- chronological and intrusiveness -- and the placements of the five groups on these continuums are illustrated in Figure 1.

Statement of the Problem

The objective of this study was to explore the psychological well-being of ESRD patients and spouses from an interpersonal role theory framework through a cross-sectional investigation using ESRD groups representing different levels of illness/treatment intrusiveness.

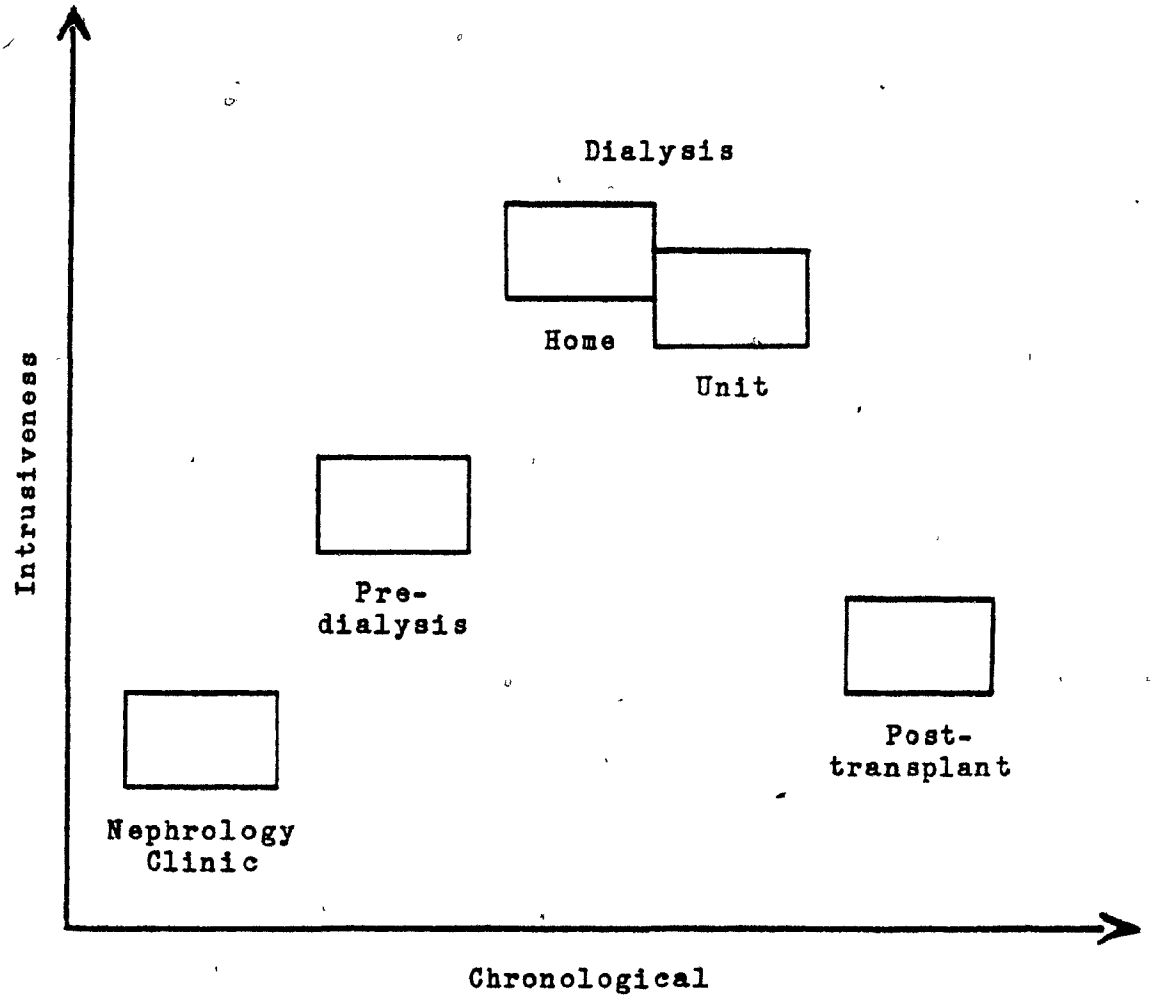


Figure 1. The ESRD chronological and intrusiveness continuums.

Hypotheses

The following hypotheses were tested:

Hypothesis 1. The ESRD groups with the greater illness severity and more demanding treatments will report more illness/treatment intrusiveness; the ordering from lowest to highest levels of perceived intrusiveness will be nephrology clinic, post-transplant, pre-dialysis, unit-dialysis and home-dialysis (i.e. the same ordering as with the objective intrusiveness scale).

Hypothesis 2. The responses given by patients and spouses for illness/treatment intrusiveness will be positively correlated.

Hypothesis 3. The pattern of responses given by patients and spouses in the categories of marital relations and psychological well-being will be similar, i.e. no significant mean differences between patients' and spouses' responses.

Hypothesis 4. There will be significant differences between the comparison groups in the categories of marital relations and psychological well-being. The pattern of differences will reflect the ordering on the objective intrusiveness scale such that the two dialysis groups will exhibit the most marital role strain and the least psychological well-being. This pattern of results will exist for patients and spouses both individually and dyadically (i.e. as a couple).

Hypothesis 5. For all (ESRD) groups, marital role strain will predict psychological well-being above and beyond that accounted for by demographic,

health and (ESRD) group factors. (Again the same pattern will hold for patients and spouses both individually and dyadically.)

Hypothesis 6. Greater sex role flexibility will be associated with lower levels of marital role strain and greater psychological well-being.

Hypothesis 7. The ESRD groups with the greater levels of illness/treatment intrusiveness will exhibit a greater degree of correlation between marital role strain and psychological well-being.

METHOD

Participants

Besides having a dyadic member in one of the five ESRD groups, all participants had to meet the following requirements:

a.) They had to have been married -- or living commonlaw -- for at least six months.

b.) They had to have command of the English language sufficient to be able to fill out the questionnaires.

c.) Both marital partners had to be physically well-enough to fill out the questionnaires.

d.) The partners had to be cohabiting at the time of the interview.

Participant Recruitment

Participants were recruited from five hospitals: four in Montreal and one in Ottawa. A list of patients meeting the above criteria was obtained from each hospital. These patients were met in the clinic and the study was explained to them. Home hemodialysis patients and patients who could not be seen in the clinic were mailed an introductory letter (Appendix I) explaining the study and then were telephoned. After informing the potential participants that the study was for my doctoral dissertation, that their participation was totally voluntary, and that any information they might provide would be used solely for research purposes and kept strictly confidential, they were asked to participate.

If the patient agreed, an interview appointment was set. Then the patient was given the introductory letter (again Appendix I) and asked to give it to his/her spouse. Later the spouse was also contacted, and if the spouse also agreed to participate, another appointment was made. Whenever possible the partners' interview sessions were scheduled to coincide.

Recruitment proceded so as to balance each of the five ESRD groups with equal numbers of male and female patients; recruitment for a cell continued until it included at least 8 couples and ceased when it contained 10 couples. Also, an attempt was made to keep the groups as similar as possible on the variable of age. This was mainly done by biasing for preferrable ages -- i.e. ages which would help equalize the mean ages of the five (ESRD) groups -- in the selection of the last few (10) participants. All of these participants were patients at the Ottawa Civic Hospital, which was only included after the pool of suitable participants in the Montreal area had been exhausted, therefore when the Civic's medical staff constructed their list of suitable patients they were asked to include their ages. Then the patients with the most preferrable ages, in each of the needed groups, were selected.

The participant recruitment phase of the study lasted from May, 1981 to September, 1982. Using these selection criteria and recruitment procedures, 117 patients were asked to participate in the study; 102 (87%) agreed. The actual number of participating patients in each ESRD group is given

in Table 2. The patient participation rates did not differ significantly between the five ESRD groups; $\chi^2(4) = 0.54$, ns.

Measures

Information in the following categories was obtained: demographics, physical health, illness/treatment characteristics, illness/treatment intrusiveness, marital relations, psychological well-being, defensiveness, sex role flexibility and social networks. The actual measures comprising each category are described below; a concise presentation of the categories and measures is given in Table 3. The entire test battery, in the order the instruments were administered is presented in Appendix II.

Demographic Characteristics

The following information was obtained for each participant: age, sex, education, occupation, current work status, income, religion, current religious practices, number of years married, marital history, number of children living at home, and their present position in the family life cycle.

All of these are self-explanatory except occupation and the family life cycle. Each male's occupation was used to calculate a socioeconomic index score based on Blishen & McRoberts' (1976) standardized Canadian index of male SES. For female participants, no socioeconomic scores were given since a parallel index for women does not exist. However, information on years of formal education and salary largely offsets this loss of information; years of formal education

Table 2

Patient Participation for the Five ESRD Groups

	Nephrology Clinic	Pre-dialysis	Home-dialysis	Unit-dialysis	Post-transplant
Males	10	9	11	12	9
Females	11	8	11	11	10
Total	21	17	22	23	19

Table 3

Variables

Demographic

Age
Sex
Education
SES
Work Status
Income
Religion
Practicing Religion
Years Married
Marital History
Number of Children at Home
Family Life Cycle

Illness/Treatment Characteristics
(patients only)

Number of Years seeing a Nephrologist
Current Serum Creatinine Level

(dialysis patients only)
- Number of Months on Dialysis
- Primary Helper
- Hours per Week
- Days per Week
- Kidney Transplant
- Biochemical Measures

(post-transplant patients only)
- Months with functioning Transplant
- Previous Transplants
- Months on Dialysis

Physical Health

Self-rated
Partner-rated
Physician Rated (patient only)
Organ Dysfunction Scale (patient only)

Illness/Treatment Intrusiveness

Objective:
- ESRD Group Membership

Perceived:
- Individual
  - Health
  - Diet
  - Work
  - Financial Situation
  - Community & Civic Activities
- Marital
  - Sexual Relations
  - Division of Responsibility
  - Household Affairs
  - Family Togetherness
  - External Relations
- Global Rating
  - Self-rated
  - Partner-rated

Marital Relations

Respect for Partner
Locke-Wallace Marital Adjustment Test
Marital Role Questionnaire
  Total Score
  Five Subscale Scores
    Solidarity
    Sexual Relations
    External Relations
    Internal Instrumentality
    Division of Responsibility
KDS-15a

Defensiveness

K Scale (MMPI)

Social Networks

Social Network Index

Sex Role Flexibility

Bem Sex Role Inventory

Psychological Well-being

Global Ratings
  Happiness
    Self-rated
    Partner-rated
    Physician Rated (patient only)
  Self-esteem
    Partner-rated

SCL-90-R
  Somatization
  Depression
  Phobic Anxiety
  Obsessive-compulsive
  Anxiety
  Paranoid Ideation
  Interpersonal Sensitivity
  Hostility
  Psychoticism
  Global Severity Index (total score)
  Positive Symptom Distress Index

Affect Balance Scale
  Positive Affect Scale
  Negative Affect Scale
  Affect Balance Scale (total score)

Rosenberg Self-esteem Scale

and salary are two of the main components of SES (Blishen & McRoberts, 1976; Cole, 1975). Also, in considering the participants as couples, the husband's SES is the important element, since the husband is the primary determinant of the family's SES (Spencer & Inkeles, 1982).

The participants were also classified by their positions in the family life cycle. This categorization was used to augment information on the participants' ages and the number of children they had living at home. The family life cycle was divided into the following six stages: no children planned; children being planned; pre-school children; school age children; post-school age children still living at home; all children grown, none living at home. The participants' points in the family life cycle were based on their youngest child.

Health Ratings

The following ratings of the patient's physical health were obtained: self-rated, partner-rated, and physician rated; all on a 7-point scale where a higher rating indicated better health. The patient's physician also completed an Organ Dysfunction Scale (ODS) (Hollomby & Hutchinson, Note 2). This scale attempts to measure the patient's health more objectively; ratings are obtained for each of the person's vital organs which are then summed. On the ODS, a higher score indicates poorer health. Information on the spouse's health was also obtained through self- and partner-ratings on a 7-point scale.

Illness/Treatment Characteristics

Relevant information was obtained on the history of each patient's illness and its treatment. Of this data, only the number of years the patient had been seeing a nephrologist and current serum creatinine level pertained to all five ESRD groups. For the pre-dialysis patients, the major measurement of interest was the current serum creatinine level. For dialysis patients, the following information was obtained: number of months on dialysis; hours per week devoted to dialysis; days per week the person dialyzes; whether the patient had ever had a kidney transplant; the patient's primary dialysis helper; and biochemical measures -- serum creatinine, phosphorous, potassium and BUN levels. And for the post-transplant patients the following measures were considered the most relevant: months with a functioning kidney transplant; any previous transplants; months spent on dialysis (total); and current serum creatinine level.

Illness/Treatment Intrusiveness

In addition to objective illness/treatment intrusiveness as defined by the characteristics of the five ESRD groups, a subjective measure of illness/treatment intrusiveness was also employed. Perceived intrusiveness regarding 10 areas of life was assessed by each partner rating "How much does (your/your partner's) illness and/or its treatment interfere with each of the following aspects of your life?" on a 7-point scale for each of the 10 areas. These areas were conceptualized as including five individual areas -- health, diet,

work, finances, community & civic activities -- and five marital areas based on the subscales of the Marital Role Questionnaire (described below) -- sexual relations, the division of responsibility within the family, household affairs, family togetherness and the family's external relations. These areas were summed to provide: a total perceived intrusiveness score; a total perceived intrusiveness score in the individual areas; and a total perceived intrusiveness score in the marital areas. Also, global ratings of perceived intrusiveness were obtained through self-ratings and partner-ratings.

Marital Relations

Three standardized measures of marital relations were employed in this study: the Locke-Wallace Marital Adjustment Test (Locke & Wallace, 1959), the Marital Role Questionnaire (Quick & Jacob, 1973; Tharp, 1963b), and the KDS-15 marital role questionnaire (Frank, Anderson & Rubinstein, 1980). Another measure, respect for partner, was also included. This measure was simply a 7-point scale which asked the participant to rate "Overall, how much do you esteem/respect your partner?"

The Locke-Wallace Marital Adjustment Test (MAT) (Locke & Wallace, 1959) is a measure of marital satisfaction. This test was chosen because it has been widely used and validated; it has repeatedly been shown to effectively discriminate between happy and disturbed marriages (Donohue & Ryder, 1982; Haynes, Follingstad & Sullivan, 1979; Haynes, Jensen, Wise & Sherman, 1981; Kimmel & Van der Veen, 1974; O'Leary & Turkewitz,

1978).

Marital Role Strain was assessed by two questionnaires: the Marital Role Questionnaire (Quick & Jacob, 1973; Tharp, 1963b) and the role segment of the KDS-15, a marital questionnaire (Frank, Anderson & Rubinstein, 1980). While theoretically these two instruments overlap, the KDS-15's role segment focuses more specifically on role assignments and investigates role strain much less comprehensively. The form of the KDS-15's marital role questionnaire used in this study, while maintaining the format of the original, incorporated two types of modifications: questions about health care were included and items consisting of multiple components were reduced to their constituent parts (i.e. "who should care for the home, cook and shop" was transformed into three separate questions -- about caring for the home, cooking and shopping).

The Marital Role Questionnaire (MRQ) measures marital role strain, that is, the discrepancy between role expectations and perceived role enactments. It consists of five functional classes of family behavior: solidarity, sexual relations, external relations, internal instrumentality, and division of responsibility. Briefly, solidarity refers to couple companionship and family togetherness; sexual relations is broadly defined in terms of physical affection and sexual fidelity in addition to aspects related to sexual intercourse; external relations encompasses the family's interactions with their social environment; internal instrumentality concerns the

running of the household; and division of responsibility refers to the authority and responsibility for "originating, maintaining, and terminating activities within the other four areas" (Crago & Tharp, 1968,pg.338). These areas were derived through factor analysis and theoretical simplification of a battery of questions covering a wide range of marriage behaviors (Tharp, 1963b).

The MRQ is probably the most widely used comprehensive questionnaire on marital role strain. It consists of matched sets of expectation and enactment questions which are answered on a rating scale ranging from +3 to -3. A role strain score is derived by summing the differences between the matching items. In addition to a total score, a score is calculated for each of the five component dimensions (Crago & Tharp, 1968; Quick & Jacob, 1973). A number of studies have demonstrated the MRQ's ability to differentiate between "normal" and "disturbed" couples (the "normal" couples were nonclinical volunteers and the "disturbed" couples were couples with a member seeking psychotherapy) (Crago & Tharp, 1968; Jacob et al., 1978; Quick & Jacob, 1973).

The KDS-15 is a comprehensive marital self-report questionnaire that includes a segment on marital roles, i.e. questions about role expectations and role enactments which are used to generate a role strain score (Frank, Anderson & Kupfer, 1976; Frank, Anderson & Rubinstein, 1980). Scores on this portion of the KDS-15 have been shown to differentiate between nonpatient couples, sex therapy couples and

marital therapy couples (Frank, Anderson & Rubinstein, 1979; 1980). As mentioned earlier, the present study used a modified form of the KDS-15 role segment, labelled the KDS-15a.

A few points about these two measures of role strain should be emphasized. First, they are idiosyncratic: no specific role patterns are rated as optimal. Secondly, they are not global assessments of either the marriage or marital role strain, rather a role strain score is calculated from the person's responses to specific questions about his/her marriage. Finally, though they are filled in individually, these role strain questionnaires emphasize individual behaviors that are defined within the marital relationship; in other words, they consider the individuals within their dyadic context.

Psychological Well-being

The category of psychological well-being included three standardized questionnaires and four global assessments. The global assessments, answered on a 7-point scale, were in the areas of happiness and self-esteem. Overall happiness ratings -- self-rated, partner-rated and physician rated -- were obtained for each patient; for the spouse there was no physician rating. Also, for both the patient and spouse, there was a partner-rating of self-esteem. The standardized questionnaires were the Symptom Checklist (SCL)-90-R (Derogatis, 1977), the Affect Balance Scale (Bradburn, 1969), and the Rosenberg Self-esteem Scale (Rosenberg, 1965). Together these measures give a comprehensive picture of the participant's

psychological well-being.

The SCL-90-R (Derogatis, 1977), a slightly revised edition of the SCL-90 (Derogatis, Lipman & Covi, 1973), is a multi-dimensional, self-report inventory oriented towards measuring psychopathology in medical and psychiatric outpatients. It is a 90 item scale which encompasses nine primary symptom dimensions: somatization, depression, phobic anxiety, obsessive-compulsive, anxiety, paranoid ideation, interpersonal sensitivity, hostility, and psychoticism. In addition, there are three global indices: the Global Severity Index (GSI), the total score; the Positive Symptom Distress Index (PSDI), a measure of "intensity"; and the Positive Symptom Total (PST), the number of symptoms. The participants rate each of the 90 items on a 5-point scale from 0 (not at all) to 4 (extremely). The subscale scores and the total score (GSI) are the sums of the scores for all the items in the category divided by the number of items in that category (Derogatis, 1977; Derogatis, Lipman & Covi, 1973; Derogatis, Rickels & Rock, 1976).

The SCL-90-R was chosen because it (in its two forms: the SCL-90 and the SCL-90-R) is a well validated measure of psychological distress. It has been widely used, including many studies investigating the psychological adjustment of medical patients (Craig & Abeloff, 1974; Derogatis, 1977; Derogatis, Abeloff & Melisaratos, 1979; Derogatis, Morrow, Fetting, Penman, Piasetsky, Schmale, Henrichs & Carnicke, 1983; Freeman, Rickels, Huggins, Garcia & Polin, 1980).

Derogatis (1977) states that the SCL-90 has been shown to exhibit concurrent, discriminative and construct validity.

The Affect Balance Scale (ABS) (Bradburn, 1969) was included in the test battery to assess affect. The scale consists of 10 questions about positive and negative episodes the respondent either did or did not experience in the recent past. Five of the items concern positive experiences, forming the Positive Affect Scale (PAS), and five of the items concern negative experiences, forming the Negative Affect Scale (NAS). The Affect Balance Scale score is calculated by subtracting the NAS from the PAS and adding five (to eliminate any negative scores) (Bradburn, 1969; Moriwaki, 1974).

The Affect Balance Scale score is considered a good indicator of overall happiness. In fact, within the approach to life satisfaction that has emphasized the affective aspects of experience, Bradburn's investigations with the ABS are considered to be the most prominent (Campbell, 1976). The scale has been widely used and has been demonstrated to exhibit concurrent, discriminative and construct validity (Bradburn, 1969; Campbell, 1976; Costa & McCrae, 1980; Moriwaki, 1974; Andrews & Withey, 1976).

The Rosenberg Self-esteem Scale (Rosenberg, 1965) seems to particularly measure the self-acceptance aspect of self-esteem, since all 10 of its items center around liking and/or approving of one's self. Participants answer each item on a 4-point scale from strongly agree to strongly disagree, al-

though they are scored only as agreement or disagreement. Higher scores indicate higher self-esteem. The scale appears to exhibit reasonably good concurrent, discriminative and construct validity (Rosenberg, 1965; Silber & Tippet, 1965; Tippet & Silber, 1965). The scale's brevity as well as its validity were influential in its inclusion in this study.

Sex Role Flexibility

The Bem Sex Role Inventory (BSRI) (Bem, 1974) is a 60 item scale that includes 20 masculine, 20 feminine and 20 neutral attributes. Respondents rate each item on a 7-point scale; higher numbers indicate more identification with the descriptor and lower numbers indicate less identification with the descriptor. By a median split method described by Bem (1977), the participants' mean masculinity and femininity scores are used to assign them to one of four sex role categories: androgynous, masculine, feminine, and undifferentiated.

Bem's conceptualization of masculinity and femininity as two independent dimensions rather than bipolar ends of a single continuum has generated a large amount of interest and research in the area of sex roles. However, aspects of her conceptualization and its ramifications remain quite controversial. This is especially true of the BSRI.

In her initial report, where she described the development of the BSRI, Bem included some psychometric analyses of the BSRI that supported her claim that it was a satisfactory instrument for measuring sex roles (Bem, 1974). Furthermore, a series of studies, conducted by Bem and her co-workers,

has shown that androgynous individuals, as categorized by the BSRI, are more flexible in their social behavior and are more able to vary their behavior according to situational demands than individuals who are sex role stereotyped (Bem, 1975; Bem & Lenney, 1976; Bem, Martyna & Watson, 1976).

However, other investigators have criticized the BSRI on the grounds that it has unproven construct validity (Jackson & Paunonen, 1980; Kelly & Worell, 1977; Myers & Gonda, 1982; Pedhazur & Tetenbaum, 1979); one team of investigators claims that the BSRI is actually a measure of instrumental and expressive personality traits rather than sex roles (Helmreich, Spence & Holahan, 1979; Spence & Helmreich, 1981). Still, while the validity of the BSRI as a measure of sex role orientation has not been conclusively proven, it is a very widely used measure which specifically addresses the issue of sex role flexibility. Therefore, it was included in the present study.

Defensiveness

The K Scale of the Minnesota Multiphasic Personality Inventory (MMPI) was used to assess defensiveness. A defensive posture in the interview situation could be a product of either internal (personality trait) or external (situational characteristics) causes, or a combination of the two.

While procedural methods were used to try to limit defensiveness, e.g. informing participants of the strict confidentiality of their answers and emphasizing that they would be used only for research purposes, it was still thought to be

necessary to have a measure of defensiveness. This particularly being the case, since there is at least one report (Dinning & Evans, 1977) of the SCL-90 being susceptible to response bias. The K Scale was developed to provide a means of statistically correcting the values of the MMPI's clinical scales to offset the effects of score-enhancing or score-diminishing factors on the clinical profile (Dahlstrom, Welsh & Dahlstrom, 1972). This is exactly the same rationale for including it in this battery of measurements.

Social Networks

The Social Network Index (SNI) (Berkman & Syme, 1979) was included in the battery of questionnaires to assess social contacts. The SNI produces a score through weighting four sources of social relations: 1.) marriage; 2.) contacts with friends and relatives; 3.) church groups; and 4.) other formal and informal group associations. In a random sample of 6,928 adults, this index was found to predict mortality during a nine-year period (Berkman & Syme, 1979). Since in the present study, all the participants were married, their SNI scores reflect differences in social contacts outside of marriage.

Procedure

Since most dialysis patients are reluctant to devote more time to their illness, all hemodialysis patients were seen while they were dialyzing on the kidney machine. Therefore, unit-dialysis patients were seen in the hospital and their spouses were usually seen a few days later in their

homes. Patients in the other ESRD groups and their spouses were usually seen together in their homes, though in a few instances the couples were seen at the hospital.

In three cases a participating spouse was never seen. Every patient who participated in the study, whose spouse had initially declined to participate, was asked to give his/her spouse a stamped, self-addressed package containing the spouse's battery of questionnaires. In these batteries, the main points of each questionnaire had been clearly highlighted. The Marital Role Questionnaire was excluded from these batteries, due to its relatively complicated format. Altogether 16 patients were given a form of this package, however only three were completed and returned.

The actual standardized interview procedure was the following:

The session began with my once again explaining the nature of the study, reiterating its voluntary and confidential nature. Particularly, it was emphasized that at no time would the partners ever see each other's answers. After they had signed their consent forms, I explained that the questionnaires were of two general formats: true-false and 7-point scales. It was pointed out that they were to answer by simply checking-off or circling their choices. At this point, they were also informed that there were no right or wrong answers to any of the questions and that the best answers were the ones that most closely reflected their opinions and perceptions. Finally, it was mentioned that since all the questions

were straightforward, there being no trick questions, honest responses were essential for a good study.

The partners were then placed in separate rooms, to insure that they would not see or influence each other's answers, where they proceeded to complete their batteries. I was present at all times, dividing my time between the two partners. During the session, I made sure that they understood the questionnaires and answered any of their questions. (In a few cases, where the participants requested it, I read the questions to them and marked down their answers.) At the end of the session, I collected the questionnaires, answered any questions they had about the study, and thanked them for their participation.

The time needed to complete the battery ranged from 1¼ to 3½ hours, with a median time of approximately 1 3/4 hours. In most cases, the battery was completed in one sitting, though in a few instances it was completed in two sessions. After the session with the patient was over, medical staff ratings were solicited and illness information from the patient's chart was gathered.

Overview of the Data Analysis

This investigation is concerned with the three marital units affected by ESRD: the patients, their spouses, and the patient-spouse combinations -- the couples. The rationale for including couple scores -- generated from the sums of the dyadic partners' scores -- is that they contain information

which is unavailable when the patients and spouses are considered only in isolation. For example, by comparing couples with male patients versus couples with female patients, it is possible to see which, if either, combination is more problematic.

Since the members of a dyad influence each other they should not be regarded as independent units of investigation (O'Leary & Turkewitz, 1978). In order to respect this mutuality while also thoroughly investigating their different perspectives on the situation, the three units of investigation were considered separately. The results section, therefore, essentially presents three parallel sets of analyses. The one exception is when the patient and spouse scores are compared.

The data analysis revolves around five major categories of variables: 1.) demographic, 2.) health, 3.) illness/treatment intrusiveness, 4.) marital relations, and 5.) psychological well-being. The general approach used was to first examine the demographic and health variables. Then, when it was deemed appropriate, the effects of these factors were partialled out -- through covariation or primary inclusion in a hierarchical regression. The major analyses were performed on the variables in the categories of illness/treatment intrusiveness, marital relations and psychological well-being.

The analysis was divided into the following nine steps: 1.) a comparison of patients with participating spouses with

those patients whose spouses did not participate;

2.) a description of the participants' demographic and health characteristics;

3.) validity checks on the main measures;

4.) analysis of the (ESRD) group differences in the ratings of illness/treatment intrusiveness;

5.) a comparison of patients' and their spouses' responses for the categories of illness/treatment intrusiveness, marital relations and psychological well-being;

6.) analyses of the (ESRD) group differences in marital relations and psychological well-being;

7.) examination of the correlates of psychological well-being, particularly the contribution of marital role strain;

8.) examination of the association between sex role flexibility and both marital role strain and psychological well-being;

9.) a comparison of the correlations between marital role strain and psychological well-being across the five (ESRD) groups.

Statistical Procedures

The three major statistical-procedures employed in the data analysis were discriminant analysis, multivariate analysis of variance (MANOVA), and hierarchical multiple regression analysis. A brief description of each of these techniques follows:

Discriminant analysis is a multivariate technique used to discriminate between two or more groups on a given set of criterion, or dependent, variables. Its statistical objective is to produce a linear combination of criterion variables --

a discriminant function -- which maximizes the between group variance of the composite relative to the within group variance. In other words, a discriminant analysis produces the combination of dependent variables which maximally distinguishes between the groups. The success of this discrimination can be ascertained through a significance test (Klecka, 1975).

A stepwise discriminant analysis procedure first chooses the one variable which best differentiates between the groups. The second criterion variable selected is the variable which, in combination with the first variable, contributes the most improvement to the discrimination. This procedure continues until all the criterion variables are selected or the remaining variables fail to contribute significant information to the discrimination (Klecka, 1975). With the SPSS (Statistical Package for the Social Sciences) discriminant analysis program, one may request that the correlations between all the criterion variables and the generated discriminant function be detailed. This information allows one to see which criterion variables are most highly correlated with the discriminant function.

Multivariate analysis of variance (MANOVA) is a statistical technique for assessing the effects of one or more independent variables on two or more dependent variables. In univariate analysis of variance (ANOVA) the effects of one or more independent variables on a single dependent variable are assessed. In experiments including many dependent variables, it is inap-

propriate to analyze the data by testing the effects of the independent variable(s) on each individual dependent variable. As the number of significance tests increased, so would the probability of finding a significant difference by chance. In other words, the experimentwise error rate would increase with the number of univariate ANOVAs conducted (Hummel & Sligo, 1971).

MANOVA eliminates this problem by doing only one significance test with the set of dependent variables; a linear combination of the dependent variables is produced and group differences on the mean composite are tested. Also, in addition to controlling the experimentwise error rate, by considering the set of dependent variables in combination, the MANOVA may be able to ascertain differences between the groups which would be unavailable through a set of univariate analyses. If a significant multivariate difference is found, one can determine which of the dependent variables is most important to this difference both by running univariate analyses on each of the dependent variables and by looking at the discriminant analysis.

With ANOVA, the method used for evaluating the effects of the independent variable is the F test. However, there is no unique multivariate analog of the F test, rather a number of generalizations of the F test for significance testing in multivariate analysis have been proposed. Using Olson's (1976) description of the strengths and weaknesses of each of these statistics as a guide, the Pillais test statistic was choosen

for use in this thesis.

Multiple regression analysis is a general variance accounting procedure (Cohen, 1968). It is used to analyze the relationship between a criterion, or dependent, variable and a set of independent or predictor variables; the criterion variable's variation is partitioned into components attributable to each of the predictor variables or blocks of predictor variables (Finn, 1974).

In the hierarchical method of multiple regression analysis the researcher predetermines the order in which the predictor variables are added to the regression equation (Kim & Kohout, 1975). As each predictor variable is entered a certain amount of the criterion variable's variation is explained. Only the remaining variation may be explained by the predictor variables subsequently entered into the equation. Therefore, the variance attributed to a given predictor variable is the variance it accounts for above and beyond the variance attributable to the predictor variables which preceded it in the regression. This method thereby allows the researcher to statistically control for possible confounding factors when evaluating the contribution of a specific variable or block of variables.

The increment in R^2 (the amount of the criterion variable's variation accounted for) due to the addition of a given predictor variable (or block of variables) is taken as the component of the criterion variable's variation attributable to that predictor (Kim & Kohout, 1975). The significance of this increment can be tested by generating a F-ratio based on the

amount of the criterion variable's variation attributable to that predictor (or block of predictors) and the amount of the criterion variable's variation not attributable to any of the predictor variables.

RESULTS

Comparison of Patients with and without Participating Spouses

Of the 102 patients who participated in the study, 13 have spouses who did not participate. These 13 patients were not disproportionately distributed across the five ESRD groups; $\chi^2(4) = 4.47$, ns. Also, they were not significantly different from those patients with participating spouses on either demographic or health characteristics. These results are presented in Table 4.

The two groups -- patients with and without participating spouses -- were then compared in the areas of defensiveness, illness/treatment intrusiveness, marital relations and psychological well-being. In order to eliminate any confounding with possible ESRD group and/or sex effects, the analyses were performed using within cell (ESRD group/sex) Z scores.

Defensiveness

As measured by the K Scale, the two groups were not significantly different in defensiveness, $t(100) = -0.85$, ns.

Illness/Treatment Intrusiveness

In perceived illness/treatment intrusiveness, the groups were not significantly different. The discriminant analysis showed no significant differences between the two groups, based on the chi-square (2.60) from Wilks' Lambda with 10 df.

Table 4

Comparison of Patients with and without Participating Spouses on Demographic and Health Characteristics

Variable	df	t-value	p[a]
Demographic Characteristics			
Age	100	0.05	ns
Income	99	0.94	ns
SES	49	0.29	ns
Years Married	100	0.28	ns
Years Education	100	1.95	ns
No. Children at Home	100	0.67	ns
Religion	4	2.83[b]	ns
Practicing Religion	1	0.27[b]	ns
Work Status	2	1.47[b]	ns
Marital History	1	0.00[b]	ns
Family Life Cycle	5	0.24[b]	ns
Sex	1	0.35[b]	ns
Health Characteristics			
Physical Health, Self-rated	100	0.69	ns
Physical Health, Physician Rated	99	-0.51	ns
Organ Dysfunction Scale	99	1.62	ns

[a] two-tailed

[b] chi-square; where appropriate (i.e. 1 df) Yates Correction

Marital Relations

The two groups did evidence a significant difference in marital relations. The discriminant analysis with the marital relations variables was marginally significant, $p = .05$, based on the chi-square (15.03) from Wilks' Lambda with 8 *df*. The correlations between the discriminant function and the marital relations variables are given in Table 5. The highest contributor to the discrimination was also the one variable where the univariate *F*-ratio was significant: the MRQ subscale of External Relations; $F(1,99) = 4.10$, $p < .05$. The group of patients without participating spouses evidenced more role strain on the Marital Role Questionnaire's External Relations subtest than the group with participating spouses.

As explained earlier, the MRQ's External Relations subscale concerns agreement between expectations and enactments in the couple's dealings with the external, social environment. A strong element in this subscale is doing social activities together. Here, patients without participating spouses have evidenced a greater discrepancy, than patients with participating spouses, between how much they would like to participate in social activities together with their spouses and their perceptions of mutual participation. This discrepancy seems totally congruent with the partners' respective participation in this study. In a sense, it is a behavioral demonstration, or validation, of the patients' reports.

Table 5

Correlations between the Discriminant Function and the Marital Relations Variables: Patients with/without Participating Spouses

Variable	Correlation with the Discriminant Function
MRQ External Relations	-0.491***
KDS-15a	-0.373***
MRQ Internal Instrumentality	0.351***
MRQ Sexual Relations	0.341***
MRQ Solidarity	-0.260**
Locke-Wallace MAT	0.221*
Respect for Spouse	0.207*
MRQ Division of Responsibility	-0.008

$N = 101$

* $p < .05$, two-tailed

** $p < .01$, two-tailed

*** $p < .001$, two-tailed

Psychological Well-being

In psychological well-being, patients without participating spouses were significantly different from patients with participating spouses. The discriminant analysis with these variables was significant, $p < .001$, based on the chi-square (49.17) from Wilks' Lambda with 15 df.

As presented in Table 6, the two variables with the highest correlations with the discriminant function were the Positive Affect Scale (PAS) of the Bradburn Affect Balance Scale and the Positive Symptom Distress Index of the SCL-90-R. Also, these were the only two (of the 15) psychological well-being variables that were univariately significant; $F(1,100) = 10.13$, $p < .01$ and $F(1,100) = 12.82$, $p < .001$ for the PAS and PSDI respectively. Patients without participating spouses reported less positive affect, though they were not significantly different on their self-reports of Overall Happiness, and more "intense" symptoms than patients with participating spouses.

Overview

Overall, while patients with and without participating spouses did not report significantly different levels of illness/treatment intrusiveness, they did exhibit significant differences in marital relations and psychological well-being. They reported more marital role strain in their dealings with the external social environment, less positive affect, and more "intense" symptoms.

This concluded the investigation into the differences

Table 6

Correlations between the Discriminant Function and the Psychological Well-being Variables: Patients with/without Participating Spouses

Variable	Correlation with the Discriminant Function
SCL-90-R PSDI	0.427**
Positive Affect Scale	-0.380**
SCL-90-R Interpersonal Sensitivity	-0.228*
Dr.'s Rating of Happiness	-0.159
SCL-90-R Obsessive-compulsive	-0.144
SCL-90-R Psychoticism	-0.116
SCL-90-R Phobic Anxiety	0.114
Negative Affect Scale	-0.108
Rosenberg Scale	0.083
SCL-90-R Anxiety	-0.044
SCL-90-R Somatization	0.030
SCL-90-R Paranoid Ideation	0.024
Overall Happiness, Self-rated	0.023
SCL-90-R Depression	-0.008
SCL-90-R Hostility	-0.003

N = 102

* $p < .05$, two-tailed

** $p < .001$, two-tailed

between patients with and without participating spouses. From this point on -- in order to keep the discussions of patients, spouses and couples comparable -- patients without participating spouses were no longer included in the sample. Table 7, then, gives the couple participation breakdown for the five ESRD groups on which all the following analyses were based.

Demographic and Health Characteristics of the Sample

Demographics

The demographic characteristics of the sample are reported in Tables 8 and 9. Table 8 presents the means and standard deviations for the entire sample as well as for the male and female participants. Table 9 presents the demographic statistics for the five ESRD groups.

There were few significant group or sex differences on the demographic variables. As for sex differences, the female patients were significantly younger than the male patients; $F(1,79) = 5.05$, $p < .05$. Also, reflecting differences in the general population, females -- both female patients and female spouses -- were less likely to be working (patients: $\chi^2(2) = 11.56$, $p < .01$; spouses: $\chi^2(2) = 20.54$, $p < .001$) and had smaller incomes (patients: $F(1,78) = 52.49$, $p < .001$; spouses: $F(1,78) = 54.28$, $p < .001$) than their male counterparts.

The only significant (ESRD) group differences were in years of education, $F(4,79) = 2.94$, $p < .05$; and number of children living at home, $F(4,79) = 3.20$, $p < .05$. According to the post-hoc comparisons, Student Newman-Keuls (SNK), the pre-dialysis

Table 7

Couple Participation for the Five ESRD Groups

	Nephrology Clinic	Pre-dialysis	Home-dialysis	Unit-dialysis	Post-transplant
Patient, Male	9	9	10	10	8
Patient, Female	9	8	9	8	9
Total	18	17	19	18	17

Table 8

Demographic Statistics: Male/Female/Total

	Males		Females		Total	
	M	(SD)	M	(SD)	M	(SD)
Patients						
N	46		43		89	
Age*	51.7	(12.9)	45.3	(12.8)	48.6	(13.2)
Income**	28882	(18966)	05791	(07990)	17599	(18642)
Years Education	13.1	(3.9)	11.7	(3.5)	12.4	(3.8)
Working**	#	%	#	%	#	%
No	14	30.4	27	62.8	41	46.1
Part-time	4	8.7	5	11.6	9	10.1
Full-time	28	60.9	11	25.6	39	43.8
Spouses						
N	43		46[a]		89	
Age	47.7	(13.7)	47.3	(13.0)	47.5	(13.3)
Income**	26730	(12803)	08815	(10153)	17569	(14573)
Years Education	12.3	(3.9)	11.2	(3.5)	11.7	(3.7)
Working**	#	%	#	%	#	%
No	4	9.3	20	44.4	24	27.3
Part-time	1	2.3	6	13.3	7	8.0
Full-time	38	88.4	19	42.2	57	64.8
Couples	(Patient: M)		(Patient: F)			
SES[b]	51.9	(13.7)	45.2	(14.4)	48.7	(14.3)
Years Married	21.6	(13.2)	20.5	(12.9)	21.0	(13.0)
No. Children at Home	1.1	(1.3)	0.9	(1.4)	1.0	(1.1)
Family Life Cycle	#	%	#	%	#	%
None Planned	4	8.7	7	16.3	11	12.4
Planned	2	4.3	6	14.0	8	9.0
Pre-school	4	8.7	4	9.3	8	9.0
School Age	16	34.8	9	20.9	25	28.1
Post-school	4	8.7	6	14.0	10	11.2
Grown, None at Home	16	34.8	11	25.6	27	30.3

[a] missing certain demographic information on one female spouse

[b] Blishen Scale

* $p < .05$

** $p < .001$

Table 9

Demographic Statistics: Group Breakdown

	Nephrology Clinic		Pre-dialysis		Home-dialysis		Unit-dialysis		Post-transplant	
N	18		17		19		18[a]		17	
	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Patients										
Age	50.2	(12.4)	49.3	(13.5)	50.9	(13.6)	50.2	(13.2)	41.8	(12.7)
Income	19178	(16694)	20711	(25060)	16942	(15870)	14212	(17328)	16935	(18856)
Years Education*	12.1	(4.1)	10.5	(3.4)	11.8	(4.3)	13.6	(2.9)	14.2	(3.2)
Working	#	%	#	%	#	%	#	%	#	%
No	6	33.3	10	58.8	11	57.9	7	38.9	7	41.2
Part-time	1	5.6	1	5.9	3	15.8	4	22.2	0	0.0
Full-time	11	61.1	6	35.3	5	26.3	7	38.9	10	58.8
Spouses										
Age	48.6	(11.9)	47.8	(13.6)	49.5	(13.3)	50.2	(13.9)	40.9	(13.1)
Income	16172	(16807)	14324	(09856)	13905	(13920)	22135	(16405)	21823	(14129)
Years Education	11.3	(4.1)	11.4	(3.2)	10.6	(3.6)	12.5	(4.2)	12.9	(3.2)
Working	#	%	#	%	#	%	#	%	#	%
No	6	33.3	5	29.4	6	31.6	5	29.4	2	11.8
Part-time	2	11.1	2	11.8	3	15.8	0	0.0	0	0.0
Full-time	10	55.6	10	58.8	10	52.6	12	70.6	15	88.2
Couples										
SES	47.9	(13.6)	45.8	(12.6)	48.2	(16.9)	50.3	(13.0)	51.3	(15.9)
Years Married	24.2	(12.4)	21.9	(15.5)	19.9	(13.5)	24.4	(10.5)	14.5	(11.4)
No. Children* at Home	1.0	(1.1)	1.9	(2.1)	0.7	(1.1)	1.0	(1.3)	0.4	(0.6)
Family Life Cycle	#	%	#	%	#	%	#	%	#	%
None Planned	3	16.7	0	0.0	2	10.5	2	11.1	4	23.5
Planned	1	5.6	1	5.9	2	10.5	1	5.6	3	17.6
Pre-school	2	11.1	1	5.9	1	5.3	1	5.6	3	17.6
School Age	5	27.8	6	35.3	5	26.3	7	38.9	2	11.8
Post-school	3	16.7	4	23.5	1	5.3	1	5.6	1	5.9
Grown, None at Home	4	22.2	5	29.4	8	42.1	6	33.3	4	23.5

[a] missing certain demographic information on one female spouse

* $p < .05$

patients had significantly less education than post-transplant patients; and, as a couple, the post-transplant and home-dialysis groups had significantly fewer children living at home than the pre-dialysis group.

Physical Health

The health characteristics of the sample are given in Tables 10 and 11. Table 10 reports the means and standard deviations for the entire sample along with the means and standard deviations for males and females. Table 11 reports the five group breakdown.

There were no significant differences between males and females -- with either the patients' or spouses' data -- on the health ratings. As for group differences, for the patients, only the physicians' ratings of physical health failed to reach significance; the other three ratings were significant at the $p < .001$ level. In the post-hoc comparisons (SNK), the nephrology clinic and post-transplant groups were found to be significantly healthier than the other three groups. For the spouses, the groups were not significantly different in health when rated by their partners but were significantly different in self-rated health, $F(4,78) = 2.94$, $p < .05$. The post-hoc comparisons (SNK) showed that the home-dialysis spouses rated their health significantly lower than the post-transplant spouses rated their health.

Table 10

Health Statistics: Male/Female/Total

	Males		Females		Total	
	M	(SD)	M	(SD)	M	(SD)
Patients						
N	46		43		89	
Physical Health, Self-rated	4.61	(1.29)	4.91	(1.54)	4.75	(1.42)
Physical Health, Partner-rated	5.15	(1.43)	4.37	(1.72)	4.55	(1.71)
Physical Health, Physician Rated	5.28	(1.19)	5.16	(1.31)	5.23	(1.24)
Organ Dysfunction Scale	2.89	(2.99)	2.84	(2.65)	2.87	(2.82)
Spouses						
N	43		46		89	
Physical Health, Self-rated	5.58	(1.10)	5.58	(1.32)	5.58	(1.21)
Physical Health, Partner-rated	5.95	(1.15)	5.59	(1.22)	5.76	(1.20)

Table 11

Health Statistics: Group Breakdown

	Nephrology Clinic		Pre-dialysis		Home-dialysis		Unit-dialysis		Post-transplant	
N	18		17		19		18		17	
	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Patients										
Physical Health,** Self-rated	5.17	(0.86)	4.18	(1.42)	4.00	(1.45)	4.67	(1.41)	5.82	(1.13)
Physical Health,** Partner-rated	5.22	(1.70)	3.94	(1.43)	3.84	(1.61)	3.94	(1.76)	5.88	(0.99)
Physical Health, Physician Rated	5.83	(0.92)	4.71	(1.16)	4.95	(1.47)	5.17	(0.92)	5.47	(1.42)
Organ Dysfunction** Scale	0.94	(1.39)	2.53	(2.45)	4.05	(3.69)	4.33	(2.25)	2.35	(2.50)
Spouses										
Physical Health,* Self-rated	5.56	(1.46)	6.00	(0.71)	5.00	(1.25)	5.29	(1.31)	6.12	(0.86)
Physical Health, Partner-rated	5.44	(1.15)	5.94	(1.03)	5.63	(1.07)	5.56	(1.69)	6.29	(0.77)

* $p < .05$

** $p < .001$

Validity

The objectives of this section are threefold: 1.) to show that the participants' responses have face validity and internal consistency, 2.) to anchor this sample, in reference to other relevant samples, on the more widely used main measures, and 3.) to show that the participants' subjective ratings of the intrusiveness of the illness and/or its treatment correspond to the hypothesized objective illness/treatment intrusiveness rankings.

Face Validity and Internal Consistency

On the Bem Sex Role Inventory (BSRI), both patients and spouses scored higher on the appropriate sex items: males scored higher on the Bem Masculinity scale than on the Bem Femininity scale, and females scored higher on the Bem Femininity scale than on the Bem Masculinity scale. Also, males scored higher than females on the Bem Masculinity scale and females scored higher than males on the Bem Femininity scale. The actual means and standard deviations are reported in Table 12. Also reported in this table are the means and standard deviations of the normative sample of Stanford University undergraduates. Surprisingly, given the differences in age and life circumstances, the scores for the two samples are very similar.

Another example suggesting the validity of the patients' responses is the relationship found between the subjective and more objective measures of health. Patients who had more

Table 12

Bem Sex Role Inventory (BSRI) Scores

	N	Masculinity M (SD)	Femininity M (SD)
Patients			
Males	45	4.97 (0.93)	4.72 (0.50)
Females	43	4.18 (0.73)	4.98 (0.55)
Spouses			
Males	43	5.00 (0.76)	4.69 (0.54)
Females	44	4.51 (0.88)	5.07 (0.50)
Undergraduates[a]			
Males	444	4.97 (0.67)	4.44 (0.55)
Females	279	4.57 (0.69)	5.01 (0.52)

[a]Bem, 1974

biophysical problems rated their health as poorer. The correlation between the patients' self-rated health scores and the Organ Dysfunction Scale (ODS) scores was $r(89) = -.350$, $p < .001$. Also, as one would expect, those patients who evaluated their health more positively were more likely to be working than those who had a more negative evaluation: 1 Factor (Work Status) ANOVA, $F(2,86) = 6.66$, $p < .01$; and this relationship was especially strong for males: 1 Factor (Work Status) ANOVA, $F(2,43) = 10.94$, $p < .001$.

As an example of internal consistency, the patients' ratings of illness/treatment intrusiveness in the area of health were highly negatively correlated with their own evaluations of their health, $r(89) = -.624$, $p < .001$; meaning those patients who assessed their illness and/or its treatment as having little impact on their health, rated their health more positively. Another example is the high degree of correlation, for both patients and spouses, between the Locke-Wallace MAT and the two measures of marital role strain; marital satisfaction scores decreased as marital role strain scores increased. For patients, the correlation between the Locke-Wallace and the MRQ was $r(88) = -.661$, $p < .001$; and the correlation between the Locke-Wallace and the KDS-15a was $r(89) = -.543$, $p < .001$. For spouses, the correlations were similarly high: between the Locke-Wallace and the MRQ $r(83) = -.660$, $p < .001$, and between the Locke-Wallace and the KDS-15a $r(89) = -.452$, $p < .001$.

Finally, on the two items where the partners were asked

to rate (on a 7-point scale) both themselves and each other, for both items these two ratings were significantly correlated. For patients, the correlations between the self-ratings and the partner-ratings were $r(89) = .413$, $p < .001$ and $r(89) = .541$, $p < .001$, respectively for the global ratings of happiness and illness/treatment intrusiveness. For spouses, the correlations were $r(89) = .451$, $p < .001$ for the global ratings of happiness and also $r(89) = .451$, $p < .001$ for the global ratings of illness/treatment intrusiveness.

Comparisons with Other Samples

K Scale. On the K Scale of the MMPI, a measure of psychological defensiveness, both patients and spouses scored within the mid-range, between 10-15, as described by Dahlstrom, Welsh & Dahlstrom (1972). The patients' mean K Scale score was 14.32 (SD = 5.32) and the spouses' mean score was 13.64 (SD = 4.77).

SCL-90-R. The patients' and spouses' total scores (GSI) on the SCL-90-R, while falling between the average scores of the normative samples of psychiatric outpatients and nonpatients (Derogatis, 1977), seem to be more similar to those of the nonpatients than those of the psychiatric outpatients. The respective means and standard deviations are presented in Table 13.

Locke-Wallace MAT. Locke & Wallace (1959), in their article which introduced the Marital Adjustment Test (MAT), cited a mean score of 135.9 for a maritally "well-adjusted" group

Table 13

Comparisons with Other Samples

	M	(SD)
SCL-90-R (GSI scores)		
Psychiatric Outpatients[a]	1.26	(0.68)
Patients[b]	0.54	(0.43)
Spouses[b]	0.53	(0.45)
Nonpatients[a]	0.31	(0.31)
Locke-Wallace MAT scores		
"Well-adjusted Group"[c]	135.9	(--)
"Satisfactorily Married" Couples[d]		
Husbands	114.2	(26.5)
Wives	117.4	(19.9)
Patients[b]		
Husbands	116.8	(22.7)
Wives	119.3	(21.4)
Spouses[b]		
Husbands	116.3	(23.6)
Wives	113.2	(24.1)
"Maladjusted Group"[c]	71.7	(--)

[a]Derogatis, 1977

[b]This study

[c]Locke & Wallace, 1959

[d]Rosenbaum & O'Leary, 1981

of subjects and one of only 71.7 for a maritally "maladjusted" group of subjects. Neither the standard deviations nor the respective husband and wife means were reported. A study by Rosenbaum & O'Leary (1981) on marital violence, which used as one of its comparison groups "satisfactorily married" couples, reported average scores for the husbands and wives in this group of 114.2 (SD = 26.5) and 117.4 (SD = 19.9), respectively. As one can see from Table 13, the average Locke-Wallace MAT scores of the couples in the present study were very similar to those reported for this "satisfactorily married" group.

Illness/Treatment Intrusiveness Rankings

For both patients and spouses, there was a very high correlation between their global appraisals of illness/treatment intrusiveness and their total illness/treatment intrusiveness scores -- i.e. the sum of the 10 separate areas; $r(89) = .839$, $p < .001$ and $r(87) = .857$, $p < .001$, for patients and spouses respectively. This suggests that these 10 areas formed a good composite of the participants' global perceptions of illness/treatment intrusiveness.

Table 14 presents the total perceived intrusiveness ratings for the five ESRD groups. With the one exception of the pre-dialysis patients' ratings being somewhat higher than anticipated, the patterns exhibited with the patients', spouses' and couples' data closely corresponded to the hypothesized objective ESRD illness/treatment intrusiveness rankings. For

Table 14

Perceived Illness/Treatment Intrusiveness Ratings

	Couples (N=87)	
	M	(SD)
Group		
Nephrology Clinic	31.75	(11.90)
Pre-dialysis	56.71	(28.39)
Home-dialysis	69.26	(20.47)
Unit-dialysis	59.12	(20.19)
Post-transplant	43.00	(20.29)

	Patients (N=89)		Spouses (N=87)	
	M	(SD)	M	(SD)
Group				
Nephrology Clinic	14.89	(06.00)	16.53	(08.16)
Pre-dialysis	32.18	(13.23)	24.53	(16.77)
Home-dialysis	36.89	(12.54)	32.37	(14.23)
Unit-dialysis	31.00	(12.09)	28.94	(12.44)
Post-transplant	23.41	(13.31)	19.59	(10.23)

all three -- patients, spouses and couples -- the group differences were significant: respectively, $F(4,79) = 9.29$, $p < .001$; $F(4,77) = 4.55$, $p < .01$; $F(4,77) = 8.49$, $p < .001$. There were no significant sex differences or group by sex interactions.

Post-hoc comparisons (SNK), with the couples' ratings, produced the following results: the nephrology clinic group was significantly different from the pre-dialysis, home-dialysis and unit-dialysis groups; the post-transplant group was also significantly different from the home-dialysis group. Post-hoc comparisons with the patients' and spouses' ratings produced similar results.

Illness/Treatment Intrusiveness

This section further explores the issue of illness/treatment intrusiveness for both patients and spouses. Here the (ESRD) group differences, on the 10 life areas (health, diet, work, finances, community activities, sexual relations, the division of responsibility, household affairs, family togetherness, and the family's external relations) which were examined, are presented.

Patients

The patients' means and standard deviations for the 10 life areas are given in Appendix III. Two Factor (Group by Sex) ANOVAs were done for all 10 areas. There were no significant group by sex interactions. The group effect was significant

for all the areas except for family togetherness. The effect of the sex factor was only significant in the area of finances: $F(1,79) = 5.87$, $p < .05$. All Fs and ps are reported in Appendix IV.

In order to determine which of these variables were the best at differentiating between the groups, a stepwise discriminant analysis with these 10 areas was performed. The significance level of the discrimination was $p < .001$ based on the approximate $F(16,248) = 3.13$ from Wilks' Lambda. This discrimination was made up of the areas of health, diet, community activities and sexual relations. The correlations between the illness/treatment intrusiveness variables and the discriminant function are given in Table 15. Based on this discrimination, the pair-wise group comparisons yielded the following results: the nephrology clinic group was significantly different from the pre-dialysis, home-dialysis and unit-dialysis groups; and the home-dialysis group was also significantly different from the pre-dialysis and post-transplant groups.

Spouses

The results for the patients' spouses were similar to those reported for the patients. The spouses' reports were for how intrusive their partner's illness and/or its treatment was in their lives in each of the 10 life areas. The means and standard deviations of the spouses' responses in the 10 areas are listed in Appendix V.

Again, 2 Factor (Group by Sex) ANOVAs were done for all

Table 15

Correlations between the Discriminant Function and the Illness/Treatment Intrusiveness Variables: ESRD Group (Patients)

Variable	Correlation with the Discriminant Function
Health	0.910**
Community Activities	0.691**
Sexual Relations	0.673**
Work	0.671**
Household Affairs	0.606**
Division of Responsibility	0.589**
External Relations	0.548**
Diet	0.491**
Finances	0.354**
Family Togetherness	0.323*

$N = 89$

* $p < .01$, two-tailed

** $p < .001$, two-tailed

areas and the Fs and ps are reported in Appendix VI. Again, there were no significant group by sex interactions. However, in comparison to the patients' intrusiveness reports, there were fewer areas where the group effect was significant. In addition to family togetherness, diet, community activities, and household affairs also failed to reach significance. The effect of the sex factor was again only significant in one area, but for spouses this area was community activities, $F(1,86) = 7.58$, $p < .01$, rather than finances.

Once again a discriminant analysis was performed. The significance level was $p < .01$ based on the approximate $F(16,242) = 2.29$ from Wilks' Lambda. This discrimination was composed of the areas of finances, health, external relations and diet. The correlations between the illness/treatment intrusiveness variables and the discriminant function are reported in Table 16. Based on this discrimination, the pair-wise comparisons yielded the following results: the home-dialysis group was significantly different from all the other groups; and the unit-dialysis group was significantly different from the nephrology clinic and post-transplant groups.

Status-position (Patient/Spouse) Comparisons

Patient/Spouse Differences

In order to compare patients' and spouses' responses in the categories of illness/treatment intrusiveness, marital relations and psychological well-being, three mixed design repeated measures MANOVAs were performed. The person's status-

Table 16

Correlations between the Discriminant Function and the Illness/Treatment Intrusiveness Variables: ESRD Group (Spouses)

Variable	Correlation with the Discriminant Function
Finances	0.775*
External Relations	0.714*
Division of Responsibility	0.702*
Health	0.678*
Work	0.627*
Household Affairs	0.617*
Community Activities	0.563*
Sexual Relations	0.498*
Family Togetherness	0.459*
Diet	0.354*

N = 87

* $p < .001$, two-tailed

position, as patient or spouse, was used as a repeated measure.

In all three of the repeated measures MANOVAs, the group by status-position interaction was not significant ($F(40,280) = 1.05$; $F(32,272) = 0.99$; and $F(64,260) = 0.70$; respectively for the categories of illness/treatment intrusiveness, marital relations and psychological well-being). The group effect with regard to illness/treatment intrusiveness was discussed extensively in the last section; the equivalent of the group effect in these repeated measures MANOVAs for the categories of marital relations and psychological well-being will be reported in the next section under the couples analyses.

In two of the three MANOVAs, the main effect of status-position was not significant. Only in the category of illness/treatment intrusiveness were there significant differences between the responses of patients and spouses, $F(10,67) = 7.67$, $p<.001$. Still, there were significant univariate differences in only 3 of the 10 life areas: Patients reported more illness/treatment intrusiveness than spouses in the areas of health, diet and work, all $p<.001$ (Appendix VII). In the category of marital relations, neither the multivariate main effect of status-position ($F(8,65) = 0.47$) nor any of the univariate F tests were significant (Appendix VIII). Similarly, in the category of psychological well-being, the multivariate main effect of status-position was not significant ($F(16,62) = 1.33$) and only 1 of the 16 univariate Fs was significant (Appendix IX).

Patient/Spouse Correlations

With respect to patient/spouse correlations in the categories of illness/treatment intrusiveness, marital relations and psychological well-being, the results are more complex. The correlations for all the measures in these categories are presented in Tables 17, 18 and 19, respectively. For both illness/treatment intrusiveness and marital relations, overall the partners' responses were highly correlated. However, on the measures of psychological well-being, there were few significant correlations and even these were of a low absolute magnitude.

Overview

Overall then, there were few significant differences between the patients' and spouses' responses in the categories of illness/treatment intrusiveness, marital relations and psychological well-being. The significant differences which did exist centered around the individual life areas in the illness/treatment intrusiveness category.

Also, in both the illness/treatment intrusiveness and marital relations categories, there was a high degree of correlation between the patients' and spouses' responses. However, while there were no significant mean differences between patients and spouses in the category of psychological well-being, overall their responses were not significantly correlated.

Table 17

Patient/Spouse Correlations: Illness/Treatment Intrusiveness

	r
Individual Areas	
Health	.296**
Diet	.143
Work	.337**
Financial	.483***
Community Activities	.243*
Marital Areas	
Sexual Relations	.651***
Division of Responsibility	.409***
Household Affairs	.372***
Family Togetherness	.138
External Relations	.340**
Totals	
Total: All Areas	.561***
Total: Individual Areas	.479***
Total: Marital Areas	.543***

N = 87

* $p < .05$

** $p < .01$

*** $p < .001$

Table 18

Patient/Spouse Correlations: Marital Relations

	r
Marital Relations	
MRQ Solidarity	.509***
" Internal Instrumentality	.377***
" External Relations	.348**
" Division of Responsibility	.143
" Sexual Relations	.564***
MRQ Total	.581***
KDS-15a[a]	.156
Locke-Wallace MAT[a]	.496***
Respect for Partner[a]	.273**

N = 83

[a] N = 89

* p<.05

**p<.01

***p<.001

Table 19

Patient/Spouse Correlations: Psychological Well-being

	r
Psychological Well-being	
Positive Affect Scale[a]	.190*
Negative Affect Scale[a]	.135
Affect Balance Scale[a]	.190*
Overall Happiness, Self-rated	.186*
Rosenberg Scale	.142
SCL-90-R Somatization	.093
" Depression	.211*
" Phobic Anxiety	-.132
" Obsessive-compulsive	.026
" Anxiety	.049
" Paranoid Ideation	.231*
" Interpersonal Sensitivity	.113
" Hostility	.090
" Psychoticism	.146
" GSI	.126
SCL-90-R PSDI	.243*

N = 88

[a] N = 89

* $p < .05$

(ESRD) Group Differences in Marital Relations and Psychological Well-being

MANOVAs were performed on the patients' responses, the spouses' responses and the couples' responses in the categories of marital relations and psychological well-being. While the couples' scores are equivalent to the group effect in the previous repeated measures MANOVAs, for clarity of presentation and also because these scores will be analyzed in more depth later, they are presented here. The patients' and spouses' means and standard deviations on the measures in the categories of marital relations and psychological well-being are presented in Tables 20 and 21. The means and standard deviations for the five ESRD groups are presented in the Appendix, X to XIV.

Covariate Selection

Before the MANOVAs were performed, the demographic variables were examined for possible use as covariates. The selection process was two staged: Demographic variables that exhibited significant group or sex differences (using a lenient significance level of $p < .15$) were examined to see if they were significantly correlated (using the usual significance level of $p < .05$, two-tailed) with more than one marital relations variable or more than two psychological well-being variables. Any demographic variables fulfilling both of these requirements were then to be used as covariates in the appropriate MANOVAs; the rationale was to eliminate any potentially confounding demographic differences between the ESRD groups

Table 20

Marital Relations & Psychological Well-being Statistics: Patients

	M	(SD)	Min	Max
Marital Relations				
MRQ Solidarity	1.00	(0.49)	0.29	3.57
" Internal Instrumentality	0.94	(0.51)	0.00	2.85
" External Relations	1.04	(0.49)	0.22	2.56
" Division of Responsibility	0.87	(0.44)	0.08	2.33
" Sexual Relations	1.02	(0.78)	0.00	4.55
MRQ Total[a]	0.98	(0.40)	0.38	2.82
KDS-15a	0.21	(0.17)	0.00	0.73
Locke-Wallace MAT	118.0	(22.0)	26.0	153.0
Respect for Partner	6.47	(0.71)	4.00	7.00
Psychological Well-being				
Positive Affect Scale	3.03	(1.39)	0.00	5.00
Negative Affect Scale	1.05	(1.21)	0.00	5.00
Affect Balance Scale[a]	6.99	(1.93)	1.00	10.00
Rosenberg Scale	8.72	(1.77)	2.00	10.00
Overall Happiness, Self-rated	5.11	(1.20)	2.00	7.00
Overall Happiness, Partner-rated	5.12	(1.46)	1.00	7.00
Self-esteem, Partner-rated	5.47	(1.40)	1.00	7.00
Dr.'s Rating of Happiness	5.28	(1.09)	2.00	7.00
SCL-90-R Somatization	0.67	(0.56)	0.00	2.33
" Depression	0.74	(0.67)	0.00	2.92
" Phobic Anxiety	0.18	(0.29)	0.00	1.29
" Obsessive-compulsive	0.66	(0.57)	0.00	2.90
" Anxiety	0.45	(0.46)	0.00	2.00
" Paranoid Ideation	0.42	(0.53)	0.00	2.60
" Interpersonal Sensitivity	0.57	(0.56)	0.00	2.67
" Hostility	0.46	(0.48)	0.00	2.17
" Psychoticism	0.33	(0.43)	0.00	1.80
" PSDI	1.42	(0.41)	1.00	2.84
" GSI[a]	0.54	(0.43)	0.03	1.91

[a]Total test scores were not included in the MANOVAs.

Table 21

Marital Relations & Psychological Well-being Statistics: Spouses

	M	(SD)	Min	Max
Marital Relations				
MRQ Solidarity	1.07	(0.57)	0.29	3.57
" Internal Instrumentality	0.93	(0.52)	0.13	2.70
" External Relations	1.02	(0.51)	0.22	2.54
" Division of Responsibility	0.95	(0.44)	0.00	2.20
" Sexual Relations	1.03	(0.91)	0.00	4.71
MRQ Total[a]	1.02	(0.45)	0.41	2.84
KDS-15a	0.25	(0.18)	0.00	0.73
Locke-Wallace MAT	114.7	(23.8)	25.0	158.0
Respect for Partner	6.40	(0.77)	4.00	7.00
Psychological Well-being				
Positive Affect Scale	2.93	(1.30)	0.00	5.00
Negative Affect Scale	1.15	(1.35)	0.00	5.00
Affect Balance Scale[a]	6.79	(2.01)	2.00	10.00
Rosenberg Scale	8.90	(1.57)	3.00	10.00
Overall Happiness, Self-rated	5.08	(1.33)	1.00	7.00
Overall Happiness, Partner-rated	5.53	(1.05)	2.00	7.00
Self-esteem, Partner-rated	5.72	(1.20)	2.00	7.00
SCL-90-R Somatization	0.52	(0.54)	0.00	2.58
" Depression	0.72	(0.64)	0.00	3.00
" Phobic Anxiety	0.22	(0.43)	0.00	2.57
" Obsessive-compulsive	0.62	(0.56)	0.00	2.50
" Anxiety	0.49	(0.61)	0.00	3.30
" Paranoid Ideation	0.54	(0.58)	0.00	2.50
" Interpersonal Sensitivity	0.57	(0.48)	0.00	2.11
" Hostility	0.51	(0.64)	0.00	3.17
" Psychoticism	0.32	(0.42)	0.00	2.40
" PSDI	1.45	(0.42)	1.00	2.98
" GSI[a]	0.53	(0.45)	0.03	2.25

[a]Total test scores were not included in the MANOVAs.

or the sexes.

The only demographic variables to meet these criteria were Work Status and Income. While there were no significant ESRD group differences on these two variables, there were significant sex differences. For both patients and spouses, males were more likely to be working and had higher incomes than females. However, since these differences are representative of differences which exist in the general population, it was decided not to employ either Work Status or Income as covariates. In other words, using these variables as covariates would have artificially negated sex differences which exist in the real world. Therefore, none of the demographic variables were considered suitable for use as covariates.

Defensiveness, as measured by the K Scale, while not a demographic characteristic, was also felt to have the potential to distort possible group or sex differences. Therefore, it was also included in this process to determine whether it should be used as a covariate. However, since there were no significant group or sex differences on this measure -- patients: $F(4,79) = 0.57$, ns, $F(1,79) = 0.15$, ns; spouses: $F(4,77) = 0.71$, ns, $F(1,77) = 0.04$, ns; couples: $F(4,77) = 1.13$, ns, $F(1,77) = 0.45$, ns -- it was dropped from consideration.

In order to have these MANOVAs reflect the entire illness/treatment experience, physical health ratings were not included in the covariate selection process. Therefore, after the consideration of demographic, defensiveness, and physical

health factors, the following MANOVAs were performed without the inclusion of any covariates.

MANOVAs

Overview. As one might have expected given the results of the patient/spouse comparisons, the three MANOVAs -- patient, spouse and couple -- conducted with the marital relations and psychological well-being variables produced essentially parallel results.

None of the six MANOVAs yielded a significant group by sex interaction, nor were there any significant (ESRD) group effects. Surprisingly, ESRD group membership was not associated with significant differences in either marital relations or psychological well-being. There were significant sex differences in psychological well-being: both female patients and female spouses cited more psychological distress. As for sex differences in the category of marital relations, the patients' and spouses' results diverged. There was a significant sex difference for patients but not for spouses. The couples' data revealed no significant differences in marital relations or psychological well-being between couples with male patients and those with female patients. These findings will now be presented separately in greater detail.

Patients. The results of the MANOVA on the patients' marital relations responses were the following: the group by sex interaction was not significant, $F(32,296) = 0.96$, ns; the main effect of (ESRD) group was also not significant,

$F(32,296) = 1.00$, ns; the main effect of sex was significant, $F(8,71) = 2.84$, $p < .01$. The variable most responsible for this sex difference was the MRQ subscale of Division of Responsibility. It was the only marital relations variable with a significant univariate F-ratio, $F(1,78) = 5.80$, $p < .05$: female patients evidenced more role strain on this MRQ subscale than male patients did (females $M = 0.99$, $SD = 0.51$; males $M = 0.76$, $SD = 0.34$). Also, the MRQ subscale of Division of Responsibility was the variable with the highest correlation with the discriminant function. The correlations between the marital variables and the discriminant function are given in Table 22.

The results of the MANOVA on the measures of psychological well-being were the following: there was no significant group by sex interaction, $F(68,264) = 0.75$, ns; the main effect of group was also not significant, $F(68,264) = 1.00$, ns; again there was a significant sex difference, $F(17,63) = 2.51$, $p < .01$. This sex difference centered around anxiety -- both the SCL-90-R subscales of Phobic Anxiety and Anxiety were univariately significant; $F(1,79) = 8.47$, $p < .01$ and $F(1,79) = 6.08$, $p < .05$. Female patients reported more of both types of anxiety -- Phobic Anxiety: females $M = 0.26$, $SD = 0.36$; males $M = 0.10$, $SD = 0.18$; Anxiety: females $M = 0.57$, $SD = 0.47$; males $M = 0.34$, $SD = 0.42$. These two variables also exhibited the highest correlations with the discriminant function. The correlations between the psychological well-being variables and the discriminant function are reported

Table 22

Correlations between the Discriminant Function and the Marital Relations Variables: Sex Differences (Patients)

Variable	Correlation with the Discriminant Function
MRQ Division of Responsibility	-0.478***
MRQ Solidarity	0.311**
MRQ External Relations	-0.259*
Respect for Partner	-0.132
Locke-Wallace MAT	-0.130
MRQ Sexual Relations	0.072
KDS-15a	-0.033
MRQ Internal Instrumentality	0.022

$N = 88$

* $p < .05$, two-tailed

** $p < .01$, two-tailed

*** $p < .001$, two-tailed

in Table 23.

Spouses. The results of the MANOVA on the spouses' marital relations responses were the following: the group by sex interaction was not significant $F(32,276) = 0.76$, ns; and neither of the main effects of group or sex were significant -- $F(32,276) = 1.21$, ns and $F(8,66) = 1.14$, ns, respectively.

The MANOVA of the spouses' psychological well-being responses produced the following results: the group by sex interaction was not significant, $F(64,264) = 0.90$, ns; and the main effect of group was also not significant, $F(64,264) = 1.10$, ns; however, the main effect of sex was significant, $F(16,63) = 2.79$, $p < .01$. The psychological well-being variables that were most responsible for this sex difference were the SCL-90-R subscales of Interpersonal Sensitivity, Phobic Anxiety, Somatization and Depression. These were the variables most highly correlated with the discriminant function; the correlations between the psychological well-being variables and the discriminant function are given in Table 24. These variables were also the only psychological well-being variables that had significant univariate F-ratios, all $p < .05$. In all four cases, females reported more psychological distress than males -- Interpersonal Sensitivity: females $M = 0.69$ ($SD = 0.55$), males $M = 0.43$ ($SD = 0.34$); Phobic Anxiety: females $M = 0.32$ ($SD = 0.57$), males $M = 0.11$ ($SD = 0.18$); Somatization: females $M = 0.64$ ($SD = 0.58$), males $M = 0.40$ ($SD = 0.47$); Depression: females $M = 0.86$ ($SD = 0.72$), males $M = 0.58$ ($SD = 0.53$).

Table 23

Correlations between the Discriminant Function and the Psychological Well-being Variables: Sex Differences (Patients)

Variable	Correlation with the Discriminant Function
SCL-90-R Phobic Anxiety	0.392***
SCL-90-R Anxiety	0.332**
Rosenberg Scale	-0.239*
Dr.'s Rating of Happiness	-0.195
SCL-90-R Interpersonal Sensitivity	0.171
Positive Affect Scale	0.154
SCL-90-R Somatization	0.143
Negative Affect Scale	-0.111
Overall Happiness, Self-rated	-0.100
SCL-90-R Hostility	0.077
SCL-90-R PSDI	0.075
SCL-90-R Obsessive-compulsive	0.068
SCL-90-R Depression	0.064
Overall Happiness, Partner-rated	-0.039
Self-esteem, Partner-rated	0.006
SCL-90-R Psychoticism	0.005
SCL-90-R Paranoid Ideation	0.000

N = 89

* $p < .05$, two-tailed

** $p < .01$, two-tailed

*** $p < .001$, two-tailed

Table 24

Correlations between the Discriminant Function and the Psychological Well-being Variables: Sex Differences (Spouses)

Variable	Correlation with the Discriminant Function
SCL-90-R Interpersonal Sensitivity	0.357***
SCL-90-R Phobic Anxiety	0.312**
SCL-90-R Somatization	0.274**
SCL-90-R Depression	0.274**
Positive Affect Scale	0.268*
Negative Affect Scale	0.260*
SCL-90-R PSDI	0.223*
SCL-90-R Obsessive-compulsive	0.213*
SCL-90-R Anxiety	0.195
Rosenberg Scale	-0.189
SCL-90-R Psychoticism	0.187
SCL-90-R Hostility	0.186
Overall Happiness, Self-rated	-0.177
Overall Happiness, Partner-rated	-0.135
Self-esteem, Partner-rated	-0.068
SCL-90-R Paranoid Ideation	-0.008

N = 88

* $p < .05$, two-tailed

** $p < .01$, two-tailed

*** $p < .001$, two-tailed

Couples. The results produced by the MANOVA on the marital relations scores of the couples were the following: the group by (patient's) sex interaction was not significant, F (32,276) = 0.83, ns; also, neither of the main effects were significant -- group F(32,276) = 1.18, ns; (patient's) sex F(8,66) = 1.28, ns.

The MANOVA of the couples' psychological well-being responses produced the following results: the group by (patient's) sex interaction was not significant, F(64,264) = 0.74, ns; and again neither of the main effects were significant -- group F(64,264) = 1.27, ns; (patient's) sex F(16,63) = 0.62, ns.

Correlates of Psychological Well-being

In the preceding section, it was shown that objective illness/treatment intrusiveness, as defined in this study by ESRD group membership, did not have a significant effect on either marital relations or psychological well-being. In this section other factors which may be correlates of psychological well-being are examined, with the emphasis being on examining the relationship between marital role strain and psychological well-being.

In a series of hierarchical multiple regression analyses, after statistically controlling for the effects of demographic characteristics, physical health, ESRD group membership and psychological defensiveness, the amount of psychological well-being variance accounted for by marital role strain was

assessed. Also, the Social Network Index (SNI) score was entered into the regression after marital role strain to see if a measure of social contacts outside the marriage significantly added to the ability to predict psychological well-being. The dependent, or criterion, variables employed were the scores on selected measures of psychological well-being.

Referring back to Table 20, one can see that the psychological well-being category consisted of 19 (18 for spouses and couples) measures. Since it would have been inappropriate to have run multiple regression analyses on each of these measures, a decision had to be made as to which of these measures would be selected for use. The three measures chosen were the Affect Balance Scale (ABS) score, the SCL-90-R's total score (GSI) and the SCL-90-R's depression score (DEP). The ABS and the GSI were chosen since these are the total scores of the two major measures of psychological well-being. The SCL-90-R's depression score was also included because depression has been given such prominence in the psychosocial investigations of ESRD/dialysis (Devins, 1981; Levy, 1979a; Procci, 1981; Reichsman & Levy, 1972; Rhodes, 1981).

Demographic Characteristics

In the hierarchical multiple regression analyses, the first step was to partial out the aggregate contribution of the demographic characteristics to the prediction of the psychological well-being variables' variances. Therefore, a preliminary series of multiple regressions were performed

where all the demographic variables were entered into separate regressions on the ABS, GSI and DEP scores. This was done with the patient, spouse and couple data. In instances where the demographic variables were qualitative rather than quantitative, they were dummy coded. A lenient selection standard was decided upon so that any reasonable degree of association between the demographic and the psychological well-being criterion variables would be partialled out in the following hierarchical multiple regression analyses. Therefore, any demographic variables which contributed a $\underline{R}^2$ change of greater than .02 in these preliminary multiple regressions was selected for inclusion in the demographic factor.

Since in each multiple regression different variables met the above requirement, the demographic factor in each of the hierarchical multiple regression analyses was composed of different demographic variables. These variables have not been listed in the text but do appear in Appendix XV. Individually none of these demographic variables were highly correlated with the dependent variables of interest.

Physical Health

When the ESRD groups were compared on marital relations and psychological well-being no attempt was made to distinguish between the effects of the illness and its treatment. However, in this section -- examining the correlates of psychological well-being -- it was felt to be important to first partial out the effects of physical health before assessing

the importance of other factors. Therefore, a measure of physical health, the participant's self-rating, was included in the hierarchical multiple regression analyses. This measure was chosen because it was available for both patients and spouses. The correlations between the patients' self-ratings and the other measures of their physical health are presented in Table 25.

Overview

Overall, the hierarchical multiple regression analyses indicated a strong association between marital role strain and psychological well-being, with the results for patients, spouses and couples paralleling each other. After partialling out demographics, physical health, ESRD group membership and psychological defensiveness, the amount of psychological well-being variance accounted for by marital role strain ranged from 8.9% for spouses when it was regressed on ABS to a high of 19.4% for couples when it was regressed on DEP. On average it appears that in this study marital role strain accounted for approximately 15% -- a significant percentage -- of the psychological well-being variance.

A detailed account of the hierarchical multiple regression analyses performed with the patient, spouse and couple data follows. The results have been reported in terms of the F-ratios derived from their associated increments in R^2.

Patients. The results of the patients' hierarchical multiple regression analyses are summarized in Table 26. The

Table 25

Correlations between the Different Ratings of Physical Health: Patients

	Patient's Physical Health Self-rated
	r
Patient's Physical Health, Spouse-rated	.624*
Patient's Physical Health, Physician Rated	.549*
Organ Dysfunction Scale	-.350*

N = 89

* $p < .001$

Table 26

Hierarchical Multiple Regression Analyses on GSI, DEP, & ABS: Patients

Predictor	GSI R^2	GSI F	GSI p	DEP R^2	DEP F	DEP p	ABS R^2	ABS F	ABS p
Demographics	.061	(2,85)= 2.78	ns	.157	(11,76)= 1.28	ns	.116	(5,82)= 2.15	ns
Physical Health	.133	(1.84)= 6.91	.05	.283	(1,75)=13.19	.001	.281	(1,81)=18.54	.001
ESRD Group	.137	(4,80)= 0.12	ns	.296	(4,71)= 0.30	ns	.297	(4,77)= 0.44	ns
K Scale	.349	(1,79)=25.75	.001	.428	(1,70)=16.10	.001	.326	(1,76)= 3.20	ns
Marital Role Strain	.519	(6,73)= 4.00	.01	.583	(6,64)= 3.71	.01	.466	(6,70)= 2.88	.05
SNI[a]	.526	(1,72)= 1.01	ns	.586	(1,63)= 0.41	ns	.466	(1,69)= 0.51	ns

[a]Social Network Index

demographic variables, entered in the initial step, were not significantly related to any of the three measures of psychological well-being: the SCL-90-R's total score, the Global Severity Index (GSI); the SCL-90-R's depression subscale (DEP); the Affect Balance Scale (ABS). Physical health, entered in the next step, was significantly related to all three measures.

As was shown in the previous MANOVAs, ESRD group membership was not significantly related to psychological well-being. In fact, after partialling out demographic considerations and physical health, the contribution of ESRD group membership to psychological well-being, as measured by the increment in $\underline{R}^2$, was remarkably small: .004, .013, and .016 for GSI, DEP and ABS respectively. Psychological defensiveness, as measured by the K Scale, contributed significantly to the prediction of the two SCL-90-R scores (GSI and DEP) but not to the ABS score.

In the next step, the six marital role strain variables -- the five MRQ subscales and the KDS-15a -- were entered as a block into the regression. By entering these variables as a block, it was determined that as a whole the different role strain scores significantly contributed to the prediction of psychological well-being. The amount of additional variance accounted for by marital role strain was 17.0%, 15.5% and 14%, as one can see from Table 26, respectively for the GSI, DEP and ABS scores. In each case, this is a significant addition. The Social Network Index, which was entered into the regression on the final step, did not add significant information

to the prediction of any of the three measures of psychological well-being.

If rather than entering the marital role strain variables as a block, they were entered in a stepwise fashion, the MRQ subscale of Solidarity was then the first to enter the regression in all three regressions. The respective Solidarity Fs in the GSI, DEP and ABS regressions were $F(1,78) = 17.93$, $p < .001$, $F(1,69) = 16.31$, $p < .001$ and $F(1,75) = 9.28$, $p < .01$. Thereby indicating that within this sample, couple solidarity, as measured by the MRQ, was the most important marital role strain area for predicting psychological well-being.

In order to attempt to assess whether the particular measures of marital role strain used in this study, besides being more specific, add any information to the relationship between marital relations and psychological well-being beyond that obtained by a simple global rating of marital satisfaction, another regression was performed. When the global rating of marital happiness (a 7-point scale) on the Locke-Wallace MAT was entered into the regression after defensiveness but before marital role strain, this global rating was a significant predictor of psychological well-being: GSI $F(1,78) = 14.84$, $p < .001$; DEP $F(1,69) = 13.23$, $p < .001$ and ABS $F(1,75) = 5.13$, $p < .01$. If the six role strain variables were then entered as a block, the block wasn't significant in any of the three cases. However, if entered in a stepwise fashion, the first role strain variable to enter the equation was always significant. In two of the three regressions, this variable was the

MRQ subscale of Solidarity -- GSI $F(1,77) = 6.95$, $p < .05$ and DEP $F(1,68) = 5.87$, $p < .05$; while for the ABS regression it was the MRQ subscale of the Division of Responsibility, $F(1, 74) = 7.08$, $p < .01$.

This indicates that for this sample, while the Locke-Wallace MAT's global rating of marital happiness and the six measures of marital role strain overlapped in the psychological well-being variance that they accounted for, there were aspects of marital role strain that added significant information about psychological well-being above and beyond that yielded by a simple global rating of marital happiness.

Spouses. The hierarchical multiple regressions performed with the spouses' data are summarized in Table 27. The demographic variables were not significant in the regressions on GSI and DEP; however, they were significant contributors in the regression on ABS, $F(12,70) = 2.14$, $p < .05$. Physical health was significantly related to all three measures of psychological well-being. Once again, ESRD group membership was not a significant contributor to psychological well-being. Indeed as was noted in the patients' regressions, after partialling out demographics and physical health, the contribution of ESRD group membership to psychological well-being, as measured by the increment in R^2, was remarkably small: .037, .026 and .058 for GSI, DEP and ABS respectively. The K Scale was again significantly related to psychological well-being, and here it was significantly associated with all three measures.

Table 27

Hierarchical Multiple Regression Analyses on GSI, DEP, & ABS: Spouses

	GSI			DEP			ABS		
Predictor	R^2	F	p	R^2	F	p	R^2	F	p
Demographics	.105	(7,75)= 1.26	ns	.165	(8,74)= 1.82	ns	.268	(12,70)= 2.14	.05
Physical Health	.394	(1,74)=35.22	.001	.495	(1,73)=47.86	.001	.345	(1,69)= 8.04	.01
ESRD Group	.431	(4,70)= 1.13	ns	.521	(4,69)= 1.00	ns	.403	(4,65)= 1.67	ns
K Scale	.590	(1,69)=26.83	.001	.609	(1,68)=15.25	.001	.444	(1,64)= 4.79	.05
Marital Role Strain	.698	(6,63)= 3.60	.01	.780	(6,62)= 7.25	.001	.533	(6,58)= 1.87	ns
SNI[a]	.699	(1,62)= 0.22	ns	.785	(1,61)= 1.55	ns	.543	(1,57)= 1.29	ns

[a]Social Network Index

When the six marital role strain variables were entered as a block into the regression, they were significant contributors in the regressions on GSI and DEP but not on ABS, as shown in Table 27, the respective Fs were (6,63) = 3.60, $p < .01$, (6,62) = 7.25, $p < .001$, and (6,58) = 1.87, ns. As with the patients' data, the SNI contributed no significant additional information to the regressions on the three measures of psychological well-being.

If the six marital role strain variables were entered in a stepwise fashion, rather than as a block, in the regressions on the measures of psychological distress -- GSI and DEP -- the MRQ subscale of Solidarity was the first variable to enter the equation. In the regression on affect, as measured by the ABS, the MRQ subscale of Sexual Relations was the first variable to enter the regression. In each case, this first marital role strain variable was a significant predictor. The respective Fs were: on GSI, Solidarity $F(1,68) = 17.73$, $p < .001$; on DEP, Solidarity $F(1,67) = 34.20$, $p < .001$; and on ABS, Sexual Relations $F(1,63) = 8.52$, $p < .01$. Thereby indicating that within this sample of ESRD spouses, couple solidarity, as measured by the MRQ, was the most important marital role strain area for predicting psychological distress, while the MRQ subscale of Sexual Relations was the best marital role strain variable for the prediction of affect.

When the global rating of marital satisfaction was entered into the regression after defensiveness but before marital role strain, this global rating was a significant predictor

of psychological distress (on GSI, $F(1,68) = 7.06$, $p < .01$; on DEP, $F(1,67) = 16.74$, $p < .001$) but not of affect (on ABS, $F(1,63) = 2.84$, ns). If the six marital role strain variables were then entered as a block, the block was significant for the two measures of psychological distress -- on GSI, $F(6,63) = 2.40$, $p < .05$; on DEP, $F(6,61) = 6.00$, $p < .01$ -- but it was not a significant contributor to the prediction of affect -- on ABS, $F(6,58) = 1.38$, ns. If the six marital role strain variables were entered in a stepwise fashion, the results were essentially the same as those that did not include the global rating of marital satisfaction in the regression: for the regressions on psychological distress, Solidarity was the first marital role strain variable to enter the regressions -- on GSI, $F(1,67) = 11.21$, $p < .01$; on DEP, $F(1,66) = 20.72$, $p < .001$; and for affect, the marital role strain variable first to enter the regression was Sexual Relations -- on ABS, $F(1,62) = 5.77$, $p < .01$.

This indicates that within this sample of spouses, a global assessment of marital satisfaction was a significant predictor of psychological distress, but surprisingly not of affect, as measured by the ABS. Also, once again, at least for psychological distress, the MRQ subscale of Solidarity added significant information to the regressions beyond that supplied by the global marital assessment. As for the prediction of the ABS score, within the area of marital relations, the MRQ subscale of Sexual Relations was the best predictor.

Couples. The results of the couples' hierarchical multiple

regression analyses, summarized in Table 28, essentially follow the same patterns as those produced by the analyses of the patients' and spouses' data. Briefly, after partialling out demographics, physical health, ESRD group membership and defensiveness, the marital role strain variables entered as a block, accounted for a significant amount of the variance in the three measures of psychological well-being.

When the marital role strain variables were entered into the regression stepwise, rather than as a block, the MRQ subscale of Solidarity was once again the best predictor of psychological distress: on GSI, $F(1,65) = 28.61$, $p < .001$ and on DEP, $F(1,67) = 38.70$, $p < .001$; while the MRQ subscale of Sexual Relations was the best marital role strain variable for the prediction of the ABS score, $F(1,69) = 14.03$, $p < .001$.

When marital role strain was entered into the regression after partialling out the rating of global marital satisfaction, which in all three regressions was significant (on GSI, $F(1,65) = 6.39$, $p < .05$; on DEP, $F(1,67) = 11.65$, $p < .01$; and on ABS, $F(1,69) = 6.27$, $p < .05$), the block of marital role strain variables was significant in each case: GSI $F(6,60) = 5.00$, $p < .001$; DEP $F(6,61) = 5.50$, $p < .001$; and ABS $F(6,64) = 3.14$, $p < .01$. When they were entered in a stepwise fashion, again Solidarity was the first variable to enter the regression on GSI and DEP, the respective Fs were $(1,64) = 20.20$, $p < .001$ and $(1,66) = 24.82$, $p < .001$; while Sexual Relations was the first to enter the regression on ABS,

Table 28

Hierarchical Multiple Regression Analyses on GSI, DEP, & ABS: Couples

	GSI			DEP			ABS		
Predictor	R^2	F	p	R^2	F	p	R^2	F	p
Demographics	.204	(10,72)= 1.84	ns	.168	(8,74)= 1.87	ns	.103	(6,76)= 1.45	ns
Physical Health	.328	(1,71)=13.07	.001	.395	(1,73)=27.39	.001	.210	(1,75)=10.21	.01
ESRD Group	.343	(4,67)= 0.40	ns	.401	(4,69)= 0.22	ns	.242	(4,71)= 0.73	ns
K Scale	.607	(1,66)=44.39	.001	.584	(1,68)=29.76	.001	.338	(1,70)=10.09	.01
Marital Role Strain	.760	(6,60)= 6.50	.001	.778	(6,62)= 8.00	.001	.522	(6,64)= 4.43	.01
SNI[a]	.760	(1,59)= 0.03	ns	.783	(1,61)= 1.22	ns	.530	(1,63)= 1.09	ns

[a]Social Network Index

$F(1,68) = 8.22$, $p < .01$. The couples' hierarchical regression analyses clearly indicate that marital role strain added significant information about psychological well-being variance above and beyond that accounted for by a global measure of marital satisfaction.

Sex Role Flexibility

It was hypothesized that sex role flexibility would be negatively associated with both marital role strain and psychological distress; androgynous individuals, as classified by the Bem Sex Role Inventory (BSRI), would report less marital role strain and less psychological distress than the other BSRI categories. Before this hypothesis was tested however, differences between the ESRD groups on the BSRI Masculinity and Femininity scales were examined. Conceivably, the illness/treatment characteristics of the ESRD groups may be associated with differences in the ways the participants view themselves on items that reflect masculine and feminine traits. However, when 1 Factor (ESRD group) ANOVAs were done for both masculinity and femininity scores, no significant differences were found. These results are summarized in Table 29.

When the hypothesis was examined, one facet received no support and the other was only partially supported. There were no significant differences between the BSRI categories in marital role strain; while on the psychological well-being variables, only the spouses evidenced a significant difference between the four categories. The main effects of sex

Table 29

One Factor (ESRD Group) ANOVAs on
Bem Sex Role Inventory (BSRI) Masculinity and Femininity Scores

	df	F	p
Patients			
BSRI Masculinity Score	(4,83)	0.04	ns
BSRI Femininity Score	(4,83)	0.89	ns
Spouses			
BSRI Masculinity Score	(4,82)	0.35	ns
BSRI Femininity Score	(4,82)	0.41	ns
Couples			
BSRI Masculinity Score	(4,82)	0.18	ns
BSRI Femininity Score	(4,82)	0.66	ns

role category, from the (ESRD) group by (BSRI) sex role category MANOVAs, are reported in Table 30; none of the group by sex role category interactions were significant.

With the spouses' data, the variables most responsible for the significant difference between the four sex role categories in psychological well-being were: the Positive Affect Scale (PAS), Overall Happiness (Self-rated), and Self-esteem (Partner-rated). These variables exhibited the highest correlations with the discriminant function; the correlations between the psychological well-being variables and the discriminant function are reported in Table 31. Also, the PAS, Overall Happiness (Self-rated), and Self-esteem (Partner-rated) were the only psychological well-being variables whose univariate F-ratios were significant: $F(3,67) = 2.88$, $p < .05$; 5.39, $p < .01$; 5.90, $p < .01$; respectively. According to the post-hoc comparisons, Student Newman-Keuls (SNK), the spouses in the undifferentiated and feminine categories evidenced significantly less positive affect (PAS and Overall Happiness) and self-esteem than the spouses categorized as masculine or androgynous.

Correlations between Marital Role Strain and Psychological Well-being, ESRD Group Comparisons

Previously, it has been shown that ESRD group membership did not have an appreciable effect on either marital relations or psychological well-being. Also, for the entire sample, marital role strain has been shown to be a signifi-

Table 30

Main Effects of Sex Role Category
(MANOVAs: Sex Role Category by ESRD Group)

	df	F	p
Patients			
Marital Relations	(24,189)	0.96	ns
Psychological Well-being	(51,162)	1.22	ns
Spouses			
Marital Relations	(24,174)	1.29	ns
Psychological Well-being	(48,162)	1.65	.05
Couples			
Marital Relations	(24,177)	1.27	ns
Psychological Well-being	(48,165)	1.16	ns

Table 31

Correlations between the Discriminant Function and the Psychological Well-being Variables: Sex Role Category (Spouses)

Variable	Correlation with the Discriminant Function
Self-Esteem, Partner-rated	0.455**
Overall Happiness, Self-rated	0.433**
Positive Affect Scale	0.291*
Overall Happiness, Partner-rated	0.174
SCL-90-R Interpersonal Sensitivity	-0.163
Negative Affect Scale	-0.158
SCL-90-R PSDI	0.144
SCL-90-R Obsessive-compulsive	-0.143
SCL-90-R Depression	-0.130
SCL-90-R Psychoticism	-0.122
Rosenberg Scale	0.114
SCL-90-R Hostility	0.051
SCL-90-R Somatization	-0.036
SCL-90-R Paranoid Ideation	-0.021
SCL-90-R Anxiety	0.011
SCL-90-R Phobic Anxiety	-0.010

$N = 87$

* $p < .01$, two-tailed

** $p < .001$, two-tailed

cant predictor of psychological well-being. To complete this investigation, group differences in the magnitude of the correlation between marital role strain and psychological well-being were explored. This was considered valuable information because it would give an indication of the relative importance of the marital relationship for individual psychological well-being within each ESRD group.

In order to assess the significance of the differences between the respective ESRD group correlation coefficients, a number of paired comparisons were undertaken. (This procedure is outlined in Ferguson, 1981, pg. 196.) The correlations between two measures of marital role strain -- the KDS-15a and the MRQ Total score -- and the three measures of psychological well-being that have been discussed -- GSI, DEP and ABS -- were used in the comparisons. In this section, only the couple scores will be discussed, since they reflect the marital dyad's overall relationship between marital role strain and psychological well-being. These correlations and the paired comparisons are presented in Table 32.

From this table, it is readily apparent that the groups with greater illness/treatment intrusiveness had larger correlations between marital role strain and psychological well-being. The two dialysis groups, and especially the home-dialysis group, exhibited significantly higher correlations between marital role strain and psychological well-being than the other three groups; a finding which was particularly evident for the two measures of psychological distress, GSI

Table 32

Marital Role Strain/Psychological Well-being Correlations, ESRD Group Comparisons: Couples

	N	r	Paired Comparisons
KDS-15a & GSI			
Nephrology Clinic	(18)	-.020	Home- and unit-dialysis groups significantly different ($p<.05$) from the nephrology clinic group.
Pre-dialysis	(17)	.209	
Home-dialysis	(19)	.645**	
Unit-dialysis	(18)	.693**	
Post-transplant	(17)	.435*	
MRQ & GSI			
Nephrology Clinic	(16)	.421*	Home-dialysis group significantly different from the nephrology clinic group ($p<.01$) and the pre-dialysis and post-transplant groups ($p<.05$).
Pre-dialysis	(16)	.608**	
Home-dialysis	(19)	.901***	
Unit-dialysis	(15)	.774***	
Post-transplant	(17)	.572**	
KDS-15a & DEP			
Nephrology Clinic	(18)	.062	Home-dialysis group significantly different from the nephrology clinic ($p<.01$) and pre-dialysis groups ($p<.05$), also unit-dialysis group significantly different from the nephrology clinic group ($p<.01$).
Pre-dialysis	(17)	.287	
Home-dialysis	(19)	.783***	
Unit-dialysis	(18)	.741***	
Post-transplant	(17)	.513*	
MRQ & DEP			
Nephrology Clinic	(16)	.498*	Home-dialysis group significantly different from the nephrology clinic group ($p= .05$).
Pre-dialysis	(16)	.679**	
Home-dialysis	(19)	.855***	
Unit-dialysis	(15)	.800***	
Post-transplant	(17)	.638**	

	N	r	Paired Comparisons
KDS-15a & ABS			
Nephrology Clinic	(18)	-.046	Home-dialysis group significantly different ($p < .01$) from the nephrology clinic group.
Pre-dialysis	(17)	-.379	
Home-dialysis	(19)	-.784***	
Unit-dialysis	(18)	-.496*	
Post-transplant	(17)	-.549**	
MRQ & ABS			
Nephrology Clinic	(16)	-.465*	No significant differences.
Pre-dialysis	(16)	-.447*	
Home-dialysis	(19)	-.778***	
Unit-dialysis	(15)	-.511*	
Post-transplant	(17)	-.742***	

* $p < .05$

** $p < .01$

*** $p < .001$

and DEP.

Figures 2, 3 and 4 illustrate the relationship between the marital role strain/psychological well-being correlations and illness/treatment intrusiveness. As one can see, the shape of the curves, especially for the correlations between the MRQ and the two measures of psychological distress, mirror the hypothesized (ESRD) group rankings on the illness/treatment intrusiveness continuum (Figure 1).

A Post-hoc Analysis: Dialysis/Nondialysis

Since there were no significant differences between the five ESRD groups in either marital relations or psychological well-being, post-hoc it was decided to re-do these analyses with the participants dichotomized into two broad categories: dialysis and nondialysis. This decision was based on a combination of statistical and conceptual factors.

Even though the overall sample size in this study was large, with there being five groups, the group comparisons were based on relatively small samples. Therefore, in order to increase the sample sizes of the comparison groups, the participants were divided into two rather than five categories. Though a somewhat arbitrary division of this particular group of participants, the dialysis/nondialysis dichotomy was used since most of the psychosocial research in the ESRD area has been interested in the ramifications of dialysis and because conceptually this particular division seemed the most valid.

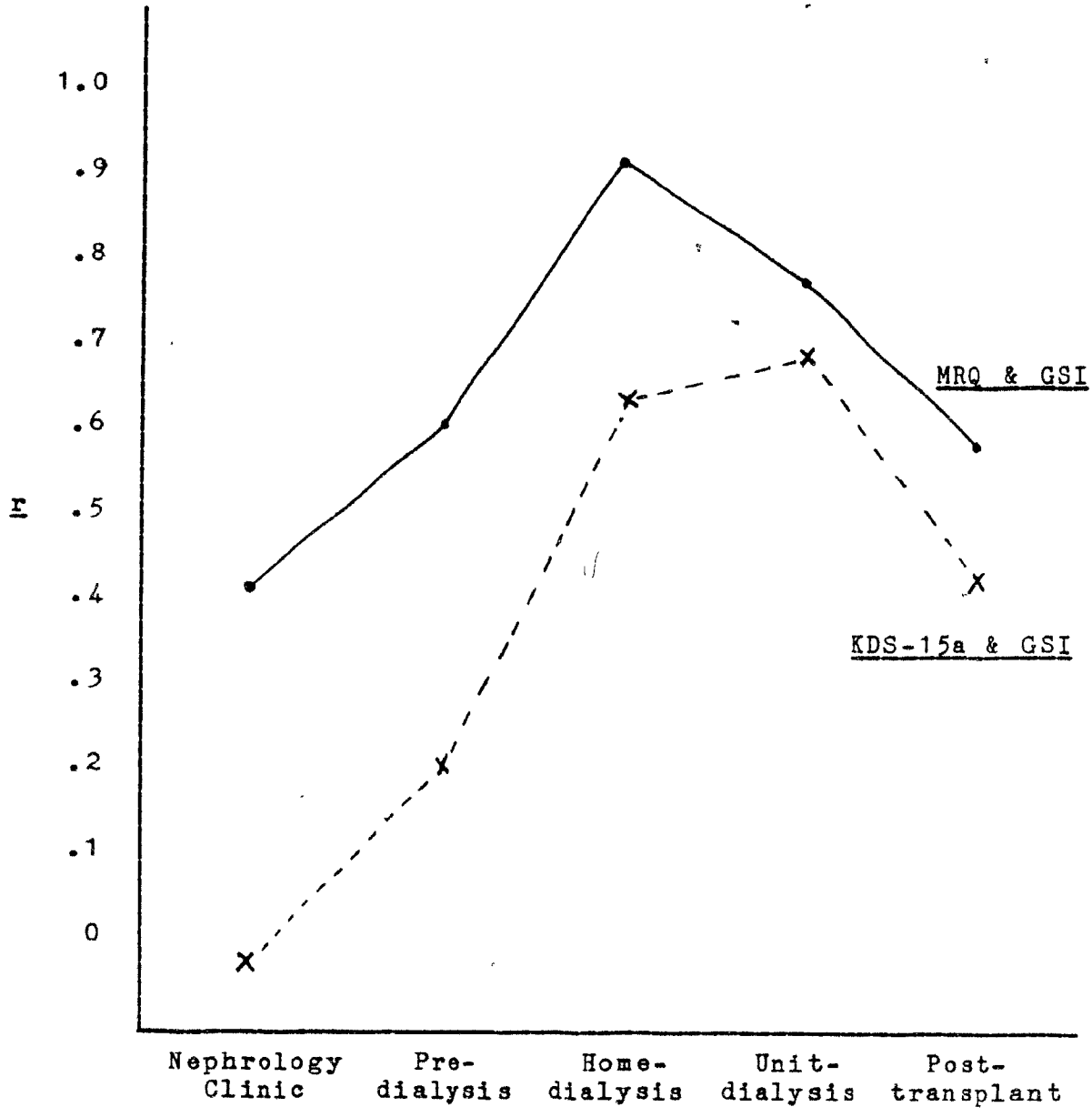


Figure 2. Correlations between marital role strain and psychological well-being (GSI).

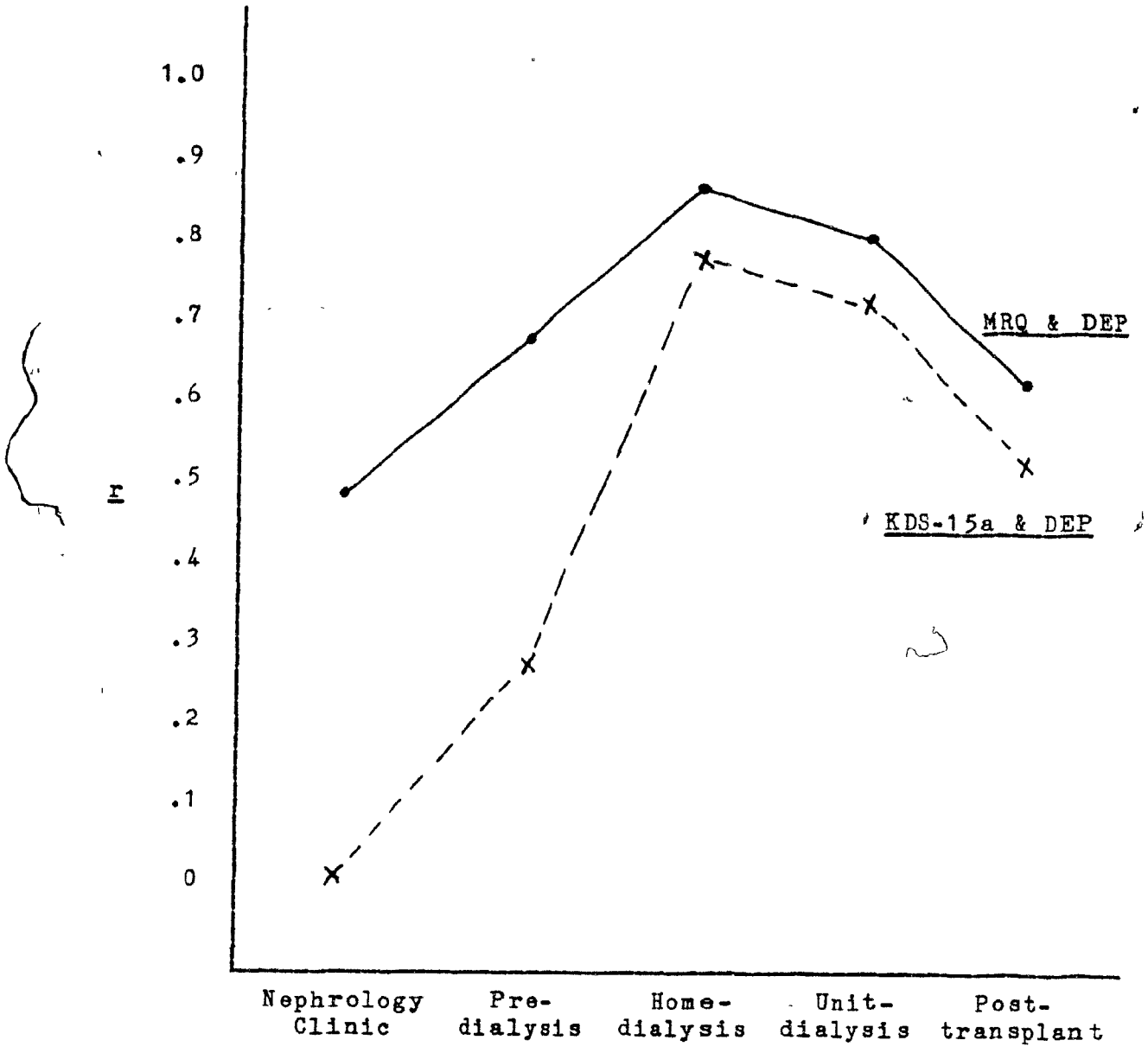


Figure 3. Correlations between marital role strain and psychological well-being (DEP).

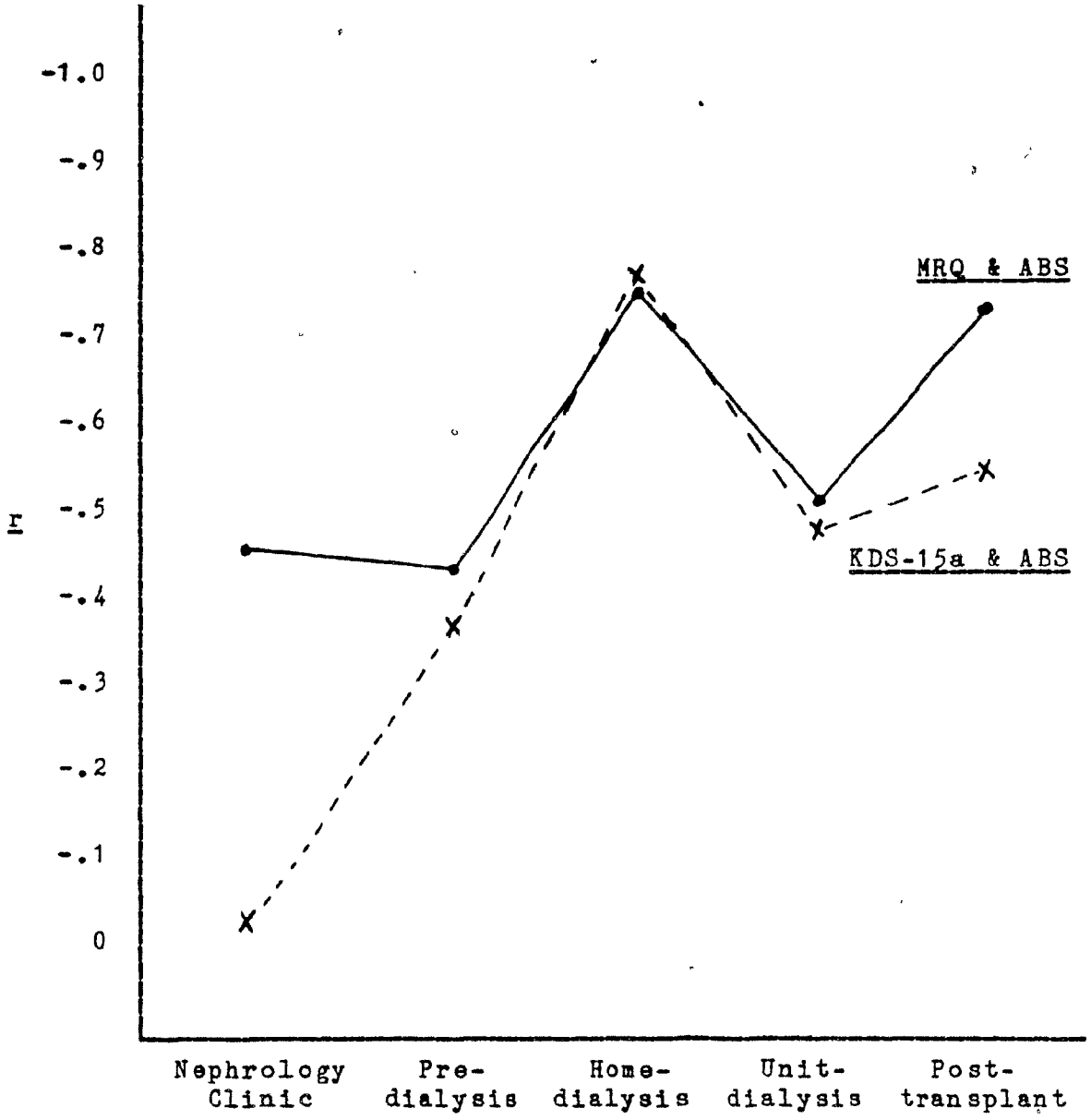


Figure 4. Correlations between marital role strain and psychological well-being (ABS).

Using exactly the same procedure as in the five group comparisons, the marital relations and psychological well-being data were reanalyzed. Again, the first step was to explore for potentially confounding differences between the groups. When the demographic characteristics of the two groups were compared only Work Status exhibited a significant difference (again using a lenient significance level of $p < .15$). The dialysis patients were less likely to be working full-time than the nondialysis patients: $\chi^2(2) = 6.82$, $p < .05$. Since, for the patients, Work Status was also correlated with more than two psychological well-being variables, it was used as a covariate when the psychological well-being responses of the two groups of patients were compared.

MANOVAs (Group by Sex) were conducted with the patients', spouses' and couples' marital relations and psychological well-being responses. The main effects of sex, as expected, exhibited essentially the same results as in the five group comparisons. Therefore, they are not reported. The main effects of group and the group by sex interactions are presented in Table 33.

As in the five group comparisons, none of the group by sex interactions were significant. Also, no significant group differences in marital relations or psychological well-being were found with either the patients' or spouses' data. However, with the couples' data a significant difference between the dialysis and nondialysis groups in psychological well-being was found, $F(16,69) = 2.35$, $p < .01$.

Table 33

MANOVAs (Group by Sex): Dialysis/Nondialysis

	df	F	p
Patients			
Marital Relations			
Interaction	(8,77)	1.13	ns
Group	(8,77)	1.11	ns
Psychological Well-being (with covariate of work status)			
Interaction	(17,68)	0.31	ns
Group	(17,68)	0.89	ns
Spouses			
Marital Relations			
Interaction	(8,72)	0.39	ns
Group	(8,72)	0.81	ns
Psychological Well-being			
Interaction	(16,69)	0.89	ns
Group	(16,69)	1.49	ns
Couples			
Marital Relations			
Interaction	(8,72)	0.34	ns
Group	(8,72)	0.78	ns
Psychological Well-being			
Interaction	(16,69)	0.81	ns
Group	(16,69)	2.35	.01

The variables most responsible for this significant difference were Overall Happiness (Self-rated) and the SCL-90-R Somatization subscale. As is presented in Table 34, these two variables exhibited the highest correlations with the discriminant function. Also, they were the only psychological well-being variables whose univariate F-ratios were significant: $F(1,84) = 10.58, 9.52$, respectively; both $p < .01$. The dialysis couples reported less overall happiness and more somatic difficulties than the nondialysis couples.

Table 34

Correlations between the Discriminant Function and the Psychological Well-being Variables: Dialysis/Nondialysis (Couples)

Variable	Correlation with the Discriminant Function
Overall Happiness, Self-rated	0.468**
SCL-90-R Somatization	-0.456**
SCL-90-R Obsessive-compulsive	-0.264*
SCL-90-R Depression	-0.231*
Overall Happiness, Partner-rated	0.226*
SCL-90-R PSDI	-0.214*
Rosenberg Scale	0.169
Positive Affect Scale	0.163
Negative Affect Scale	-0.098
SCL-90-R Interpersonal Sensitivity	0.091
SCL-90-R Hostility	-0.082
SCL-90-R Anxiety	-0.064
SCL-90-R Paranoid Ideation	0.035
SCL-90-R Phobic Anxiety	0.021
Self-esteem, Partner-rated	-0.014
SCL-90-R Psychoticism	-0.001

$N = 88$

* $p < .05$, two-tailed

** $p < .001$, two-tailed

DISCUSSION

This study investigated the psychological well-being of end stage renal disease (ESRD) patients and spouses from a dyadic perspective. A key element of this dyadic approach was the adoption of a role theory conceptualization of marriage. Operationally, this entailed having each partner complete two marital role questionnaires which were used to calculate marital role strain scores. While these questionnaires were answered individually, their orientation was dyadic. They addressed each partner's marital role expectations and their perceptions of enactments, thereby presenting a picture of the individuals within their dyadic context.

The area of marital relations, and more specifically marital role strain, was investigated both as an outcome and as a predictor of outcome. The effects of ESRD and/or its treatment on marital relations as well as the ability of marital role strain to account for psychological well-being were both assessed.

The format of the investigation was a cross-sectional study of five groups of ESRD couples categorized on the basis of the patients' illness/treatment characteristics. The responses of the patients and their spouses, as well as their dyadic combinations (couples), were compared both across (ESRD) groups and between patients and spouses. The general hypothesis was that in those ESRD groups where the illness and/or its treatment intruded the most heavily into the lives

of both the patients and their spouses, i.e. the two dialysis groups, the marital partners would both individually and dyadically exhibit the greatest levels of marital role strain and report the highest levels of psychological distress.

Despite the fact that the perceived levels of illness/treatment intrusiveness reported by the members of the five ESRD groups reflected the group rankings based on their objective illness/treatment characteristics, no significant differences were found between the ESRD groups in either marital relations or psychological well-being. However, the data did support the hypothesized negative relationship between marital role strain and psychological well-being. Also, the ESRD groups with the highest levels of illness/treatment intrusiveness, i.e. the two dialysis groups, evidenced significantly higher correlations between marital role strain and psychological distress than the other three groups. The same results were found with all three units of investigation: the patients, spouses and couples.

At this point, the results and the issues they raise will be discussed in detail. Seven major areas will be covered: 1.) the (ESRD) group comparisons; 2.) sex differences; 3.) status-position comparisons; 4.) the relationship between marital role strain and psychological well-being; 5.) role flexibility; 6.) the association between physical health and psychological well-being; and 7.) illness/treatment intrusiveness. Attention will then turn to a consideration of the present study's limitations. Finally, in conclusion, the

research and clinical implications which may be drawn from this study will be presented.

Major Findings and Issues

ESRD Group Differences

No significant differences were found between the five ESRD groups in either marital relations or psychological well-being. This finding held for patients and spouses individually, and as couples. Also, no significant differences were found for the patients or spouses when the participants were categorized into two broad classifications: dialysis and nondialysis. This failure to find significant differences between dialysis and nondialysis patients in psychological well-being runs contrary to a large body of literature which states that dialysis patients have a propensity to exhibit a number of psychological problems, most notably depression (Armstrong, 1978; Levy, 1979a; Procci, 1981; Reichsman & Levy, 1972; Rhodes, 1981).

Upon examining this literature, it becomes clear that most of those studies which have found gross psychological disturbances in dialysis patients (and spouses) are the older studies. This may be due to the fact that in these earlier studies the dialysis procedure itself was relatively new and subject to more complications than is now the case. However, one of the first published reports on the psychological adjustment of dialysis patients noted few difficulties (Norton, 1967).

An alternative explanation, one that doesn't dispute that technical improvements have probably ameliorated the psychological impact of dialysis, is that these earlier reports may have "over-pathologized" the problems dialysis patients were experiencing. Many of these researchers may have implicitly assumed that dialysis was such a negative event that it would inherently produce psychopathology (Blodgett, 1981). With most of these studies being clinical case reports which lacked standardized procedures, validated measures and explicit diagnostic criteria (Lowry, 1979), there is the possibility that these researchers were unwittingly simply corroborating their initial assumptions rather than accurately portraying the psychosocial impact of dialysis.

A number of recent studies, including the present one, have failed to find significant levels of psychopathology in dialysis patients (Devins et al., 1981; Farmer, Snowden & Parsons, 1979; Kaplan De-Nour, 1982; Livesley, 1979). However, while it now appears that dialysis patients are not grossly different, in terms of psychopathology, from other people, dialysis may still be associated with a decrease in the quality of life in other areas, including vocational satisfaction, financial status, social life and sexual activity. Of relevance to this issue is the fact that in the present study, dialysis couples were significantly different from nondialysis couples in psychological well-being, and the variable most responsible for this multivariate difference was Overall Happiness (Self-rated). The dialysis partners rated themselves

as less happy than the nondialysis partners rated themselves.

Sex Differences

Significant sex differences were found with both the patients' and spouses' data: the female participants reported more psychopathology than the male participants. However, there were no significant (ESRD) group by sex interactions. In other words, for example, dialysis was not differentially associated with psychological distress for males or females. Therefore, it appears that this finding is simply another replication of the oft stated result that women report more psychopathology than men (Cleary & Mechanic, 1983; Derogatis, 1977; Livesley, 1981; Verbrugge, Note 3).

As for marital role strain, the patient and spouse results diverged. The spouses' data yielded no significant sex differences while there were significant sex differences with the patients' data. Female patients exhibited more marital role strain in the division of responsibility and authority within the family than male patients. However, the meaning of this result is unclear.

A number of authors have stated that the wife's marital roles are more stressful than the husband's (Bernard, 1982; Cleary & Mechanic, 1983; Gove & Tudor, 1973). Nevertheless, both Crago & Tharp (1968) and Frank, Anderson & Rubinstein (1980), using the measures of marital role strain employed in the present study, found that in nonclinical couples women did not exhibit significantly more marital role strain than

their husbands. In both studies, however, the wives in a clinical group of couples were experiencing significantly more marital role strain than their partners.

Finding significant sex differences with a group primarily composed of chronic ESRD patients may indicate that the ESRD situation places disproportional marital role strains on female patients. However, if the illness was contributing to this sex difference in marital role strain, one would then expect a significant group by sex interaction in marital role strain which was not found. Therefore, it would appear this finding, that female patients experienced more marital role strain than male patients, simply reflects the fact that marriage places more demands on women than men. Unfortunately, confusing this issue further is the fact that no significant sex difference in marital role strain was found with the spouses' data.

Also relevant to this issue of sex differences is the comparison of couples with male patients and those with female patients. Theoretically, a case can be made for either combination -- male patient/female spouse or female patient/male spouse -- being particularly problematic for the couple. Indeed there is one report which suggests that it is more difficult for the couple when the husband is the dialysis patient (Isiadinso, Sullivan & Baxter, 1975) and another which suggests that it is more difficult for the couple when the wife is the dialysis patient (Atcherson, 1978). However, the present study found no significant differences between couples

with ill husbands and those with ill wives in either marital relations or psychological well-being.

Status-position (Patient/Spouse) Comparisons

Only a handful of investigations have actually compared the psychosocial reactions of dialysis patients and spouses. This seems, in part, due to the assumption that dialysis has a much more psychologically detrimental effect on the patient than the spouse. Indeed, clinically the spouse has often been viewed as a potential hospital staff adjunct (Czaczkes & Kaplan De-Nour, 1978).

When the two status-positions have been empirically compared, the findings have suggested that spouses as well as patients are under considerable stress. A few studies have even suggested that the burden of home hemodialysis, in particular, falls primarily on the spouse (Brown et al., 1978; Holcomb & MacDonald, 1973; Smith et al., 1969). While Malmquist & Hagberg (1974) have reported that home hemodialysis places an equal burden on both partners and as a result they evidence the same types and degrees of psychological distress.

The results of the present study suggest a situation where the marital partners were responding to one interpersonal environment with different individual psychological reactions. The partners' responses were highly correlated in areas where their experiences would seem more likely to overlap, i.e. marital relations and illness/treatment intrusiveness. In the category of psychological well-being, the most individual

or intrapsychic of these areas, the partners' responses exhibited the most discrepancy or least correlation.

Though patients reported a higher level of illness/treatment intrusiveness in certain individual life areas, in general ESRD/dialysis seemed to interfere with the lives of both partners in an associated manner. Also, there was no evidence that either status-position (patient or spouse) was associated with either marital or psychological problems; indeed there was no evidence that either of the dialysis partners, compared to the partners in the other (ESRD) groups, had increased marital or psychological distress levels.

In the present study, therefore, neither a person's ESRD group membership or illness status-position was found to be directly associated with significant differences in psychological well-being. This suggests that in and of itself ESRD/dialysis does not diminish psychological well-being. Therefore, ESRD/dialysis must be one aspect of a larger constellation of factors which determine psychological well-being.

Marital Role Strain

Marital role strain, the discrepancy between a person's role expectations and his/her perceptions of role enactments, was a significant predictor of psychological well-being. It explained psychological well-being variance above and beyond demographic, physical health, ESRD group membership and psychological defensiveness considerations.

Previous research in the area of marital role strain had

shown that the degree of marital role strain differentiated "normal" couples (volunteer intact marital pairs) from couples with a member experiencing psychological difficulties (Crago & Tharp, 1968; Jacob et al., 1978; Quick & Jacob, 1973) and also differentiated between nonpatient couples, sex therapy couples and marital therapy couples (Frank, Anderson & Kupfer, 1976; Frank, Anderson & Rubinstein, 1979;1980). The present finding, of a strong association between marital role strain and psychological well-being, replicates these previous findings and extends their range of applicability to include chronic illness couples.

This study's results are also consistent with a number of other studies which have found a relationship between marital relations and psychological well-being. These investigations have included a number of diverse populations, including prominent businessmen and civic leaders (Bird, Martin & Schuham, 1983); British housewives (Brown & Harris, 1978); professional engineers and accountants (Burke & Weir, 1977); medical students (Coombs & Fawzy, 1982); and women receiving psychotherapy for depression (Rounsaville, Prusoff & Weissman, 1980). Indeed, Bradburn (1969) has reported that across all SES levels, there is a strong association between a person's marital satisfaction and overall happiness ratings.

Beyond corroborating the strong relationship between marital satisfaction, marital role strain and psychological well-being, the present study adds information about the specific areas of the couple's interactions which are most important

to the partners' individual psychological well-being. First, while marital role strain and a global rating of marital satisfaction overlapped in the psychological well-being variance they explained, elements of marital role strain made a significant contribution to the prediction of psychological well-being above and beyond that described by the global rating of marital satisfaction. This indicates that marital role strain besides being a more precise concept than marital satisfaction also contributed more information to the prediction of psychological well-being. Secondly, the Marital Role Questionnaire's (MRQ) Solidarity subscale -- a measure of the couple's role reciprocations in the areas of intimacy, cohesion, companionship and affection -- was the single role strain score that was most predictive of psychological well-being. This was particularly evident in the area of psychological distress. Interestingly, for the spouses, Sexual Relations was the marital role strain area most predictive of affect. This suggests the possibility that for the two status-positions the different dimensions of marital relations are differentially associated with the various elements of psychological well-being.

Finding that the MRQ's Solidarity subscale was the best predictor of psychological distress for both partners is consistent with a previous finding by Quick & Jacob (1973). In a study which employed both the MRQ and the Relationship Inventory (Barrett-Lennard, 1962) -- a 92 item questionnaire measuring a person's emotional satisfaction with an interpersonal relationship -- they discovered that the latter was

a better discriminator between "normal" and disturbed couples. Further, they reported that Solidarity was the MRQ subscale most highly correlated with the Relationship Inventory and that when its variance was partialled out the ability of the MRQ to discriminate between the disturbed and "normal" couples was severely reduced. Therefore, it appears that the marriage's ability to provide the partners with feelings of companionship, affection and intimacy is of the utmost importance to their individual psychological health.

When the Social Network Index (SNI) (Berkman & Syme, 1979) was included in the last step of the hierarchical multiple regression, it failed to add any significant new information about psychological well-being variance. However, the SNI is a relatively gross quantitative measure of social networks which does not assess the qualitative aspects of social support. Given that social support has been suggested as a stress-buffering agent (Cobb, 1976; Dean & Lin, 1977; Thoits, 1982; Turner, 1981; Winnubst, Marcelissen & Kleber, 1982), it would be surprising if it were not an important element in the psychological well-being of ESRD/dialysis patients. Therefore, the relationship between social support and the psychological well-being of ESRD/dialysis patients awaits detailed investigation.

The overall hypothesized relationship between ESRD, marital role strain and psychological well-being was that increased illness/treatment intrusiveness would result in higher levels of marital role strain and concomitantly more psychological

distress. This hypothesis, however, was not supported by the data. Nevertheless, the predicted association between marital role strain and psychological well-being was found when patients with and without participating spouses were compared. Patients without participating spouses evidenced more marital role strain in the area of external relations and also reported less positive affect.

While there were no significant (ESRD) group differences in either marital relations or psychological well-being, an especially striking finding was that the magnitude of the correlation between marital role strain and psychological well-being increased as illness/treatment intrusiveness increased. In particular the two dialysis groups exhibited the greatest correlations between the measures of marital role strain and psychological well-being. Given that there were no significant differences between the groups in either marital relations or psychological well-being, it appears that the primary psychological effect of dialysis was to magnify the relationship between marital role strain and psychological well-being. In other words, it appears that the dialysis partners were particularly dependent on each other for the fulfillment of their psychosocial needs. This finding is consistent with Maurin & Schenkel's (1976) observation that the social sphere of dialysis couples is very circumscribed and that their lives are primarily family centered.

Role Theory. In general, the results from this study are consistent with a role theory conceptualization of marital

adjustment and mental health. According to Tharp & Otis (1966), if individuals can maintain sufficient role integrity within the family system, they will not manifest psychiatric symptoms. From the present study, it appears that ESRD/dialysis patients and spouses who are able to fulfill the marital roles they wish to fulfill, particularly in the area of couple companionship and affection, are unlikely to have psychological problems. The present study also strongly suggests that for dialysis patients and spouses, compared to nondialysis partners, the marital context is an especially important element in individual psychological well-being.

Dialysis, a medical stressor, does not seem to automatically result in negative psychological consequences. For married dialysis patients and their spouses, the stress of dialysis appears to be strongly associated with the partners' ability to maintain satisfying marital role reciprocations.

While it was expected that the dialysis partners would evidence more marital role strain than the other (ESRD) groups, there are two possible reasons for why this was not found. The first possibility is that any illness/treatment necessitated role changes may have already been satisfactorily accomplished before the couples were interviewed. A second possible explanation is the nature of the interaction between dialysis and the partners' pre-ESRD/dialysis roles.

Kaplan De-Nour (Note 1), focusing on the marital dimensions of dominance and dependency, has suggested that the interaction between the couple's pre-dialysis marital role

structure and the dialysis regimen may either increase or decrease marital strains. For example, if before dialysis the wife was dependent and the husband dominant and both partners assumed their roles by choice, the wife becoming a dialysis patient would simply reinforce this pre-existing role structure and would either result in no change in the couple's marital role strains or actually reduce them. Another example of how dialysis may actually reduce marital strains is the following: If before the onset of dialysis the patient had been dominant and the spouse dependent, but both were in undesired roles, the onset of dialysis would allow them to reverse roles and reorganize with a more satisfactory role structure.

Under other circumstances the imposition of dialysis on a marital structure will result in increased marital role strain. An example of this outcome is the situation where before dialysis the husband was the dominant partner and the wife the dependent partner, with both roles assumed by choice, and he becomes the dialysis patient. Here the role alterations required by dialysis are in conflict with the couple's usual and desired role structure and therefore are likely to generate an increase in marital role strain.

This formulation may also help to explain why in the category of psychological well-being, no significant (ESRD) group or status-position differences were found. Dialysis is stressful for some but not all couples. Also, when it is stressful the burden may fall disproportionately on either the patient

or spouse. Depending on whether dialysis increases or decreases marital role strain, in some cases it may precipitate psychological distress while in others it may actually diminish the partners' psychological difficulties. Also, within the couple, the partner experiencing the greater role strain will be the one to primarily manifest psychological distress.

Role Flexibility

Under circumstances that disrupt one's past role organization, the ability to readily modify one's roles would seem to be an important psychosocial asset. Therefore, role flexibility would seem to be an especially important asset for the members of a couple where one of the partners has developed a chronic illness. Indeed, Olsen (1970) has put role flexibility forward as one of the key elements in adjustment to chronic illness.

In the present study, an attempt was made to assess marital role flexibility using the Bem Sex Role Inventory (BSRI), a measure of sex role flexibility. The large overlap between marital roles and sex roles (Bernard, 1982; Parsons & Bales, 1955; Tharp, 1963a) provided the rationale for this decision.

Previous research with university undergraduates had shown that individuals classified by the BSRI as androgynous were more able to modify their behavior according to the demands of the situation than individuals in the BSRI's other sex role categories (masculine, feminine and undifferentiated) (Bem, 1975; Bem & Lenney, 1976; Bem, Martyna & Watson, 1976).

Therefore, in the present study it was hypothesized that androgynous individuals would be more likely to evidence lower marital role strain scores than individuals in the other three categories. However, this hypothesis was not supported by the data; there were no significant differences between the individuals in the four sex role categories in marital role strain.

Bem (1974;1979b), basing her position on differences in role flexibility, has also advanced androgyny as the optimal sex role orientation for psychological health. Therefore, in the present study it was also hypothesized that the participants classified as androgynous would report the highest levels of psychological well-being. This hypothesis was only partially supported: Androgynous spouses were significantly different from spouses categorized as feminine and undifferentiated; however, masculine spouses were also significantly different from spouses in these latter two categories. This result therefore contradicts Bem's position that androgyny is the one optimal sex role orientation. In fact, this finding is consistent with a number of other reports which have suggested that the BSRI's masculinity scale is independently the best predictor of psychological adjustment, particularly self-esteem (Adams & Sherer, 1982; Antill & Cunningham, 1979; Erdwins, Small & Gross, 1980; Taylor & Hall, 1982; Silvern & Ryan, 1979). These types of findings have not only led several authors to dispute Bem's conceptualization of the relationship between mental health and sex role orientation

but they have also cast doubt on the validity of the BSRI as a measure of sex role flexibility (Helmreich, Spence & Holahan, 1979; Jackson & Paunonen, 1980; Myers & Gonda, 1982; Pedhazur & Tetenbaum, 1979; Spence & Helmreich, 1981).

Retrospectively then, it appears that the BSRI was probably not an adequate measure of marital role flexibility. While the present study did not find the expected inverse relationship between marital role flexibility and marital role strain, it probably was not an adequate test of the hypothesis. As such, the role of marital role flexibility in the adjustment of the marital partners to a chronic illness remains a conceptually important, though empirically unvalidated, concept. Future investigations should explore other ways of assessing this relationship.

Physical Health and Psychological Well-being

Ideally, when investigating the psychosocial adjustment of patients to dialysis or other treatments for ESRD, one would like to know the effects of the treatment modalities irrespective of the patient's physical health. If one was able to control for health, this would allow a discussion of the effects of the treatment on psychological well-being independently of the psychological effects of the ill-health. This separation of treatment from illness is an especially important issue as technological advances allow the treatment of more chronic illnesses. Will there be instances where even if the treatment restored perfect physical health the

treatment regimen would still be so psychologically debilitating as to make the treatment undesirable? Or are physical and psychological health so irrevocably bound together that an improvement in physical health will restore psychological well-being regardless of the nature of the treatment?

While dialysis prevents ESRD from progressing to its terminal stage, it does not restore normal health. Therefore, physical health and ESRD treatment are confounded. For example, a kidney transplant is not only a less demanding treatment regimen than dialysis but it also restores more normal health. Also, in general, CAPD patients are in poorer health than hemodialysis patients; therefore, in this study, as a group the home-dialysis patients were in poorer health than their unit-dialysis counterparts. If a significant difference were to have been found between home-dialysis and unit-dialysis patients, should it have been attributed to the nature of the treatment? the health of the patients? or both?

The present study attempted to resolve this problem through a two-tracked approach: in one analysis ESRD treatment and physical health were considered as one entity; in another analysis physical health was partialled out, or statistically controlled, before the association between ESRD treatment and psychological well-being was considered. In neither case was ESRD group membership significantly related to either psychological well-being or marital relations. In fact, when physical health was partialled out, the amount of psychological well-being variance predicted by ESRD group membership was

remarkably small.

This second result would seem to indicate that in and of itself the ESRD treatment modality and its associated regimen had almost no impact on the person's psychological well-being. However, this may be misrepresenting the situation. By employing a subjective rating of health, i.e. the person's self-report, the relationship between physical and psychological well-being was probably exaggerated. Therefore, the analysis was conservative in its determination of the magnitude of the relationship between psychological well-being and other factors, including ESRD group membership.

Unfortunately, it is impossible to be totally accurate in the separation of physical well-being from psychological well-being. Obviously, they are continuously influencing each other. While there have been various attempts to objectively assess a person's physical health, as of yet none have proven totally satisfactory (Chambers, L.W., 1982).

Most of the investigations into the psychosocial adjustment of dialysis patients have considered dialysis as one entity encompassing poor health and a demanding treatment regimen. As has been noted, there are limitations to this approach. It would probably be more productive if future studies on the psychosocial aspects of ESRD/dialysis included both perspectives -- with and without controlling for physical health -- since they represent different types of information.

Illness/Treatment Intrusiveness

The rationale behind the choice of the five comparison groups included in the present study was that these nephrology patients, in addition to forming a chronology of ESRD and its treatment, exhibited different objective illness and/or treatment characteristics. It was felt that higher levels of illness/treatment intrusiveness would be associated with more marital role strain and more psychological distress. In other words, the more the illness and/or its treatment interfered with the marital partners' normal life activities, the more it would result in marital role strain and psychological distress.

For both patients and spouses, the ESRD group rankings based on the participants' ratings of illness/treatment intrusiveness (perceived intrusiveness) generally followed the same ordering as the rankings based on the objective characteristics of the illness and/or its treatment. However, the differences between the (ESRD) groups were not always statistically significant: In general, the nephrology clinic group was significantly different from the pre-, home- and unit-dialysis groups, and the two dialysis groups were also significantly different from the post-transplant group. Nevertheless, there were no significant differences between any of the groups in marital relations or psychological well-being.

This is the second study to have found this type of result. Devins (1981), using a similar intrusiveness questionnaire, found that dialysis and post-transplant patients cited signifi-

cantly different levels of illness/treatment intrusiveness. However, he also failed to find any significant differences between these groups in psychological well-being, specifically depression.

In the present study, the participants rated illness/treatment intrusiveness in 10 life areas which were chosen to represent both individual and marital life areas. The correlation between the global intrusiveness scores (the person's overall evaluation of illness/treatment intrusiveness) and the total scores (the sum of the person's ratings in the 10 life areas) was very high ($r > .8$ for both patients and spouses). While this does not preclude the possibility that some combination of other life areas may offer a more accurate composite of overall illness/treatment intrusiveness, it does suggest that for this group of participants these 10 life areas tapped important aspects of the overall intrusiveness of the illness and/or its treatment.

Though objective illness/treatment intrusiveness was not associated with significant differences in psychological well-being, the perceived intrusiveness ratings did provide information about how patients and spouses experienced the illness and/or its treatment. Also, the areas of congruence and non-congruence between objective and perceived intrusiveness further helped to define the relationship between the illness and/or its treatment and the associated psychological well-being. For example, there were no significant differences between the (ESRD) groups in perceived illness/treatment

intrusiveness in the area of family togetherness. In fact, for the patients this was the only area, of the 10 life areas, for which no significant differences were found. Of interest is the fact that Solidarity was the MRQ subscale most associated with psychological distress. This suggests the possibility that the reason no significant differences were found between the ESRD groups in psychological well-being was due to the partners' ability to maintain family cohesion despite the effects of the illness and/or its treatment.

Limitations of the Study

In this section, the study's limitations will be discussed. Potential confounding factors will be presented and their possible influence on the results will be examined. Also, the characteristics of the present population will be discussed in order to consider the generalizability of this study's findings.

Normalcy of the Nephrology Clinic Group

An important element in the interpretation of the present findings is the composition of the Nephrology Clinic group. Its composition helps to define the meaning of the group comparisons. For example, finding no differences between dialysis couples and couples with a member suffering from another serious illness would mean something very different from finding no differences between dialysis couples and couples with two healthy members. Therefore, the Nephrology Clinic group

warrents re-examination.

The Nephrology Clinic group was recruited from patients being followed through the Nephrology Clinic who were considered by their doctors to be "basically healthy." Therefore, this group was composed of patients who were asymptomatic for ESRD and although they were seeing a doctor were in generally good health with only minor treatment requirements to follow. The advantages of such a group included: the participant recruitment procedures employed with this group could be similar to those used with the other groups; there was an identified patient within the couple; the person's health status could be medically established; this particular subject pool was felt to be similar in age and SES to ESRD/dialysis patients, an assumption which proved correct. However, an inherent limitation of this group was that since it was composed of patients, it cannot be considered to represent "healthy" couples. This holds true even though the Nephrology Clinic partners reported minimal illness/treatment intrusiveness. Still, one may argue that this group is representative of a group of "normal" couples of similar ages.

Based on estimates from the Canada Health Survey (The Health of Canadians, 1981), more than 60% of the population over 14 years of age reported at least one health problem. Since it was also reported that after early adulthood health problems increase exponentially, it does appear that in a similar age range as the Nephrology Clinic couples (both partners approximately 49 years old) most of the couples in

the general population have a member with at least one medical problem. However, it may be that compared to their age cohorts in the general population, the members of the Nephrology Clinic group had more serious medical problems.

Overall then, it can be conclusively stated that this study allowed a valid comparison between dialysis partners and other ESRD couples, including a group where the patients were asymptomatic for ESRD and were in generally good health with minimal or no treatment requirements. A case might also be made that this group could be considered a "normal" group but this is contestable. Nonetheless, it is important to note that no significant differences in marital relations or psychological well-being were found between groups that were very dissimilar in illness/treatment intrusiveness.

Participants

Only married patients, and their spouses, who were physically well enough to complete the questionnaires were included in the study. These criteria raise three questions: 1.) What is the relationship between marital status and health? 2.) Are the divorce rates of ESRD/dialysis patients higher than those found in the general population? and 3.) How representative, in terms of physical health, were the patients of their respective populations?

Marital Status. Since married ESRD patients were the present study's focus, there was probably a bias towards seeing the more mentally and physically healthy segments of this

patient population. In the general population, there is a strong link between health -- both physical and emotional -- and marital status. Married individuals tend to live longer than single, separated, divorced or widowed individuals; they also tend to be healthier and to make fewer demands on health services than these other groups (Berkman & Syme, 1979; Somers, 1979; Vachon, 1976; Wertlieb, Budman, Demby & Randall, 1982). This is particularly true in the area of mental health, where married persons have a lower incidence of emotional illness, including psychiatric hospital admissions (Adler, 1953; Glenn, 1975; Somers, 1979; Wertlieb et al., 1982).

While the relationship between marital status and health has been a relatively neglected area in the study of the psychosocial aspects of ESRD/dialysis, the same pattern seems to exist. There are at least two reports commenting on the stress-buffering aspects of marriage for dialysis patients: Procci (1981) found that single or divorced dialysis patients had significantly greater social disability scores than married dialysis patients; and Munakata (1982) reported that, compared to married dialysis patients, unmarried dialysis patients were more likely to indicate that they found life meaningless.

Given that this study only included married ESRD/dialysis patients generalizations to unmarried dialysis patients should be made with caution. Still, extrapolating this study's finding that a supportive, intimate marital relationship was especially important to the psychological well-being of dialysis patients, one might hypothesize that unmarried dialysis

patients, lacking this primary social support system, may not only have more problems than their married counterparts but also that they may have more problems than unmarried nondialysis patients. Therefore, it is possible that a study which included a high percentage of unmarried dialysis patients might find differences between dialysis and nondialysis patients in psychological well-being. However, taken in conjunction with the present findings, this result would support the view that dialysis factors exert their influence on individual psychological well-being through their interaction with the person's social environment.

Divorce. Couples who were divorced after the onset of ESRD and/or dialysis but before the initiation of this study were lost from the participant pool. Since a number of authors have noted that hemodialysis increases marital dysfunction (Finkelstein, Finkelstein & Steele, 1976; Isiadinso, Sullivan & Baxter, 1975; Mlott & Vale, 1982; Steele, Finkelstein & Finkelstein, 1976), it is possible that finding no differences between the (ESRD) groups in marital relations was a product of losing the most intensely affected dialysis couples. Unfortunately, there is no direct information on divorce rates after the onset of dialysis. However, Evans, Blagg & Bryan (1981) using data from a 1978 (U.S.) national survey of hemodialysis patients reported that 7.4% of these patients were divorced. This figure seems comparable to the percentage of divorced individuals in the general U.S. population. According to the U.S. Bureau of the Census (1982), in 1978, 8.6% of

the population 18 years of age and older were divorced. Therefore, finding no significant (ESRD) group differences in marital relations does not appear to be an artifact of differential divorce rates.

Physical Health. While an attempt was made to include the entire spectrum of married ESRD patients, couples with a member who was not physically well enough to complete the questionnaires were unable to be included in this study. This requirement pertained to all the (ESRD) groups, however, it probably excluded a higher percentage of dialysis patients.

Though it is very likely that the extremely physically ill dialysis patients and their spouses are experiencing the most psychological distress, it is unclear that these patients, some near death, give a true indication of the psychosocial aspects of the dialysis situation. Their distress is probably more indicative of their extreme physical problems than it is related to dialysis.

Overview. While it is possible that different selection criteria would have produced different results, particularly in terms of finding significant (ESRD) group differences, this does not diminish the validity or importance of the present findings.

Format of the Study

A cross-sectional research design not only limits the type of information which may be collected but it also limits the nature of the inferences which may be drawn from the data.

Cross-sectional designs are limited to inferences based on comparisons of point-in-time data. Therefore, information about the process of change or adaptation is lost.

For pragmatic reasons, the present study employed a cross-sectional design. In the choice of comparison groups, however, an attempt was made to mitigate some of the intrinsic limitations of this approach. The five groups included in the study illustrate different points in the progression of ESRD and its treatment. The group comparisons then help to evaluate differences associated with the different points in this chronology. Nevertheless, information was still lost. One example has already been given: The possibility that any illness/treatment necessitated marital role changes may have been incorporated within the couple's marital patterns before the time of the interview. This does not alter the fact that at the time of testing there were no significant group differences in marital relations. However, a longitudinal investigation would give a more detailed view of the process of adaptation by allowing the researcher to obtain information before, during, and after relevant transition points, such as the start of dialysis.

A static cross-sectional format also does not allow one to ascertain the sequence of events. Therefore in this study, one is unable to state with certainty that marital relations disturbances always preceded the disturbances in psychological well-being. While a number of authors have concluded that marital problems do indeed appear to precede psychological

distress (Lee, 1974; Paykel, Myers, Dienelt, Klerman, Lindenthal & Pepper, 1969; Rounsaville, Prusoff & Weissman, 1980; Vanfossen, 1981), this need not be the exclusive directionality. A longitudinal investigation then would help clarify whether this sequence also holds true for chronic illness couples. Still, this qualification does not minimize the importance of showing a strong association between marital relations and psychological well-being.

Implications for Future Research

A number of important implications which may be drawn from this study have already been noted. Complementing these specifics, this section will discuss the utility of General Systems Theory (GST) as a conceptual framework for understanding the psychosocial impact of ESRD/dialysis. Further, it will attempt to show the empirical contributions to this area which can be made through operationalizing GST with a role theory approach.

Presently, there is a growing consensus that illness, and especially chronic illness, cannot be understood in isolation from the person's social surroundings (Mailick, 1979). As Litman (1974) has pointed out, it is within the social context of the family that an illness occurs and is managed. While the illness may have a potentially dramatic impact on the family system, at the same time, the family system influences its members' adjustments to the illness. Within the family system, the marital dyad is the nucleus. Therefore for theo-

retical and operational reasons it was chosen as the family unit of interest.

The goal of the present study was to examine the psychological well-being of both ESRD patients and their spouses from a dyadic perspective. Therefore, neither the dyad itself nor the dyadic partners could be the exclusive focus, rather interest was focused on the interrelation between these two levels. In order to understand how the properties of the dyadic system influenced the partners' individual adjustments, the patients and spouses were considered both as individuals within a system and also as a system -- their dyad. In systems terminology, since the individual partners were embedded in a larger system, their individual problems had to be understood in the context of that higher level of organization.

GST is directed to understanding the organized whole -- or system -- under investigation, it gives less attention to the individual properties of the component parts (Bertrand, 1972). A pure GST approach to the family (or marital dyad), would be to exclusively view the family (or marital dyad) as the unit of interest. While this type of approach is advocated by some family medicine researchers, at present due to theoretical and clinical difficulties with this framework, family medicine exclusively at the level of the family remains more rhetoric than reality (Schwenk & Hughes, 1983). A family medicine approach is more likely to consider the patient within the context of his/her family.

This study, while not a pure systems approach to the ESRD/

dialysis dyad, went one step further than just considering the patients within their dyadic context: by including the spouses at an equal level of interest, it actually considered both the members who comprised the dyadic context. A role theory framework considers both the individuals and the system they generate, therefore it allows for a discussion linking these two levels.

While a conceptual paradigm cannot be empirically verified (Kuhn, 1970; Popper, 1968), the results of the present study are consistent with viewing the adjustments of ESRD/dialysis patients and spouses as a product of the interactions between their marital systems and the illness and/or its treatment. Five findings which are relevant to this statement are the following:

1.) Illness/treatment intrusiveness affected the members of the couples in an associated fashion.

2.) ESRD group membership was not in itself associated with significant differences in psychological well-being.

3.) Marital role strain, an individual measurement of the degree to which the marital system was fulfilling the partners' psychosocial needs, was significantly associated with psychological well-being for all the participants.

4.) The major psychosocial impact of dialysis seemingly was to intensify the importance of the dyadic system for the partners' individual psychological well-being.

5.) There were no significant patient/spouse differences in either marital relations or psychological well-being, sug-

gesting that the burden of a dysfunctional marital system could fall on either member.

Given these findings, a number of implications for future research may be drawn. Foremost is the understanding that a negative event, or stressor, does not inexorably lead to adverse psychological consequences; or stress. The dialysis patients and their spouses did not report significantly higher levels of psychological distress than the patients and spouses in the other (ESRD) groups. It appears that the stressfulness of dialysis was mediated by its effects on the person's dyadic context. The dialysis partners who were able to maintain family cohesion were less likely to manifest psychological difficulties. Increased attention, therefore, should be directed toward an understanding of the interactions between the dialysis regimen and family functioning.

While the family is probably the most important intervening social system, both partners may be members of a number of other social systems, including their work environment, the hospital dialysis unit, and various social networks. An examination of how these systems interact or compensate for one another would be very useful. In general, the findings of this investigation suggest that much would be gained in a shift in emphasis away from attempting to assess the direct psychological impact of chronic illness on isolated individuals toward an understanding of how the illness and/or its treatment affects the person's social support systems and the association between these support systems and the person's

psychological well-being.

While GST provides the theoretical framework for such an approach, it does have its theoretical and empirical limitations. The most problematic of these for psychological investigations is that within a GST approach one tends to lose sight of the individual. Working at the social system level, the individuals comprising the system become less important. The present study overcame this problem by operationalizing GST through a role theory format. This approach allowed the empirical investigation of the marital partners and their dyadic system. However by focusing on the interrelationship between these two levels, specifically on how dyadic properties were associated with individual psychological well-being, information was lost at both levels. Individual traits were not specifically considered and the dyad was considered more as a unit generated by its individual members than as a system with its own specific properties.

This study's findings, while appearing consistent with GST, were not all readily predicted. More work needs to be done in order to understand the interactions between the internal family dynamics and the illness/treatment situation. Also, more attention needs to be given to the marital partners other relevant social systems. It appears that the individual psychological well-being of ESRD/dialysis patients and spouses must be understood as a product of the person's individual traits taken within the context of that person's social networks and the interactions between these factors

and the demands of the illness and/or its treatment.

It is interesting to note that the area of the psychosocial impact of ESRD/dialysis is evolving from a stage where it catalogued the various ways that dialysis patients were worse off than the general population to an understanding of how dialysis fits into their overall lives. To some extent this has been dictated by those studies which have failed to find significant differences between dialysis and nondialysis individuals. Dialysis is a stressor which many ESRD patients are able to adapt to; an understanding of the elements important to this adaptation is very important not just for dialysis and other chronic illness patients but to all individuals confronted with a stressor. In accordance with this new emphasis, there should be a shift from measuring adjustment in terms of the lack of psychopathology to the larger concept of quality of life.

Clinical Implications

The findings of this study strongly suggest the need for the adoption of a new clinical framework for the management of the chronic dialysis patient. Procci (1981), after noting that one of the major problems faced by chronic hemodialysis patients was psychosocial impairment, suggested that neither the traditional medical or psychological approaches were equipped to handle the problems faced by these patients. Both of these approaches concentrate on intrapersonal difficulties, while the problems dialysis patients face appear

to be more interpersonal in nature. The stressfulness of ESRD/dialysis appears to be closely tied to the degree of disruption it creates in the patient's social network. One of the treatment suggestions made by Procci (1981) was that dialysis patients should be counselled and trained in the skills necessary for the maintenance of a supportive social network.

Cassel (1976) noted that of the range of factors that may mediate the effects of a stressor, social relationships appear to be more amenable to change through intervention than the more intrapersonal factors, e.g. personality traits and individual coping strategies. From a systems outlook, an individual's behavior can best be understood and altered within the person's social context. Therefore, the focus of intervention should be at the level of the person's most relevant social context. For married individuals, this means at the level of the marital dyad.

Within the marital dyad, patients and spouses should be given equal consideration. If the illness and/or treatment is negatively affecting the dyadic system, either partner may be the one to exhibit the more adverse reactions. Too often in the past, the spouse's status-position has been viewed simply as one of potential medical-care adjunct.

Based on this study's findings and conclusions, it would appear to be more useful if the dialysis spouse was considered as an integral part of a system confronted with a pervasive stressor. Therefore, such measures as meeting the couple at the onset of ESRD to plan for dialysis and educating

both patients and spouses in details of dialysis would seem helpful. During these meetings, an evaluation of the marital dynamics could be made. Using this evaluation, the relative merits of involving or not involving the spouse directly in the treatment could be weighed. Also, consideration could be given to offering the couple more intensive psychosocial assistance. The goal of any such intervention would be to help the couple establish an equilibrium that enabled the dyad to function efficiently while simultaneously allowing both partners to satisfy their individual psychosocial needs.

REFERENCE NOTES

1 Kaplan De-Nour, A. Family relationship and rehabilitation. Proceedings of the IIIrd Congress of the International College of Psychosomatic Medicine, Rome, 1977, 2 520-524.

2 Hollomby, D., & Hutchinson, T. Organ Dysfunction Scale. Developed in 1981. Kidney Disease Center, Royal Victoria Hospital, Montreal, P.Q. Reprinted in Appendix II.

3 Verbrugge, L.M. Sex differences in ambulatory medical care for mental distress. Paper presented at the Society for the Study of Social Problems, Toronto, August 1981.

REFERENCES

Abram, H.S., Moore, G.L., & Westervelt, F.B. Suicidal behavior in chronic dialysis patients. American Journal of Psychiatry, 1971, 127, 119-124.

Adams, C.H., & Sherer, M. Sex-role orientation and psychological adjustment: Comparison of MMPI profiles among college women and housewives. Journal of Personality Assessment, 1982, 46, 607-613.

Adams, R.O. Living with a renal diet. In S.B. Chyatte (Ed.). Rehabilitation in chronic renal failure. Baltimore: Williams & Wilkins, 1979.

Adler, L.M. The relationship of marital status to incidence of and recovery from mental illness. Social Forces, 1953, 32, 185-194.

Advisory Committee to the Renal Transplant Registry. The 13th report of the human renal transplant registry. Transplantation Proceedings, 1977, 9, 9-26.

Andrews, F.M., & Withey, S.B. Social indicators of well-being: Americans' perceptions of life quality. New York: Plenum, 1976.

Angyal, A. A logic of systems. In F.E. Emery (Ed.). Systems thinking: Selected readings. Harmondsworth: Penguin, 1969.

Antill, J.K., & Cunningham, J.D. Self-esteem as a function of masculinity in both sexes. Journal of Consulting and Clinical Psychology, 1979, 47, 783-785.

Armstrong, S.H. Psychological maladjustment in renal dialysis patients. Psychosomatics, 1978, 19, 169-171.

Atcherson, E. The quality of life: A study of hemodialysis patients. Health and Social Work, 1978, 3, 55-69.

Bailey, G.L., Mocelin, A.J., Hampers, C.L., & Merrill, J.P. Home dialysis: 30,000 treatments later. Postgraduate Medicine, 1972, 52, 190-194.

Barrett-Lennard, G.J. Dimensions of therapist response as causal factors in therapeutic change. Psychological Monographs, 1962, 76, Whole Number 562.

Bauman, M.H., & Grace, N.T. Family process and family practice. Journal of Family Practice, 1974, 1, 24-26.

Bem, S.L. The measurement of psychological androgyny. Journal of Consulting and Clinical Psychology, 1974, 42, 155-162.

Bem, S.L. Sex role adaptability: One consequence of psychological androgyny. Journal of Personality and Social Psychology, 1975, 31, 634-643.

Bem, S.L. On the utility of alternate procedures for assessing psychological androgyny. Journal of Consulting and Clinical Psychology, 1977, 45, 196-205.

Bem, S.L. Theory and measurement of androgyny: A reply to the Pedhazur-Tetenbaum and Locksley-Colten critiques. Journal of Personality and Social Psychology, 1979, 37, 1047-1054. (a)

Bem, S.L. Beyond androgyny: Some presumptuous prescriptions for a liberated sexual identity. In J. Sherman & F. Denmark (Eds.). Psychology of women: Issues in psychology. New York: Psychological Dimensions, 1979. (b)

Bem, S.L., & Lenney, E. Sex typing and the avoidance of cross-sex behavior. Journal of Personality and Social Psychology, 1976, 33, 48-54.

Bem, S.L., Martyna, W., & Watson, C. Sex typing and androgyny: Further explorations of the expressive domain. Journal of Personality and Social Psychology, 1976, 34, 1016-1023.

Bergstein, E., Asaba, H., & Bergstrom, J. A study of patients on chronic haemodialysis: A sociomedical investigation of the experiences of patients on haemodialysis and their quality of life. Scandinavian Journal of Social Medicine, 1977, 11, 1-31.

Berkman, L.F., & Syme, S.L. Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda County residents. American Journal of Epidemiology, 1979, 109, 186-204.

Bernard, J. The future of marriage (1982 ed.). New Haven: Yale University Press, 1982.

Bertrand, A.L. Social organization. Philadelphia: F.A. Davis Company, 1972.

Binik, Y.M. Coping with chronic life threatening illness: Psychosocial perspectives on end-stage renal disease. Canadian Journal of Behavioral Science, 1983, 15, 373-392.

Binik, Y.M., & Chowanec, G.D. Quality of life. In M.R. Garovoy & R.D. Guttman (Eds.). Renal transplantation. New York: Churchill & Livingstone, Inc., (in press).

Bird, H.W., Martin, P.A., & Schuham, A. The marriage of the "collapsible" man of prominence. American Journal of Psychiatry, 1983, 140, 290-295.

Blagg, C.R. Psychological effects of home dialysis. The American Journal of the Medical Sciences, 1972, 264, 168-182.

Blishen, B.R., & McRoberts, H.A. A revised socioeconomic index for occupations in Canada. Canadian Review of Sociology and Anthropology, 1976, 13, 71-79.

Blodgett, C. A selected review of the literature of adjustment to hemodialysis. International Journal of Psychiatry in Medicine, 1981, 11, 97-124.

Boulton-Jones, M. Acute and chronic renal failure. Lancaster, England: MTP Press Limited, 1981.

Bowen, M. The family as the unit of study and treatment: Family Psychotherapy. American Journal of Orthopsychiatry, 1961, 31, 40-60.

Brackney, B.E. The impact of chronic home hemodialysis on the marital dyad. Ph.D. Dissertation. University of Michigan, Ann Arbor, 1975.

Brackney, B.E. The impact of home hemodialysis on the marital dyad. Journal of Marital and Family Therapy, 1979, 5, 55-60.

Bradburn, N. The structure of psychological well-being. Chicago: Aldine, 1969.

Brody, H. The systems view of man: Implications for medicine, science, and ethics. Perspectives in Biology and Medicine, 1973, 17, 71-92.

Brown, D.J., Craick, C.C., Davies, S.E., Johnson, M.L., Dawborn, J.K., & Heale, W.F. Physical, emotional and social adjustments to home dialysis. The Medical Journal of Australia, 1978, 1, 245-247.

Brown, G.W., & Harris, T. Social origins of depression: A study of psychiatric disorder in women. New York: The Free Press, 1978.

Bruhn, J.G. Effects of chronic illness on the family. Journal of Family Practice, 1977, 4, 1057-1060.

Bryan, F.A., & Evans, R.W. Hemodialysis partners. Kidney International, 1980, 17, 350-356.

Buckley, W. Sociology and modern systems theory. Englewood Cliffs, N.J.: Prentice-Hall, 1967.

Bulgin, R.H. Comparative costs of various dialysis treatments. Peritoneal Dialysis Bulletin, 1981, 1, 88-91.

Burgess, E.W. The family as a unity of interacting personalities. The Family, 1926, 7, 3-9.

Burke, R.J., & Weir, T. Husband-wive helping-relationships: The "mental hygiene" function in marriage. Psychological Reports, 1977, 40, 911-925.

Burton, B.T. End-stage renal disease: Better treatment at lower cost. Annals of Internal Medicine, 1978, 88, 567-568.

Burton, B.T., & Hirschman, G.H. Demographic analysis: End-stage renal disease and its treatment in the United States. Clinical Nephrology, 1979, 11, 47-51.

Campbell, A. Subjective measures of well-being. American Psychologist, 1976, 31, 117-124.

Campbell, J.D., & Campbell, A.R. The social and economic cost of end-stage renal disease: A patient's perspective. New England Journal of Medicine, 1978, 299, 386-392.

Cassel, J. The contribution of the social environment to host resistance. American Journal of Epidemiology, 1976, 104, 107-123.

Ceccarelli, C.M. Hemodialytic therapy for the patient with chronic renal failure. Nursing Clinics of North America, 1981, 16, 531-550.

Chambers, L.W. Health program review in Canada: Measurement of health status. Canadian Journal of Public Health, 1982, 73, 26-34.

Chambers, M. Psychological aspects of renal transplantation. International Journal of Psychiatry in Medicine, 1982, 12, 229-236.

Chowanec, G.D., & Binik, Y.M. End stage renal disease (ESRD) and the marital dyad: A literature review and critique. Social Science and Medicine, 1982, 16, 1551-1558.

Christie-Seely, J. Teaching the family system concept in family medicine. Journal of Family Practice, 1981, 13, 391-401.

Churchman, C.W. The systems approach: Revised and updated. New York: Laurel, 1979.

Clark, R., Hailstone, J.D., & Slade, P.D. Psychological aspects of dialysis: A Semantic Differential study. Psychological Medicine, 1979, 9, 55-62.

Cleary, P.D., & Mechanic, D. Sex differences in psychological distress among married people. Journal of Health and Social Behavior, 1983, 24, 111-121.

Cobb, S. Social support as a moderator of life stress. Psychosomatic Medicine, 1976, 38, 300-314.

Cohen, J. Multiple regression as a general data-analytic system. Psychological Bulletin, 1968, 70, 426-443.

Cole, S. The sociological orientation: An introduction to sociology. Chicago: Rand McNally, 1975.

Coombs, R.H., & Fawzy, F.I. The effect of marital status on stress in medical school. American Journal of Psychiatry, 1982, 139, 1490-1493.

Costa, P.T., & McCrae, R.R. Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. Journal of Personality and Social Psychology, 1980, 38, 668-678.

Crago, M., & Tharp, R.G. Psychopathology and marital role disturbance: A test of the Tharp-Otis descriptive hypothesis. Journal of Consulting and Clinical Psychology, 1968, 32, 338-341.

Craig, T.J., & Abeloff, M.D. Psychiatric symptomatology among hospitalized cancer patients. American Journal of Psychiatry, 1974, 131, 1323-1327.

Curry, H.B. The family as our patient. Journal of Family Practice, 1974, 1, 70-71.

Czaczkes, J.W., & Kaplan De-Nour, A. Chronic hemodialysis as a way of life. New York: Brunner/Mazel, 1978.

Dahlstrom, W.G., Welsh, G.S., & Dahlstrom, L.E. An MMPI handbook: Volume #1 clinical interpretation. Minneapolis: U. of Minnesota Press, 1972.

Dean, A., & Lin, N. The stress-buffering role of social support. Journal of Nervous and Mental Disease, 1977, 165, 403-417.

Derogatis, L.R. The SCL-90-R administration, scoring, and procedures manual I. Baltimore: Clinical Psychometric Research, 1977.

Derogatis, L.R., Abeloff, M.D., & Melisaratos, N. Psychological coping mechanisms and survival time in metastatic breast cancer. JAMA, 1979, 242, 1504-1508.

Derogatis, L.R., Lipman, R.S., & Covi, L. The SCL-90: An outpatient psychiatric rating scale. Psychopharmacology Bulletin, 1973, 9, 13-28.

Derogatis, L.R., Morrow, G.R., Fetting, J., Penman, D., Piasetsky, S., Schmale, A.M., Henrichs, M., & Carnicke, L.M. The prevalence of psychiatric disorders among cancer patients. JAMA, 1983, 249, 751-757.

Derogatis, L.R., Rickels, K., & Rock, A. The SCL-90 and the MMPI: A step in the validation of a new self-report scale. British Journal of Psychiatry, 1976, 128, 280-289.

Devins, G.M. Helplessness, depression, and mood in end-stage renal disease. Ph.D. Dissertation. McGill University, Montreal, 1981.

Devins, G.M., Binik, Y.M., Hollomby, D.J., Barre, P.E., & Guttman, R.D. Helplessness and depression in end-stage renal disease. Journal of Abnormal Psychology, 1981, 90, 531-545.

Dinning, W.D., & Evans, R.G. Discriminant and convergent validity of the SCL-90 in psychiatric inpatients. Journal of Personality Assessment, 1977, 41, 304-310.

Dominian, J. Marital pathology: A review. Postgraduate Medical Journal, 1972, 48, 517-525.

Donohue, K.C., & Ryder, R.G. A methodological note on marital satisfaction and social variables. Journal of Marriage and the Family, 1982, 44, 743-747.

Dyer, W.G. Analyzing marital adjustment using role theory. Marriage and Family Living, 1962, 24, 371-375.

Eisinger, R.P. Office management of chronic renal disease. American Family Physician, 1979, 20, 109-115.

Engel, G.L. The clinical application of the biopsychosocial model. American Journal of Psychiatry, 1980, 137, 535-544.

Erdwins, C., Small, A., & Gross, R. The relationship of sex role to self-concept. Journal of Clinical Psychology, 1980, 36, 111-115.

Evans, R.W., Blagg, C.R., & Bryan, F.A. Implications for health care policy: A social and demographic profile of hemodialysis patients in the United States. JAMA, 1981, 245, 487-491.

Farmer, C.J., Bewick, M., Parsons, V., & Snowden, S.A. Survival on home haemodialysis: Its relationship with physical symptomatology, psychosocial background and psychiatric morbidity. Psychological Medicine, 1979, 9, 515-523.

Farmer, C.J., Snowden, S.A. & Parsons, V. The prevalence of psychiatric illness among patients on home haemodialysis. Psychological Medicine, 1979, 9, 509-514.

Felton, B.J., Brown, P., Lehmann, S., & Liberatos, P. The coping function of sex-role attitudes during marital disruption. Journal of Health and Social Behavior, 1980, 21, 240-248.

Fengler, A.P., & Goodrich, N. Wives of elderly disabled men: The hidden patients. Gerontologist, 1979, 19, 175-183.

Ferguson, G.A. Statistical analysis in psychology and education (5th ed.). Toronto: McGraw-Hill, 1981.

Fink, S.L., Skipper, J.K., & Hallenbeck, P.N. Physical disability and problems in marriage. Journal of Marriage and the Family, 1968, 30, 64-73.

Finkelstein, F.O., Finkelstein, S.H., & Steele, T.E. Assessment of marital relationships of hemodialysis patients. American Journal of the Medical Sciences, 1976, 271, 21-28.

Finn, J.D. A general model for multivariate analysis. New York: Holt, Rinehart & Winston, 1974.

First, M.R. Chronic renal failure. Garden City, N.Y.: Medical Examination Publishing Co., Inc., 1982.

Fishman, D.B., & Schneider, C.J. Predicting emotional adjustment in home dialysis patients and their relatives. Journal of Chronic Diseases, 1972, 25, 99-109.

Foley, V.D. Family therapy. In R.J. Corsini (Ed.). Current Psychotherapies. Itasca, Illinois: F.E. Peacock, 1979.

Frank, E., Anderson, C., & Kupfer, D.J. Profiles of couples seeking sex therapy and marital therapy. American Journal of Psychiatry, 1976, 133, 559-562.

Frank, E., Anderson, C., & Rubinstein, D. Marital role strain and sexual satisfaction. Journal of Consulting and Clinical Psychology, 1979, 47, 1096-1103.

Frank, E., Anderson, C., & Rubinstein, D. Marital role ideals and perception of marital role behavior in distressed and non-distressed couples. Journal of Marital and Family Therapy, 1980, 6, 55-63.

Frank, E., & Kupfer, D.J. In every marriage there are two marriages. Journal of Sex and Marital Therapy, 1976, 2, 137-143.

Freeman, E.W., Rickels, K., Huggins, G.R., Garcia, C., & Polin, J. Emotional distress patterns among women having first or repeat abortions. Obstetrics & Gynecology, 1980, 55, 630-636.

Friedman, E.A. The uremic syndrome. In E.A. Friedman (Ed.). Strategy in renal failure. New York: Wiley, 1978.

Friedman, E.A. Etiology of chronic renal failure. In S.B. Chyatte (Ed.). Rehabilitation in chronic renal failure. Baltimore: Williams & Wilkins, 1979.

Friedman, E.A., Delano, B.G., & Butt, K.M. Pragmatic realities in uremia therapy. New England Journal of Medicine, 1978, 298, 368-370.

Friedman, E.A., Goodwin, N.J., & Chaudhry, L. Psychosocial adjustment of family to maintenance hemodialysis. New York State Journal of Medicine, 1970, 70, 767-774.

Geyman, J.P. The family as the object of care in family practice. Journal of Family Practice, 1977, 5, 571-575.

Gibson, R.L. Dialysis. In W.J. Stone & P.L. Rabin (Eds.). End-stage renal disease. New York: Academic Press, 1983.

Glenn, N.D. The contribution of marriage to the psychological well-being of males and females. Journal of Marriage and the Family, 1975, 37, 594-601.

Goldberg, R.T. Vocational rehabilitation of patients on long-term hemodialysis. Archives of Physical Medicine and Rehabilitation, 1974, 55, 60-65.

Goldman, R.H., Cohn, G.L., & Longnecker, R.E. The family and home hemodialysis: Adolescents' reactions to a father on home dialysis. International Journal of Psychiatry in Medicine, 1980, 10, 235-254.

Gove, W.R., & Tudor, J.F. Adult sex roles and mental illness. American Journal of Sociology, 1973, 78, 812-835.

Gutman, R.A., Stead, W.W., & Robinson, R.R. Physical activity and employment status of patients on maintenance dialysis. New England Journal of Medicine, 1981, 304, 309-313.

Guttmann, R.D. Renal transplantation. New England Journal of Medicine, 1979, 301, 975-982.

Haenel, T., Brunner, F., & Battegay, R. Renal dialysis and suicide: Occurrence in Switzerland and in Europe. Comprehensive Psychiatry, 1980, 21, 140-145.

Haynes, S.N., Follingstad, D.R., & Sullivan, J.C. Assessment of marital satisfaction and interaction. Journal of Consulting and Clinical Psychology, 1979, 47, 789-791.

Haynes, S.N., Jensen, B.J., Wise, E., & Sherman, D. The marital intake interview: A multimethod criterion validity assessment. Journal of Consulting and Clinical Psychology, 1981, 49, 379-387.

Heale, W.F., Liesegang, J., & Niall, J.F. Chronic renal disease: A socio-economic study. The Medical Journal of Australia, 1970, 2, 623-625.

The Health of Canadians: Report of the Canada Health Survey. Ottawa: Minister of Supply & Services Canada, 1981.

Helmreich, R.L., Spence, J.T., & Holahan, C.K. Psychological androgyny and sex role flexibility: A test of two hypotheses. Journal of Personality and Social Psychology, 1979, 37, 1631-1644.

Hill, M.N. When the patient is the family. American Journal of Nursing, 1981, 81, 536-537.

Holcomb, J.L., & MacDonald, R.W. Social functioning of artificial kidney patients. Social Science and Medicine, 1973, 7, 109-119.

Hummel, T.J., & Sligo, J.R. Empirical comparison of univariate and multivariate analysis of variance procedures. Psychological Bulletin, 1971, 76, 49-57.

Hutchinson, T.A., Thomas, D.C., & MacGibbon, B. Predicting survival in adults with end stage renal disease: An age equivalence index. Annals of Internal Medicine, 1982, 96, 417-426.

Isiadinso, O.A., Sullivan, J.F., & Baxter, J.E. Psychological adaptation to long-term hemodialysis: A study of 84 patients. Bulletin of the New York Academy of Medicine, 1975, 51, 795-803.

Jackson, D.N., & Paunonen, S.V. Personality structure and assessment. Annual Review of Psychology, 1980, 31, 503-551.

Jacob, T., Kornblith, S., Anderson, C., & Hartz, M. Role expectation and role performance in distressed and normal couples. Journal of Abnormal Psychology, 1978, 87, 286-290.

Jacobs, J.W. The effect of divorce on fathers: An overview of the literature. American Journal of Psychiatry, 1982, 139, 1235-1241.

Jacobsen, A.H. Conflict of attitudes toward the roles of the husband and wife in marriage. American Sociological Review, 1952, 17, 146-150.

Johnson, H.K., Richie, R.E., & Niblack, G.D. The case for renal transplantation. In W.J. Stone & P.L. Rabin (Eds.). End-stage renal disease. New York: Academic Press, 1983.

Kantor, D., & Lehr, W. Inside the family. San Francisco: Jossey-Bass, 1975.

Kaplan De-Nour, A. The hemodialysis unit. Advances in Psychosomatic Medicine, 1980, 10, 132-150.

Kaplan De-Nour, A. Psychosocial adjustment to illness scale (PAIS): A study of chronic hemodialysis patients. Journal of Psychosomatic Research, 1982, 26, 11-22.

Kaplan De-Nour, A., & Czaczkes, J.W. Resistance to home dialysis. Psychiatry in Medicine, 1970, 1, 207-221.

Kelly, J.A., & Worell, J. New formulations of sex roles and androgyny: A critical review. Journal of Consulting and Clinical Psychology, 1977, 45, 1101-1115.

Khanna, R., Oreopoulos, D.G., Dombros, N., Vas, S., Williams, P., Meema, H.E., Husdan, H., Ogilvie, R., Zellerman, G. Roncari, D.A., Clayton, S., & Izatt, S. Continuous ambulatory peritoneal dialysis (CAPD) after three years: Still a promising treatment. Peritoneal Dialysis Bulletin, 1981, 1, 24-34.

Kim, J., & Kohout, F.J. Multiple regression analysis: Subprogram regression. In N.H. Nie, C.H. Hull, J.G. Jenkins, K. Steinbrenner & D.H. Bent (Eds.). SPSS: Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill, 1975.

Kimmel, D., & Van der Veen, F. Factors of marital adjustment in Locke's Marital Adjustment Test. Journal of Marriage and the Family, 1974, 36, 57-63.

Kjellstrand, C.M., Avram, M.M., Blagg, C.R., Friedman, E.A., Salvatierra, O., Simmons, R.L., Williams, G.M., & Terasaki, P. Cadaver transplantation versus hemodialysis. Transactions of the American Society for Artificial Internal Organs, 1980, 26, 611-624.

Klecka, W.R. Discriminant analysis. In N.H. Nie, C.H. Hull, J.G. Jenkins, K. Steinbrenner & D.H. Bent (Eds.). SPSS: Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill, 1975.

Klein, R.F., Dean, A., & Bogdonoff, M.D. The impact of illness upon the spouse. Journal of Chronic Diseases, 1967, 20, 241-248.

Kramer, N.J., & de Smit, J. Systems thinking: Concepts and notions. Leiden: Martinus Nijhoff Social Sciences Division, 1977.

Kuhn, T.S. The structure of scientific revolutions (2nd ed.). Chicago: University of Chicago Press, 1970.

Laszlo, E. The origins of General Systems Theory in the work of von Bertalanffy. In E. Laszlo (Ed.). The relevance of General Systems Theory. New York: George Braziller, 1972.

Lee, G.R. Marriage and anomie: A causal argument. Journal of Marriage and the Family, 1974, 36, 523-532.

Levenberg, S.B., Jenkins, C., & Wendorf, D.J. Studies in family-oriented crisis intervention with hemodialysis patients. International Journal of Psychiatry in Medicine, 1978, 9, 83-92.

Levy, N.B. Psychological problems of the patient on hemodialysis and their treatment. Psychotherapy and Psychosomatics, 1979, 31, 260-266. (a)

Levy, N.B. The sexual rehabilitation of the hemodialysis patient. Sexuality and Disability, 1979, 2, 60-65. (b)

Lewis, S.M. Pathophysiology of chronic renal failure. Nursing Clinics of North America, 1981, 16, 501-513.

Liddle, V.R. The role of nutrition in end-stage renal disease. In W.J. Stone & P.L. Rabin (Eds.). End-stage renal disease. New York: Academic Press, 1983.

Linton, R. The study of man. New York: Appleton-Century-Crofts, 1936.

Litman, T.J. The family as a basic unit in health and medical care: A social-behavioral overview. Social Science and Medicine, 1974, 8, 495-519.

Livesley, W.J. Psychiatric disturbance and chronic haemodialysis. British Medical Journal, 1979, 2, 306.

Livesley, W.J. Factors associated with psychiatric symptoms in patients undergoing chronic hemodialysis. Canadian Journal of Psychiatry, 1981, 26, 562-565.

Locke, H.J., & Wallace, K.M. Short marital-adjustment and prediction tests: Their reliability and validity. Marriage and Family Living, 1959, 21, 251-255.

Lowry, M.R. Frequency of depressive disorder in patients entering home dialysis. Journal of Nervous and Mental Disease, 1979, 167, 199-204.

Madanes, C., & Haley, J. Dimensions of family therapy. Journal of Nervous and Mental Disease, 1977, 165, 88-98.

Mailick, M. The impact of severe illness on the individual and family: An overview. Social Work in Health Care, 1979, 5, 117-128.

Malmquist, A., & Hagberg, B. A prospective study of patients in chronic hemodialysis -- V.: A follow-up study of thirteen patients in home dialysis. Journal of Psychosomatic Research, 1974, 18, 321-326.

Manis, T., & Friedman, E.A. Dialytic therapy for irreversible uremia. New England Journal of Medicine, 1979, 301, 1260-1265.

Marshall, J.R. Neuropsychiatric aspects of renal failure. Journal of Clinical Psychiatry, 1979, 40, 81-85.

Marshall, J.R., Rice, D.G., O'Mera, M., & Shelp, W.D. Characteristics of couples with poor outcome in dialysis home training. Journal of Chronic Diseases, 1975, 28, 375-381.

Mass, M., & Kaplan De-Nour, A. Reactions of families to chronic hemodialysis. Psychotherapy and Psychosomatics, 1975, 26, 20-26.

Mattessich, R. Instrumental reasoning and systems methodology: An epistemology of the applied and social sciences. Boston: D. Reidel Publishing Company, 1978.

Maurin, J., & Schenkel, J. A study of the family unit's response to hemodialysis. Journal of Psychosomatic Research, 1976, 20, 163-168.

Mead, G.H. Mind, self and society. Chicago: University of Chicago Press, 1934.

Meldrum, M.W., Wolfram, J.G., & Rubini, M.E. The impact of chronic hemodialysis upon the socio-economics of a veteran patient group. Journal of Chronic Diseases, 1968, 21, 37-52.

Merrill, J.P., Murray, J.E., Harrison, J.H., & Guild, W.R. Successful homotransplantation of the human kidney between identical twins. Journal of the American Medical Association, 1956, 160, 277-282.

Milne, J.F., Golden, J.S., & Fibus, L. Sexual dysfunction in renal failure: A survey of chronic hemodialysis patients. International Journal of Psychiatry in Medicine, 1978, 8, 335-345.

Mion, C. A review of seven years' home peritoneal dialysis. Proceedings of the European Dialysis and Transplant Association, 1981, 18, 91-108.

Mlott, S.R. Fantasy and self-esteem of renal dialysis patients and their spouses. Southern Medical Journal, 1976, 69, 1323-1325.

Mlott, S.R., & Allain, A. Personality correlates of renal dialysis patients and their spouses. Southern Medical Journal, 1974, 67, 941-944.

Mlott, S.R., & Vale, W.H. Hemodialysis: Adjustment difficulty of patient and family. Southern Medical Journal, 1982, 75, 1366-1368.

Moriwaki, S.Y. The Affect Balance Scale: A validity study with aged samples. Journal of Gerontology, 1974, 29, 73-78.

Munakata, T. Psycho-social influence on self-care of the hemodialysis patient. Social Science and Medicine, 1982, 16, 1253-1264.

Myers, A.M., & Gonda, G. Empirical validation of the Bem Sex-Role Inventory. Journal of Personality and Social Psychology, 1982, 43, 304-318.

Nolph, K.D. Continuous ambulatory peritoneal dialysis. American Journal of Nephrology, 1981, 1, 1-10.

Nolph, K.D., Boen, F.S., Farrell, P.C., & Pyle, K.W. Continuous ambulatory peritoneal dialysis in Australia, Europe and the United States: 1981. Kidney International, 1983, 23, 3-8.

Nolph, K.D., Popovich, R.P., & Moncrief, J.W. Theoretical and practical implications of continuous ambulatory peritoneal dialysis. Nephron, 1978, 21, 117-122.

Nolph, K.D., & Sorkin, M.I. Continuous ambulatory peritoneal dialysis. In B.M. Brenner & J.H. Stein (Eds.). Chronic renal failure. New York: Churchill Livingstone, Inc., 1981.

Norton, C.E. Chronic hemodialysis as a medical and social experiment. Annals of Internal Medicine, 1967, 66, 1267-1277.

Nye, F.I. Role constructs: Measurement. In F.I. Nye (Ed.). Role structure and analysis of the family. Beverly Hills: Sage Publications, 1976.

Nye, F.I., & Berardo, F.M. The family: Its structure and interaction. New York: Macmillan Company, 1973.

Nye, F.I., & Gecas, V. The role concept: Review and delineation. In F.I. Nye (Ed.). Role structure and analysis of the family. Beverly Hills: Sage Publications, 1976.

O'Leary, K.D., & Turkewitz, H. Methodological errors in marital and child treatment research. Journal of Consulting and Clinical Psychology, 1978, 46, 747-758.

Olsen, E.H. The impact of serious illness on the family system. Postgraduate Medicine, 1970, 47, 169-174.

Olson, C.L. On choosing a test statistics in multivariate analysis of variance. Psychological Bulletin, 1976, 83, 579-586.

Oreopoulos, D.G. Selection criteria and clinical results of continuous ambulatory peritoneal dialysis. In M. Legrain (Ed.). Continuous ambulatory peritoneal dialysis. Princeton, N.J.: Excerpta Medica, 1980.

Oreopoulos, D.G., Khanna, R., Williams, P., & Dombros, N. Clinical experience with continuous ambulatory peritoneal dialysis. Ulster Medical Journal, 1981, 50, 4-10.

Palmer, S.E., Canzona, L., & Wai, L. Helping families respond effectively to chronic illness: Home dialysis as a case example. Social Work in Health Care, 1982, 8, 1-14.

Papper, S. Clinical nephrology (2nd ed.). Boston: Little, Brown and Company, 1978.

Parsons T., & Bales, R.F. Family socialization and interaction processes. Glencoe, Illinois: Free Press, 1955.

Paykel, E.S., Myers, J.K., Dienelt, M.N., Klerman, G.L., Lindenthal, J.J., & Pepper, M.P. Life events and depression: A controlled study. Archives of General Psychiatry, 1969, 21, 753-760.

Pedhazur, E.J., & Tetenbaum, T.J. Bem Sex Role Inventory: A theoretical and methodological critique. Journal of Personality and Social Psychology, 1979, 37, 996-1017.

Pentecost, R.L. Family study in home dialysis. Archives of General Psychiatry, 1970, 22, 538-546.

Pentecost, R.L., Zwerenz, B., & Manuel, J.W. Intrafamily identity and home dialysis success. Nephron, 1976, 17, 88-103.

Popper, K.R. Conjectures and refutations: The growth of scientific knowledge. New York: Harper & Row, 1968.

Posen, G.A. Canadian renal failure register: 1981 report. Ottawa: Kidney Foundation of Canada, 1982.

Power, P.W. The chronically ill husband and father: His role in the family. Family Coordinator, 1979, 28, 616-621.

Powers, A.M. Renal transplantation: The patient's choice. Nursing Clinics of North America, 1981, 16, 551-564.

Procci, W.R. Psychosocial disability during maintenance hemodialysis. General Hospital Psychiatry, 1981, 3, 24-31.

Quick, E., & Jacob, T. Marital disturbance in relation to role theory and relationship theory. Journal of Abnormal Psychology, 1973, 82, 309-316.

Reichsman, F., & Levy, N.B. Problems in adaptation to maintenance hemodialysis: A four-year study of 25 patients. Archives of Internal Medicine, 1972, 130, 859-865.

Rhodes, L.M. Social climate perception and depression of patients and staff in a chronic hemodialysis unit. Journal of Nervous and Mental Disease, 1981, 169, 169-175.

Rodriguez, D.J., & Hunter, V.M. Nutritional intervention in the treatment of chronic renal failure. Nursing Clinics of North America, 1981, 16, 573-585.

Rosenbaum, A., & O'Leary, K.D. Marital violence: Characteristics of abusive couples. Journal of Consulting and Clinical Psychology, 1981, 49, 63-71.

Rosenbaum, B.J. Pathophysiology of chronic renal failure. In S.B. Chyatte (Ed.). Rehabilitation in chronic renal failure. Baltimore: Williams & Wilkens, 1979.

Rosenbaum, B.J., & Wicks, G. Medical management of chronic renal failure. In S.B. Chyatte (Ed.). Rehabilitation in chronic renal failure. Baltimore: Williams & Wilkins, 1979.

Rosenberg, M. Society and the adolescent self-image. Princeton, N.J.: Princeton University Press, 1965.

Rounsaville, B.J., Prusoff, B.A., & Weissman, M.M. The course of marital disputes in depressed women: A 48-month follow-up study. Comprehensive Psychiatry, 1980, 21, 111-118.

Rubin, J., Barnes, T., Burns, P., Ray, R., Teal, N., Hellems, E., & Bower, J. Comparison of home hemodialysis to continuous ambulatory peritoneal dialysis. Kidney International, 1983, 23, 51-56.

Rutherford, W.E., Blondin, J., Miller, J.P., Greenwalt, A.S., & Vavra, J.D. Chronic progressive renal disease: Rate of change of serum creatinine concentration. Kidney International, 1977, 11, 62-70.

Safilios-Rothschild, C. Deviance and mental illness in the Greek family. Family Process, 1968, 7, 100-117.

Sager, C.J., & Kaplan, H.S. Group process. In C.J. Sager & H.S. Kaplan (Eds.). Progress in group and family therapy. New York: Brunner/Mazel, 1972.

Samuels, S., Charra, B., Olheiser, K., & Blagg, C.R. Twelve years' experience of treatment of chronic renal failure. Transactions of the American Society for Artificial Internal Organs, 1974, 20, 62-66.

Schmidt, D.D. The family as the unit of medical care. Journal of Family Practice, 1978, 7, 303-313.

Schreiner, G.E. Past, present, and future of transplantation. Kidney International, 1983, 23, S/4-S/9.

Schwenk, T.L., & Hughes, C.C. The family as patient in family medicine: Rhetoric or reality. Social Science and Medicine, 1983, 17, 1-16.

Shaldon, S. A cynical critique of continuous ambulatory peritoneal dialysis. In M. Legrain (Ed.). Continuous ambulatory peritoneal dialysis. Princeton, N.J.: Excerpta Medica, 1980.

Shambaugh, P.W., & Kanter, S.S. Spouses under stress: Group meetings with spouses of patients on hemodialysis. American Journal of Psychiatry, 1969, 125, 928-936.

Short, M.J., & Wilson, W.P. Roles of denial in chronic hemodialysis. Archives of General Psychiatry, 1969, 20, 433-437.

Silber, E., & Tippett, J.S. Self-esteem: Clinical assessment and measurement validation. Psychological Reports, 1965, 16, 1017-1071.

Silvern, L.E., & Ryan, V.L. Self-rated adjustment and sex-typing on the Bem Sex-Role Inventory: Is masculinity the primary predictor of adjustment? Sex Roles, 1979, 5, 739-763.

Smith, E.K.M., Curtis, J.R., McDonald, S.J., & De Wardener, H.E. Haemodialysis in the home: Problems and frustrations. Lancet, 1969, I, 614-617.

Somers, A.R. Marital status, health and use of health services. In Standard medical almanac (2nd ed.). Chicago: Marquis Academic Media, 1979.

Sommer, B.G., Ferguson, R.M., Davin, T.D., Kjellstrand, C.M., Fryd, D.S., Simmons, R.L., & Najarian, J.S. Renal transplantation in patients over 50 years of age. Transplantation Proceedings, 1981, 13, 33-35.

Sorrels, A.J. Peritoneal dialysis: A rediscovery. Nursing Clinics of North America, 1981, 16, 515-529.

Speidel, H., Koch, V., Balck, F., & Kniess, J. Problems in interaction between patients undergoing long-term hemodialysis and their partners. Psychotherapy and Psychosomatics, 1979, 31, 235-242.

Spence, J.T., & Helmreich, R.L. Androgyny versus gender schema: A comment on Bem's gender schema theory. Psychological Review, 1981, 88, 365-368.

Spencer, M., & Inkeles, A. Foundations of modern sociology. Englewood Cliff, N.J.: Prentice-Hall, Inc., 1982.

Steele, T.E., Finkelstein, S.H., & Finkelstein, F.O. Hemodialysis patients and spouses. Journal of Nervous and Mental Disease, 1976, 162, 225-237.

Steidl, J.H., Finkelstein, F.O., Wexler, J.P., Feigenbaum, H., Kitsen, J., Kliger, A.S., & Quinlan, D.M. Medical condition, adherence to treatment regimens, and family functioning. Archives of General Psychiatry, 1980, 37, 1025-1027.

Stewart, S., & Johansen, R. A family systems approach to home dialysis. Psychotherapy and Psychosomatics, 1976/77, 27, 86-92.

Streltzer, J., Finkelstein, F., Feigenbaum, H., Kitsen, J., & Cohn, G.L. The spouse's role in home hemodialysis. Archives of General Psychiatry, 1976, 33, 55-58.

Taylor, M.C., & Hall, J.A. Psychological androgyny: Theories, methods, and conclusions. Psychological Bulletin, 1982, 92, 347-366.

Taylor, R.B. Family: A systems approach. American Family Physician, 1979, 20, 101-104.

Teschan, P.E., Ginn, H.E., Bourne, J.R., Ward, J.W., Hamel, B., Nunnally, J.C., Musso, M., & Vaughn, W.K. Quantitative indices of clinical uremia. Kidney International, 1979, 15, 676-697.

Tharp, R.G. Psychological patterning in marriage. Psychological Bulletin, 1963, 60, 97-117. (a)

Tharp, R.G. Dimensions of marriage roles. Marriage and Family Living, 1963, 25, 389-404. (b)

Tharp, R.G., & Otis, G.D. Toward a theory for therapeutic intervention in families. Journal of Consulting Psychology, 1966, 30, 426-434.

Thoits, P.A. Conceptual, methodological, and theoretical problems in studying social support as a buffer against life stress. Journal of Health and Social Behavior, 1982, 23, 145-159.

Thomas, E.J., & Biddle, B.J. The nature and history of role theory. In B.J. Biddle & E.J. Thomas (Eds.). Role theory: Concepts and research. New York: Wiley & Sons, Inc., 1966.

Tippett, J.S., & Silber, E. Self-image stability: The problem of validation. Psychological Reports, 1965, 17, 323-329.

Turner, R.J. Social support as a contingency in psychological well-being. Journal of Health and Social Behavior, 1981, 22, 357-367.

U.S. Bureau of the Census. Statistical abstract of the United States: 1982-3 (103rd ed.). Washington, D.C., 1982.

Vachon, M.L.S. Grief and bereavement following the death of a spouse. Canadian Psychiatric Association Journal, 1976, 21, 35-44.

Vanfossen, B.E. Sex differences in the mental health effects of spouse support and equity. Journal of Health and Social Behavior, 1981, 22, 130-143.

von Bertalanffy, L. General Systems Theory and psychiatry -- an overview. In W. Gray, F.J. Duhl & N.D. Rizzo (Eds.). General Systems Theory and psychiatry. Boston: Little, Brown & Company, 1969.

Ward, D.A. The influence of family relationships on social and psychological functioning: A follow-up study. Journal of Marriage and the Family, 1981, 43, 807-815.

Weinman, E.J., Senekjian, H.O., Knight, T.F., & Lacke, C.E. Status report on continuous ambulatory peritoneal dialysis in end-stage renal disease. Archives of Internal Medicine, 1980, 140, 1422.

Wertlieb, D., Budman, S., Demby, A., & Randall, M. The stress of marital separation: Intervention in a Health Maintenance Organization. Psychosomatic Medicine, 1982, 44, 437-448.

Wetzel, J.W. Depression and dependence upon unsustaining environments. Clinical Social Work Journal, 1978, 6, 75-89.

Winnubst, J.A., Marcelissen, F.H.G., & Kleber, R.J. Effects of social support in the stressor-strain relationship: A Dutch sample. Social Science and Medicine, 1982, 16, 475-482.

Appendix I

Introductory Letter

For my doctoral dissertation, I am investigating how kidney disease and its treatment affects both patients and their partners. I am doing this by surveying patients with different levels of kidney illness - ranging from very mild to more severe.

Not all patients and their spouses (husband or wife of the patient) react in the same way to the illness and its treatment. Although some people make very good adjustments to their situation, others seem to have more difficulty. As yet, there is little good information on why these differences in adjustment occur.

This lack of information is especially striking when it comes to the spouse. Very few studies have looked at how the illness affects the spouse. Even though the illness can potentially place a strain on both members of the couple. Indeed, the spouse is in the unique position of being stressed by the illness without actually being physically ill.

Therefore, I am equally interested in the adjustments of both marital partners. And since a couple is really a working team, I am also interested in knowing a few things about how both partners, individually, view their marital relations and what effect (if any) the illness has had on them.

The goal of this study is to learn about the types of individuals and couples who seem to find it easier to make a good adjustment to kidney disease and also to identify some of the characteristics which may make this more difficult to achieve. The kind of information this study provides hopefully will contribute to improving the quality of care received by patients and understanding the needs of their spouses.

Participation in the study would involve your being interviewed and asked to complete some questionnaires. This simply means answering some questions concerning your attitudes, feelings, and behaviors. All of the information you provide will be used solely for research purposes and your answers will at all times be kept in the strictest confidence.

Though patients and spouses will be interviewed separately; in order to get a clear understanding of how kidney disease

Appendix II
The Test Battery

Psychological and Family Factors in Kidney Disease

Purpose of the Study

Psychological and family factors are known to be important in influencing the well-being of people who have kidney disease. The purpose of the present research is to assess the importance of these factors on both patients' and their spouses' well-being. In this study, patients and their spouses will be interviewed and asked to fill out several questionnaires. Hopefully, by providing a better understanding of why some individuals and couples have more difficulty in adjusting to kidney disease than others, this study will contribute to improving the quality of care that patients will receive in the future.

Consent

The purpose of the study as described above has been explained to me and I understand that my participation will involve my being interviewed and answering several questionnaires. My participation also allows that medical information about me will be available to the researchers from my medical charts and the hospital staff.

I understand that all the information I provide will be used solely for research purposes and that my answers will at all times be kept in the strictest confidence. I also understand that I am under no obligation to participate in this study and that my decision to participate or not will have no influence on the quality of my medical care. I am free to withdraw from the study at any time.

Having understood the above conditions, I agree to participate in the study.

Date: _____

Signature: _____

Witness: _____

Spouse

Psychological and Family Factors in Kidney Disease

Purpose of the Study

Psychological and family factors are thought to be important in influencing the well-being of people who have kidney disease. The purpose of the present research is to investigate how these factors are associated with the well-being of both patients and their spouses. Hopefully, by providing a better understanding of how individuals and couples adjust to kidney disease, this study will contribute to improving the quality of care that patients will receive in the future.

Consent

The purpose of the study as described above has been explained to me and I understand that my participation will involve my being interviewed and answering several questionnaires. I understand that all the information I provide will be used solely for research purposes and that my answers will at all times be kept in the strictest confidence. I also understand that I am under no obligation to participate in this study and that my decision to participate or not will have no influence on the quality of my spouse's medical care. I am free to withdraw from the study at any time.

Having understood the above conditions, I agree to participate in the study.

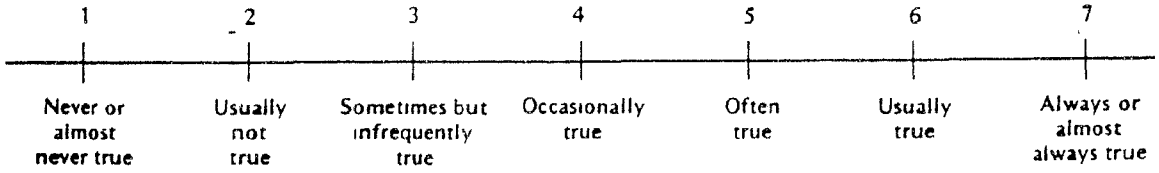
Date: _____

Signature: _____

Witness: _____

Bem Inventory

Below are a list of personality characteristics. Please indicate on a scale from 1 to 7, how true of you each of these characteristics is.



For example: sly [4] would indicate that you feel it is occasionally true that you are "sly".

Defend my own beliefs		Adaptable		Flatterable	
Affectionate		Dominant		Theatrical	
Conscientious		Tender		Self-sufficient	
Independent		Conceited		Loyal	
Sympathetic		Willing to take a stand		Happy	
Moody		Love children		Individualistic	
Assertive		Tactful		Soft-spoken	
Sensitive to needs of others		Aggressive		Unpredictable	
Reliable		Gentle		Masculine	
Strong personality		Conventional		Gullible	
Understanding		Self-reliant		Solemn	
Jealous		Yielding		Competitive	
Forceful		Helpful		Childlike	
Compassionate		Athletic		Likable	
Truthful		Cheerful		Ambitious	
Have leadership abilities		Unsystematic		Do not use harsh language	
Eager to soothe hurt feelings		Analytical		Sincere	
Secretive		Shy		Act as a leader	
Willing to take risks		Inefficient		Feminine	
Warm		Make decisions easily		Friendly	

Bradburn Scale

During the past week, did you ever feel:

	No	Yes
A. Particularly excited or interested in something?	0	1
B. So restless that you couldn't sit long in a chair?	0	1
C. Proud because someone complimented you on something you had done?	0	1
D. Very lonely or remote from other people?	0	1
E. Pleased about having accomplished something?	0	1
F. Bored?	0	1
G. On top of the world?	0	1
H. Depressed or very unhappy?	0	1
I. That things were going your way?	0	1
J. Upset because someone criticized you?	0	1

Considering your life as a whole, would you describe it as very unhappy, unhappy, an even mixture of unhappiness and happiness, happy, or very happy?

Very Unhappy		Unhappy		Mixed		Happy		Very Happy
1	2		3	4	5		6	7

MRQ

Husband Form

Of the things mentioned below, you will think some are probably essential to a happy marriage, some not desirable, and some not important at all. Please rate each statement with respect to how desirable you think it is for your marriage by circling one of the numbers to the left of the statement. Remember, what we want is your own personal opinion whether it agrees with the opinion of other people or not.

-3	-2	-1	+1	+2	+3
highly undesirable	undesirable	somewhat undesirable	somewhat desirable	desirable	highly desirable

How important for the ideal marriage is it:

1.	-3	-2	-1	+1	+2	+3	That the husband should be the social equal of the wife?
2.	-3	-2	-1	+1	+2	+3	That the wife should be the social equal of the husband?
3.	-3	-2	-1	+1	+2	+3	That the husband should be at least equal to his wife in intelligence?
4.	-3	-2	-1	+1	+2	+3	That the wife should be at least equal to her husband in intelligence?
5.	-3	-2	-1	+1	+2	+3	That the husband and wife should have similar intellectual interests, such as scientific, literary, musical, etc.?
6.	-3	-2	-1	+1	+2	+3	That the husband and wife should like the same types of amusements, such as cards, theater, dancing, etc.?
7.	-3	-2	-1	+1	+2	+3	That the husband and wife should engage in the same outdoor sports, such as golf, hiking, swimming, etc.?
8.	-3	-2	-1	+1	+2	+3	That the husband and wife should respect each other's religious, political, or ethical convictions and not strive to change them?
9.	-3	-2	-1	+1	+2	+3	That the wife should be kept fully informed of the family finances and of her husband's business?
10.	-3	-2	-1	+1	+2	+3	That the father should take an active interest in the discipline and training of the children?
11.	-3	-2	-1	+1	+2	+3	That the household affairs should be run in a neat, orderly manner?

-3	-2	-1	+1	+2	+3
highly undesirable	undesirable	somewhat undesirable	somewhat desirable	desirable	highly desirable

How important for the ideal marriage is it:

12. -3 -2 -1 +1 +2 +3 That the wife should not have had sexual intercourse with any other man before marriage?

13. -3 -2 -1 +1 +2 +3 That the husband should not have had sexual intercourse with any other woman before marriage?

14. -3 -2 -1 +1 +2 +3 That after marriage, the wife should be 100% faithful to her husband in regard to sex?

15. -3 -2 -1 +1 +2 +3 That after marriage the husband should be 100% faithful to his wife in regard to sex?

16. -3 -2 -1 +1 +2 +3 That the husband and wife should be equally fond of social gatherings?

How important is it to your marriage:

17. -3 -2 -1 +1 +2 +3 That you should "get ahead" on your job?

18. -3 -2 -1 +1 +2 +3 That your home should be clean and in order at all times?

19. -3 -2 -1 +1 +2 +3 That your wife should devote the major part of her interest and energy to her home and family?

20. -3 -2 -1 +1 +2 +3 That your home should be a place where your family and their friends can relax and enjoy themselves at all times?

21. -3 -2 -1 +1 +2 +3 That you and your wife should take part in many recreational activities together?

22. -3 -2 -1 +1 +2 +3 That you should have children in your family?

23. -3 -2 -1 +1 +2 +3 That you should have sexual intercourse with your wife every time she desires it?

24. -3 -2 -1 +1 +2 +3 That your sexual relations should be closely bound up with love and affection?

25. -3 -2 -1 +1 +2 +3 That you should find pleasure in your sexual relations with your wife?

26. -3 -2 -1 +1 +2 +3 That your children should be good and well-behaved at all times?

-3 highly undesirable	-2 undesirable	-1 somewhat undesirable	+1 somewhat desirable	+2 desirable	+3 highly desirable

How important is it to your marriage:

27.	-3	-2	-1	+1	+2	+3	That your children's ideas and feelings should be considered and talked over when family decisions are being made?
28.	-3	-2	-1	+1	+2	+3	That you, your wife and your children should take part in many recreational activities together?
29.	-3	-2	-1	+1	+2	+3	That you should have sexual intercourse with your wife every time you desire it?
30.	-3	-2	-1	+1	+2	+3	That your wife should find pleasure in her sexual relations with you?
31.	-3	-2	-1	+1	+2	+3	That your wife should be considerate of your feelings about sex?

This section asks for opinions. There are no right or wrong answers; the best answer to each question is your own personal opinion. How do you feel about each of the following statements?

-3 disagree strongly	-2 disagree	-1 disagree slightly	+1 agree slightly	+2 agree	+3 agree strongly

32.	-3	-2	-1	+1	+2	+3	Women who want to remove the word "obey" from the marriage service don't understand what it means to be a wife.
33.	-3	-2	-1	+1	+2	+3	Some equality in marriage is a good thing but by and large, the husband ought to have the main say-so in family affairs.

The Parts You and Your Wife Play: In some ways, life is like a play. You each take a turn at playing a number of different parts. At various times, you are a parent, housekeeper, cook, host, participant in community affairs, friend and companion to your wife, and lover and sexual partner to your wife. You have probably found that you are naturally better cast for some of these parts than for others. Some men play the parts of father and bread-winner best. Others may be best fitted for cook, host, and participant in community affairs. And still others may be best as friends to their wifes.

-3	-2	-1	+1	+2	+3
highly undesirable	undesirable	somewhat undesirable	somewhat desirable	desirable	highly desirable

How important is it to you that your WIFE SHOULD play each of the following parts well?

34. -3 -2 -1 +1 +2 +3 Housekeeper

35. -3 -2 -1 +1 +2 +3 Cook

36. -3 -2 -1 +1 +2 +3 Hostess

37. -3 -2 -1 +1 +2 +3 Participant in community affairs

38. -3 -2 -1 +1 +2 +3 Friend and companion to you

39. -3 -2 -1 +1 +2 +3 Lover and sexual partner to you

40. -3 -2 -1 +1 +2 +3 Mother

How important is it to you that YOU SHOULD play each of the following parts well?

41. -3 -2 -1 +1 +2 +3 Breadwinner

42. -3 -2 -1 +1 +2 +3 Handyman

43. -3 -2 -1 +1 +2 +3 Host

44. -3 -2 -1 +1 +2 +3 Participant in community affairs

45. -3 -2 -1 +1 +2 +3 Friend and companion to wife

46. -3 -2 -1 +1 +2 +3 Lover and sexual partner to wife

47. -3 -2 -1 +1 +2 +3 Father

-3	-2	-1	+1	+2	+3
husband much more	husband more	mostly equal but husband slightly more	mostly equal but wife slightly more	wife more	wife much more

In general, who do you think SHOULD have more influence in determining the way the family does things in each of the following areas?

48. -3 -2 -1 +1 +2 +3 Relationships with relatives

49. -3 -2 -1 +1 +2 +3 Choice of friends

50. -3 -2 -1 +1 +2 +3 Recreation and social activities

51. -3 -2 -1 +1 +2 +3 Earning family income

52. -3 -2 -1 +1 +2 +3 Spending family income

-3	-2	-1	+1	+2	+3
husband much more	husband more	mostly equal but husband slightly more	mostly equal but wife slightly more	wife more	wife much more

In general, who do you think SHOULD have more influence in determining the way the family does things in each of the following areas?

53. -3 -2 -1 +1 +2 +3 Running the household

54. -3 -2 -1 +1 +2 +3 Sexual relations

55. -3 -2 -1 +1 +2 +3 Size of family

56. -3 -2 -1 +1 +2 +3 Bringing up children

-3	-2	-1	+1	+2	+3
never	less than once a month	once a month	once a week	twice a week	every day

57. -3 -2 -1 +1 +2 +3 How often would you like to have informal get-togethers with other people with your wife?

58. -3 -2 -1 +1 +2 +3 How often would you like to have informal get-togethers with other people without your wife?

59. -3 -2 -1 +1 +2 +3 How often would you like for you and your wife to play games, chat or watch TV at home without the children or anyone else?

60. -3 -2 -1 +1 +2 +3 How often would you like for you and your wife to go out for social or recreational activities without the children or anyone else?

61. -3 -2 -1 +1 +2 +3 How often would you like to attend meetings or other activities of groups or organizations without your wife?

62. -3 -2 -1 +1 +2 +3 How often would you like to attend such meetings or activities with your wife?

63. -3 -2 -1 +1 +2 +3 How often would you like to get together with one or more of the children for fun or recreation at home?

64. -3 -2 -1 +1 +2 +3 How often would you like to get together with one or more of the children for fun and recreation away from home?

-3	-2	-1	+1	+2	+3
never	less than once a month	once a month	once a week	twice a week	every day

65. -3 -2 -1 +1 +2 +3 How often would you like for all members of the family to get together for some kind of recreation at home?

66. -3 -2 -1 +1 +2 +3 How often would you like for all members of the family to get together for some kind of recreation away from home?

-3	-2	-1	+1	+2	+3
none	a little	some	much	most	all

How much of the housework SHOULD usually be done by the following family members?

67. -3 -2 -1 +1 +2 +3 Wife

68. -3 -2 -1 +1 +2 +3 Husband

69. -3 -2 -1 +1 +2 +3 Children

How much of the physical maintenance of the house and yard SHOULD usually be done by the following family members?

70. -3 -2 -1 +1 +2 +3 Wife

71. -3 -2 -1 +1 +2 +3 Husband

72. -3 -2 -1 +1 +2 +3 Children

-3	-2	-1	+1	+2	+3
none	one	two	three	four	more

73. -3 -2 -1 +1 +2 +3 When my family is completed, the number of children I would prefer is:

-3	-2	-1	+1	+2	+3
not at all	only slightly	sometimes	more often than not	to a great extent	completely

74. -3 -2 -1 +1 +2 +3 How well do you feel your wife should understand your ideas and feelings?

75. -3 -2 -1 +1 +2 +3 How well do you feel that you should understand your wife's ideas and feelings?

-3	-2	-1	+1	+2	+3
definitely false	mostly false	more false than true	more true than false	mostly true	definitely true

The following questions concern your marriage AS IT IS NOW. In your present relationship with your wife, HOW TRUE is each of the following statements?

76.	-3	-2	-1	+1	+2	+3	Are you the social equal of your wife?
77.	-3	-2	-1	+1	+2	+3	Is your wife your social equal?
78.	-3	-2	-1	+1	+2	+3	Are you equal to your wife in intelligence?
79.	-3	-2	-1	+1	+2	+3	Is your wife equal to you in intelligence?
80.	-3	-2	-1	+1	+2	+3	Do you and your wife have similar intellectual interests, such as scientific, literary, musical, etc.?
81.	-3	-2	-1	+1	+2	+3	Do you and your wife like the same types of amusements, such as cards, dancing, theater, etc.?
82.	-3	-2	-1	+1	+2	+3	Do you and your wife engage in the same outdoor sports, such as golf, hiking, swimming, etc.?
83.	-3	-2	-1	+1	+2	+3	Do you and your wife respect each other's religious, political, and ethical convictions and not strive to change them?
84.	-3	-2	-1	+1	+2	+3	Do you keep your wife informed of the family finances and of your business?
85.	-3	-2	-1	+1	+2	+3	Do you take an active interest in the discipline and training of the children?
86.	-3	-2	-1	+1	+2	+3	Are the household affairs run in a neat, orderly manner?
87.	-3	-2	-1	+1	+2	+3	Has your wife been faithful to you in regard to sex?
88.	-3	-2	-1	+1	+2	+3	Have you been faithful to your wife in regard to sex?
89.	-3	-2	-1	+1	+2	+3	Are you and your wife equally fond of social gatherings?
90.	-3	-2	-1	+1	+2	+3	Do you "get ahead" on your job?
91.	-3	-2	-1	+1	+2	+3	Is your home clean and in order at all times?
92.	-3	-2	-1	+1	+2	+3	Does your wife devote the major part of her interest and energy to her home and family?

-3	-2	-1	+1	+2	+3
definitely false	mostly false	more false than true	more true than false	mostly true	definitely true

In your present relationship with your wife, HOW TRUE is each of the following statements?

93.	-3	-2	-1	+1	+2	+3	Is your home a place where your family and friends can relax and enjoy themselves at all times?
94.	-3	-2	-1	+1	+2	+3	Do you and your wife take part in recreational activities together?
95.	-3	-2	-1	+1	+2	+3	Do you have sexual intercourse with your wife every time she desires it?
96.	-3	-2	-1	+1	+2	+3	Are your sexual relations closely bound up with love and affection?
97.	-3	-2	-1	+1	+2	+3	Have you found pleasure in your sexual relations with your wife in the last three years?
98.	-3	-2	-1	+1	+2	+3	Are your children good and well-behaved at all times?
99.	-3	-2	-1	+1	+2	+3	Are your children's ideas and feelings considered and talked over when family decisions are being made?
100.	-3	-2	-1	+1	+2	+3	Do you, your wife, and your children take part in many recreational activities together?
101.	-3	-2	-1	+1	+2	+3	Do you have sexual intercourse with your wife every time you desire it?
102.	-3	-2	-1	+1	+2	+3	Has your wife found pleasure in her sexual relations with you in the last three years?
103.	-3	-2	-1	+1	+2	+3	Is your wife considerate of your feelings about sex?
104.	-3	-2	-1	+1	+2	+3	Do you have the main say-so in family affairs?

-3	-2	-1	+1	+2	+3
quite poorly	not well	not quite as well as I would like	satis-factorily	pretty well	very well

How well do you think your wife currently plays each of the following parts?

105.	-3	-2	-1	+1	+2	+3	Housekeeper
106.	-3	-2	-1	+1	+2	+3	Cook

-3	-2	-1	+1	+2	+3
quite poorly	not well	not quite as well as I would like	satis-factorily	pretty well	very well

How well do you think your wife currently plays each of the following parts?

107. -3 -2 -1 +1 +2 +3 Participant in community affairs

108. -3 -2 -1 +1 +2 +3 Hostess

109. -3 -2 -1 +1 +2 +3 Friend and companion to you

110. -3 -2 -1 +1 +2 +3 Lover and sexual partner to you

111. -3 -2 -1 +1 +2 +3 Mother

How well do you think you currently play each of the following parts?

112. -3 -2 -1 +1 +2 +3 Breadwinner

113. -3 -2 -1 +1 +2 +3 Handyman

114. -3 -2 -1 +1 +2 +3 Host

115. -3 -2 -1 +1 +2 +3 Participant in community affairs

116. -3 -2 -1 +1 +2 +3 Friend and companion to wife

117. -3 -2 -1 +1 +2 +3 Lover and sexual partner to wife

118. -3 -2 -1 +1 +2 +3 Father

-3	-2	-1	+1	+2	+3
husband much more	husband more	mostly equal but husband slightly more	mostly equal but wife slightly more	wife more	wife much more

In general, who currently has more influence in determining the way the family does things in the following areas?

119. -3 -2 -1 +1 +2 +3 Relationships with relatives

120. -3 -2 -1 +1 +2 +3 Choice of friends

121. -3 -2 -1 +1 +2 +3 Recreation and social activities

122. -3 -2 -1 +1 +2 +3 Earning family income

123. -3 -2 -1 +1 +2 +3 Spending family income

124. -3 -2 -1 +1 +2 +3 Running the household

125. -3 -2 -1 +1 +2 +3 Sexual relations

126. -3 -2 -1 +1 +2 +3 Size of family

127. -3 -2 -1 +1 +2 +3 Bringing up children

-3	-2	-1	+1	+2	+3
never	less than once a month	once a month	once a week	twice a week	every day

128.	-3	-2	-1	+1	+2	+3	How often do you have informal get-togethers with other people <u>with</u> your wife?
129.	-3	-2	-1	+1	+2	+3	How often do you have informal get-togethers <u>without</u> your wife?
130.	-3	-2	-1	+1	+2	+3	How often do you and your wife play games, chat, or watch TV at home without the children or anyone else?
131.	-3	-2	-1	+1	+2	+3	How often do you and your wife go out for social or recreational activities without the children or anyone else?
132.	-3	-2	-1	+1	+2	+3	How often do you attend meetings or other activities of groups or organizations <u>without</u> your wife?
133.	-3	-2	-1	+1	+2	+3	How often do you attend such meetings or activities <u>with</u> your wife?
134.	-3	-2	-1	+1	+2	+3	How often do you get together with one or more of the children for fun or recreation <u>at home</u>?
135.	-3	-2	-1	+1	+2	+3	How often do you get together with one or more of the children for fun or recreation <u>away from home</u>?
136.	-3	-2	-1	+1	+2	+3	How often do all members of the family get together for some kind of recreation <u>at home</u>?
137.	-3	-2	-1	+1	+2	+3	How often do all members of the family get together for some kind of recreation <u>away from home</u>?

-3	-2	-1	+1	+2	+3
none	a little	some	much	most	all

<u>At the present time, how much of the housework is usually done by the following family members?</u>

138.	-3	-2	-1	+1	+2	+3	Wife
139.	-3	-2	-1	+1	+2	+3	Husband
140.	-3	-2	-1	+1	+2	+3	Children

-3	-2	-1	+1	+2	+3
none	a little	some	much	most	all

<u>At the present time, how much of the physical maintenance of the house and yard is usually done by the following family members?</u>

141. -3 -2 -1 +1 +2 +3 Wife

142. -3 -2 -1 +1 +2 +3 Husband

143. -3 -2 -1 +1 +2 +3 Children

-3	-2	-1	+1	+2	+3
none	one	two	three	four	more

144. -3 -2 -1 +1 +2 +3 My completed family will probably include this number of children.

-3	-2	-1	+1	+2	+3
not at all	only slightly	sometimes	more often than not	to a great extent	completely

145. -3 -2 -1 +1 +2 +3 How well do you feel your wife understands your ideas and feelings?

146. -3 -2 -1 +1 +2 +3 How well do you feel you understand your wife's ideas and feelings?

MRQ Wife Form

Of the things mentioned below, you will think some are probably essential to a happy marriage, some not desirable, and some not important at all. Please rate each statement with respect to how desirable you think it is for your marriage by circling one of the numbers to the left of the statement. Remember, what we want is your own personal opinion whether it agrees with the opinion of other people or not.

-3	-2	-1	+1	+2	+3
highly undesirable	undesirable	somewhat undesirable	somewhat desirable	desirable	highly desirable

How important for the ideal marriage is it:

1.	-3	-2	-1	+1	+2	+3	That the husband should be the social equal of his wife?
2.	-3	-2	-1	+1	+2	+3	That the wife should be the social equal of her husband?
3.	-3	-2	-1	+1	+2	+3	That the husband should be at least equal to his wife in intelligence?
4.	-3	-2	-1	+1	+2	+3	That the wife should be at least equal to her husband in intelligence?
5.	-3	-2	-1	+1	+2	+3	That the husband and wife should have similar intellectual interests, such as scientific, literary, musical, etc.?
6.	-3	-2	-1	+1	+2	+3	That husband and wife should like the same types of amusements, such as cards, dancing, theater, etc.?
7.	-3	-2	-1	+1	+2	+3	That husband and wife should engage in the same outdoor sports, such as golf, hiking, swimming, etc.?
8.	-3	-2	-1	+1	+2	+3	That the husband and wife should respect the other's religious, political, or ethical convictions and not strive to change them?
9.	-3	-2	-1	+1	+2	+3	That the wife should be kept fully informed of the family finances and of her husband's business?
10.	-3	-2	-1	+1	+2	+3	That the father should take an active interest in the discipline and training of the children?
11.	-3	-2	-1	+1	+2	+3	That the household affairs should be run in a neat, orderly manner?

-3	-2	-1	+1	+2	+3
highly undesirable	undesirable	somewhat undesirable	somewhat desirable	desirable	highly desirable

How important for the ideal marriage is it:

12. -3 -2 -1 +1 +2 +3 That the wife should not have had sexual intercourse with any other man before marriage?

13. -3 -2 -1 +1 +2 +3 That the husband should not have had sexual intercourse with any other woman before marriage?

14. -3 -2 -1 +1 +2 +3 That after marriage, the wife should be 100% faithful to her husband in regard to sex?

15. -3 -2 -1 +1 +2 +3 That after marriage, the husband should be 100% faithful to his wife in regard to sex?

16. -3 -2 -1 +1 +2 +3 That the husband and wife should be equally fond of social gatherings?

How important is it to your marriage:

17. -3 -2 -1 +1 +2 +3 That your husband should "get ahead" on his job?

18. -3 -2 -1 +1 +2 +3 That your home should be clean and in order at all times?

19. -3 -2 -1 +1 +2 +3 That you should devote the major part of your interest and energy to your home and family?

20. -3 -2 -1 +1 +2 +3 That your home should be a place where your family and their friends can relax and enjoy themselves at all times?

21. -3 -2 -1 +1 +2 +3 That you and your husband should take part in many recreational activities together?

22. -3 -2 -1 +1 +2 +3 That you should have children in your family?

23. -3 -2 -1 +1 +2 +3 That you should have sexual intercourse with your husband every time he desires it?

24. -3 -2 -1 +1 +2 +3 That your sexual relations should be closely bound up with love and affection?

25. -3 -2 -1 +1 +2 +3 That you should find pleasure in your sexual relations with your husband?

-3	-2	-1	+1	+2	+3
highly undesirable	undesirable	somewhat undesirable	somewhat desirable	desirable	highly desirable

How important is it to your marriage:

26. -3 -2 -1 +1 +2 +3 That your children should be good and well behaved at all times?

27. -3 -2 -1 +1 +2 +3 That your children's ideas and feelings should be considered and talked over when family decisions are made?

28. -3 -2 -1 +1 +2 +3 That you, your husband, and your children should take part in many recreational activities together?

29. -3 -2 -1 +1 +2 +3 That you should have sexual intercourse with your husband every time you desire it?

30. -3 -2 -1 +1 +2 +3 That your husband should find pleasure in his sexual relations with you?

31. -3 -2 -1 +1 +2 +3 That your husband should be considerate of your feelings about sex?

This section asks for opinions. There are no right or wrong answers; the best answer to each question is your own personal opinion. How do you feel about each of the following statements.

-3	-2	-1	+1	+2	+3
disagree strongly	disagree	disagree slightly	agree slightly	agree	agree strongly

32. -3 -2 -1 +1 +2 +3 Women who want to remove the word "obey" from the marriage service don't understand what it means to be a wife.

33. -3 -2 -1 +1 +2 +3 Some equality in marriage is a good thing, but by and large, the husband ought to have the main say-so in family affairs.

The Parts You and Your Husband Play: In some ways, life is like a play. You each take a turn at playing a number of different parts. At various times, you are a parent, housekeeper, cook, hostess, participant in community affairs, friend and companion to your husband, and lover and sexual partner to your husband. You have probably found that you are naturally better cast for some of these parts than for others. Some women may play the parts of mother and housekeeper best. Others may be best fitted for cook, hostess. and participant in community affairs. And still others may be best as friends to their husbands.

-3	-2	-1	+1	+2	+3
highly undesirable	undesirable	somewhat undesirable	somewhat desirable	desirable	highly desirable

How important is it to you that you SHOULD play each of the following parts well?

34. -3 -2 -1 +1 +2 +3 Housekeeper

35. -3 -2 -1 +1 +2 +3 Cook

36. -3 -2 -1 +1 +2 +3 Hostess

37. -3 -2 -1 +1 +2 +3 Participant in community affairs

38. -3 -2 -1 +1 +2 +3 Friend and companion to husband

39. -3 -2 -1 +1 +2 +3 Lover and sexual partner to husband

40. -3 -2 -1 +1 +2 +3 Mother

How important is it to you that your husband SHOULD play each of the following parts well?

41. -3 -2 -1 +1 +2 +3 Breadwinner

42. -3 -2 -1 +1 +2 +3 Handyman

43. -3 -2 -1 +1 +2 +3 Host

44. -3 -2 -1 +1 +2 +3 Participant in community affairs

45. -3 -2 -1 +1 +2 +3 Friend and companion to you

46. -3 -2 -1 +1 +2 +3 Lover and sexual partner to you

47. -3 -2 -1 +1 +2 +3 Father

-3	-2	-1	+1	+2	+3
husband much more	husband more	mostly equal but husband slightly more	mostly equal but wife slightly more	wife more	wife much more

In general, who do you think SHOULD have more influence in determining the way the family does things in each of the following areas?

48. -3 -2 -1 +1 +2 +3 Relationships with relatives

49. -3 -2 -1 +1 +2 +3 Choice of friends

50. -3 -2 -1 +1 +2 +3 Recreation and social activities

51. -3 -2 -1 +1 +2 +3 Earning family income

52. -3 -2 -1 +1 +2 +3 Spending family income

-3	-2	-1	+1	+2	+3
husband much more	husband more	mostly equal but husband slightly more	mostly equal but wife slightly more	wife more	wife much more

In general, who do you think SHOULD have more influence in determining the way the family does things in each of the following areas?

53. -3 -2 -1 +1 +2 +3 Running the household

54. -3 -2 -1 +1 +2 +3 Sexual relations

55. -3 -2 -1 +1 +2 +3 Size of family

56. -3 -2 -1 +1 +2 +3 Bringing up children

-3	-2	-1	+1	+2	+3
never	less than once a month	once a month	once a week	twice a week	every day

57. -3 -2 -1 +1 +2 +3 How often would you like to have informal get-togethers with other people with your husband?

58. -3 -2 -1 +1 +2 +3 How often would you like to have informal get-togethers without your husband?

59. -3 -2 -1 +1 +2 +3 How often would you like for you and husband to play games, watch TV, or chat at home without the children or anyone else?

60. -3 -2 -1 +1 +2 +3 How often would you like for you and your husband to go out for social and recreational activities without the children or anyone else?

61. -3 -2 -1 +1 +2 +3 How often would you like to attend meetings or other activities of groups or organizations without your husband?

62. -3 -2 -1 +1 +2 +3 How often would you like to attend such meetings or activities with your husband?

63. -3 -2 -1 +1 +2 +3 How often would you like to get together with one or more of the children for fun or recreation at home?

64. -3 -2 -1 +1 +2 +3 How often would you like to get together with one or more of the children away from home?

65. -3 -2 -1 +1 +2 +3 How often would you like for all members of the family to get together for some kind of recreation at home?

66. -3 -2 -1 +1 +2 +3 How often would you like for all members of the family to get together for some kind of recreation away from home?

-3	-2	-1	+1	+2	+3
none	a little	some	much	most	all

How much of the housework SHOULD usually be done by the following family members?

67. -3 -2 -1 +1 +2 +3 Wife

68. -3 -2 -1 +1 +2 +3 Husband

69. -3 -2 -1 +1 +2 +3 Children

How much of the physical maintenance of the house and yard SHOULD usually be done by the following family members?

70. -3 -2 -1 +1 +2 +3 Wife

71. -3 -2 -1 +1 +2 +3 Husband

72. -3 -2 -1 +1 +2 +3 Children

-3	-2	-1	+1	+2	+3
none	one	two	three	four	more

73. -3 -2 -1 +1 +2 +3 When my family is completed, the number of chidren I would prefer is:

-3	-2	-1	+1	+2	+3
not at all	only slightly	sometimes	more often than not	to a great extent	completely

74. -3 -2 -1 +1 +2 +3 How well do you feel that your husband <u>should</u> understand your ideas and feelings?

75. -3 -2 -1 +1 +2 +3 How well do you feel that you <u>should</u> understand your husband's ideas and feelings?

The following questions concern what your marriage is like <u>now</u>.

In your present relationship with your husband, how true is each of the following statements?

-3	-2	-1	+1	+2	+3
definitely false	mostly false	more false than true	more true than false	mostly true	definitely true

76. -3 -2 -1 +1 +2 +3 Is your husband your social equal?

-3	-2	-1	+1	+2	+3
definitely false	mostly false	more false than true	more true than false	mostly true	definitely true

In your present relationship with your husband, how true is each of the following statenents?

77.	-3	-2	-1	+1	+2	+3	Are you the social equal of you husband?
78.	-3	-2	-1	+1	+2	+3	Is your husband equal to you in intelligence?
79.	-3	-2	-1	+1	+2	+3	Are you equal to your husband in intelligence?
80.	-3	-2	-1	+1	+2	+3	Do you and your husband have similar intellectual interests, such as scientific, literary, musical, etc.?
81.	-3	-2	-1	+1	+2	+3	Do you and your husband like the same types of amusements, such as cards, dancing, theater, etc.?
82.	-3	-2	-1	+1	+2	+3	Do you and your husband engage in the same outdoor sports, such as golf, hiking, swimming, etc.?
83.	-3	-2	-1	+1	+2	+3	Do you and your husband respect each other's religious, political, and ethical convictions and not strive to change them?
84.	-3	-2	-1	+1	+2	+3	Does your husband keep you fully informed of the family finances and his business?
85.	-3	-2	-1	+1	+2	+3	Does your husband take and active interest in the training and discipline of the children?
86.	-3	-2	-1	+1	+2	+3	Are the household affairs run in a neat, orderly manner?
87.	-3	-2	-1	+1	+2	+3	Have you been faithful to your husband in regard to sex?
88.	-3	-2	-1	+1	+2	+3	Has your husband been faithful to you in regard to sex?
89.	-3	-2	-1	+1	+2	+3	Are you and your husband equally fond of social gatherings?
90.	-3	-2	-1	+1	+2	+3	Does your husband "get ahead" on his job?
91.	-3	-2	-1	+1	+2	+3	Is your home clean and in order at all times?
92.	-3	-2	-1	+1	+2	+3	Do you devote the major part of your interest and energy to your home and family?
93.	-3	-2	-1	+1	+2	+3	Is your home a place where your family and their friends can relax and enjoy themselves at all times?

-3	-2	-1	+1	+2	+3
definitely false	mostly false	more false than true	more true than false	mostly true	definitely true

In your present relationship with your husband, how true is each of the following statements?

94.	-3	-2	-1	+1	+2	+3	Do you and your husband take part in recreational activities together?
95.	-3	-2	-1	+1	+2	+3	Do you have sexual intercourse with your husband every time he desires it?
96.	-3	-2	-1	+1	+2	+3	Are your sexual relations closely bound up with love and affection?
97.	-3	-2	-1	+1	+2	+3	Have you found pleasure in your sexual relations with your husband in the last three years?
98.	-3	-2	-1	+1	+2	+3	Are your children good and well-behaved at all times?
99.	-3	-2	-1	+1	+2	+3	Are your children's ideas and feelings considered and talked over when family decisions are made?
100.	-3	-2	-1	+1	+2	+3	Do you, your husband, and your children take part in many recreational activities together?
101.	-3	-2	-1	+1	+2	+3	Do you have sexual intercourse with your husband every time you desire it?
102.	-3	-2	-1	+1	+2	+3	Has your husband found pleasure in his sexual relations with you during the last three years?
103.	-3	-2	-1	+1	+2	+3	Is your husband considerate of your feelings about sex?
104.	-3	-2	-1	+1	+2	+3	Does your husband have the main say-so in family affairs?

-3	-2	-1	+1	+2	+3
quite poorly	not well	not quite as well as I would like	satis-factorily	pretty well	very well

How well do you think you currently play each of the following parts?

105.	-3	-2	-1	+1	+2	+3	Housekeeper
106.	-3	-2	-1	+1	+2	+3	Cook
107.	-3	-2	-1	+1	+2	+3	Hostess

-3	-2	-1	+1	+2	+3
quite poorly	not well	not quite as well as I would like	satis-factorily	pretty well	very well

How well do you think you currently play each of the following parts?

108.	-3	-2	-1	+1	+2	+3	Participant in community affairs
109.	-3	-2	-1	+1	+2	+3	Friend and companion to husband
110.	-3	-2	-1	+1	+2	+3	Lover and sexual partner to husband
111.	-3	-2	-1	+1	+2	+3	Mother

How well do you think your husband currently plays each of the following parts?

112.	-3	-2	-1	+1	+2	+3	Breadwinner
113.	-3	-2	-1	+1	+2	+3	Handyman
114.	-3	-2	-1	+1	+2	+3	Host
115.	-3	-2	-1	+1	+2	+3	Participant in community affairs
116.	-3	-2	-1	+1	+2	+3	Friend and companion to you
117.	-3	-2	-1	+1	+2	+3	Lover and sexual partner to you
118.	-3	-2	-1	+1	+2	+3	Father

-3	-2	-1	+1	+2	+3
husband much more	husband more	mostly equal but husband slightly more	mostly equal but wife slightly more	wife more	wife much more

In general, who currently has more influence in determining the way your family does things in each of the following areas?

119.	-3	-2	-1	+1	+2	+3	Relationships with relatives
120.	-3	-2	-1	+1	+2	+3	Choice of friends
121.	-3	-2	-1	+1	+2	+3	Recreation and social activities
122.	-3	-2	-1	+1	+2	+3	Earning family income
123.	-3	-2	-1	+1	+2	+3	Spending family income
124.	-3	-2	-1	+1	+2	+3	Running the household
125.	-3	-2	-1	+1	+2	+3	Sexual relations
126.	-3	-2	-1	+1	+2	+3	Size of family
127.	-3	-2	-1	+1	+2	+3	Bringing up children

-3	-2	-1	+1	+2	+3
never	less than once a month	once a month	once a week	twice a week	every day

128. -3 -2 -1 +1 +2 +3 How often do you have informal get-togethers with other people, <u>with</u> your husband?

129. -3 -2 -1 +1 +2 +3 How often do you have informal get-togethers with other people <u>without</u> your husband?

130. -3 -2 -1 +1 +2 +3 How often do you and your husband play games, chat or watch T.V. at home without the children or anyone else?

131. -3 -2 -1 +1 +2 +3 How often do you and your husband go out for social or recreational activities without the children or anyone else?

132. -3 -2 -1 +1 +2 +3 How often do you attend meetings or other activities <u>without</u> your husband?

133. -3 -2 -1 +1 +2 +3 How often do you attend such meetings or activities <u>with</u> your husband?

134. -3 -2 -1 +1 +2 +3 How often do you get together with one or more of the children for fun or recreation <u>at home</u>?

135. -3 -2 -1 +1 +2 +3 How often do you get together with one or more of the children for fun or recreation <u>away from home</u>?

136. -3 -2 -1 +1 +2 +3 How often do all members of the family get together for some kind of recreation <u>at home</u>?

137. -3 -2 -1 +1 +2 +3 How often do all members of the family get together for some kind of recreation <u>away from home</u>?

-3	-2	-1	+1	+2	+3
none	a little	some	much	most	all

<u>At the present time, how much of the housework is usually done by the following family members?</u>

138. -3 -2 -1 +1 +2 +3 Wife

139. -3 -2 -1 +1 +2 +3 Husband

140. -3 -2 -1 +1 +2 +3 Children

<u>At the present time, how much of the physical maintenance of the house and yard is done by the following family members?</u>

141. -3 -2 -1 +1 +2 +3 Wife

-3	-2	-1	+1	+2	+3
none	a little	some	much	most	all

<u>At the present time, how much of the physical maintenance of the house and yard is done by the following family members?</u>

142. -3 -2 -1 +1 +2 +3 Husband

143. -3 -2 -1 +1 +2 +3 Children

-3	-2	-1	+1	+2	+3
none	one	two	three	four	more

144. -3 -2 -1 +1 +2 +3 My completed family will probably include this number of children.

-3	-2	-1	+1	+2	+3
not at all	only slightly	sometimes	more often than not	to a great extent	completely

145. -3 -2 -1 +1 +2 +3 How well do you feel your husband understands your ideas and feelings?

146. -3 -2 -1 +1 +2 +3 How well do you feel you understand your husband's ideas and feelings?

Intrusiveness Ratings

How much does your illness and/or its treatment interfere with each of the following aspects of your life?

Please use this rating scale in answering:

Not very much 1 2 3 4 5 6 7 Very much

_____ Your health
_____ Your diet
_____ Your work
_____ Your financial situation
_____ Community & Civic activities
_____ Family & Marital relations

Specifically, how much does your illness and/or its treatment interfere with each of the following aspects of your Family & Marital relations?

_____ your sexual relations
_____ the division of responsibility and authority within the family
_____ household affairs
_____ family togetherness
_____ external relations

Overall, how much does your illness and/or its treatment interfere with your life?

Not very much 1 2 3 4 5 6 7 Very much

Overall, how much does your illness and/or its treatment interfere with your spouse's life?

Not very much 1 2 3 4 5 6 7 Very much

How much do you feel your illness and/or its treatment will interfere with your life a year from now?

Not very much 1 2 3 4 5 6 7 Very much

Spouse

Intrusiveness Ratings

How much does your spouse's illness and/or its treatment interfere with each of the following aspects of your life?

Please use this rating scale in answering:

Not very much 1 2 3 4 5 6 7 Very much

_____ Your health
_____ Your diet
_____ Your work
_____ Your financial situation
_____ Community & Civic activities
_____ Family & Marital relations

Specifically, how much does your spouse's illness and/or its treatment interfere with each of the following aspects of your Family & Marital relations?

_____ your sexual relations
_____ the division of responsibility and authority within the family
_____ household affairs
_____ family togetherness
_____ external relations

Overall, how much does your spouse's illness and/or its treatment interfere with your life?

Not very much 1 2 3 4 5 6 7 Very much

Overall, how much does your spouse's illness and/or its treatment interfere with his/her life?

Not very much 1 2 3 4 5 6 7 Very much

How much do you feel your spouse's illness and/or its treatment will interfere with your life a year from now?

Not very much 1 2 3 4 5 6 7 Very much

KDS-15a

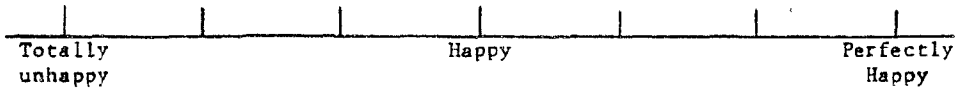
Please indicate your position on the following questions about your marriage:

In your opinion who should:	Husband	Wife	Both	Neither
Do the shopping	( )	( )	( )	( )
Care for the home	( )	( )	( )	( )
Do the cooking	( )	( )	( )	( )
Hold a job	( )	( )	( )	( )
Determine how money is spent	( )	( )	( )	( )
Look after the children	( )	( )	( )	( )
Be sexually aggressive	( )	( )	( )	( )
Get pleasure from sex	( )	( )	( )	( )
Have outside interests and activities	( )	( )	( )	( )
Participate in community affairs	( )	( )	( )	( )
Express their ideas	( )	( )	( )	( )
Express their feelings	( )	( )	( )	( )
Give most of their interest to the home and family	( )	( )	( )	( )
Be concerned with the health of family members	( )	( )	( )	( )
Do the nursing when a family member is ill	( )	( )	( )	( )

In your marriage who:	Husband	Wife	Both	Neither
Does the shopping	( )	( )	( )	( )
Cares for the home	( )	( )	( )	( )
Does the cooking	( )	( )	( )	( )
Holds a job	( )	( )	( )	( )
Determines how money is spent	( )	( )	( )	( )
Looks after the children	( )	( )	( )	( )
Is sexually aggressive	( )	( )	( )	( )
Gets pleasure from sex	( )	( )	( )	( )
Has outside interests and activities	( )	( )	( )	( )
Participates in community affairs	( )	( )	( )	( )
Expresses their ideas	( )	( )	( )	( )
Expresses their feelings	( )	( )	( )	( )
Gives most of their interest to the home and family	( )	( )	( )	( )
Is concerned with the health of family members	( )	( )	( )	( )
Does the nursing when a family member is ill	( )	( )	( )	( )

Locke-Wallace Marital Survey

1. Check the point on the scale below which best describes the degree of happiness, everything considered, of your present marriage. The middle point, "happy", represents the degree of happiness which most people get from marriage, and the scale gradually ranges from one side to those few who are very unhappy in marriage, and on the other, to those few who experience extreme joy or felicity in marriage.



State the approximate extent of agreement or disagreement between you and your mate on the following items. Please check the one most appropriate column for each item.

	Always Agree	Almost Always Agree	Occa-sionally Disagree	Fre-quently Disagree	Almost Always Disagree	Always Disagree
2. Handling family finances						
3. Matters of recreation						
4. Demonstrations of affection						
5. Friends						
6. Sex relations						
7. Conventionality (right good, or proper conduct)						
8 Philosophy of life						
9 Ways of dealing with in laws						

10. When disagreements arise, they usually result in:
Husband giving in ___ Wife giving in ___ Agreement by mutual give and take ___

11. Do you and your mate engage in outside interests together?
All of them ___ Some of them ___ Very few of them ___ None of them ___

12. In leisure time do you generally prefer: To be "on the go"? ___ To stay at home? ___
Does your mate generally prefer: To be "on the go"? ___ To stay at home? ___

13. Do you ever wish you had not married? Frequently __ Occasionally __ Rarely __ Never __

14. If you had your life to live over, do you think you would:
Marry the same person? ___ Marry a different person? ___ Not marry at all? ___

15. Do you confide in your mate? Almost never __ Rarely __ In most things __
In everything __

Rosenberg Scale

		Strongly Agree	Agree	Disagree	Strongly Disagree
A.	I feel that I'm a person of worth, at least on an equal basis with others.	1	2	3	4
B.	I feel that I have a number of good qualities.	1	2	3	4
C.	All in all, I am inclined to feel that I am a failure.	1	2	3	4
D.	I am able to do things as well as most other people.	1	2	3	4
E.	I feel I do not have much to be proud of.	1	2	3	4
F.	I take a positive attitude toward myself.	1	2	3	4
G.	On the whole, I am satisfied with myself.	1	2	3	4
H.	I wish I could have more respect for myself.	1	2	3	4
I.	I certainly feel useless at times.	1	2	3	4
J.	At times I think I am no good at all.	1	2	3	4

SCL-90-R

INSTRUCTIONS

Below is a list of problems and complaints that people sometimes have. Please read each one carefully. After you have done so, please check one of the spaces to the right that best describes HOW MUCH DISCOMFORT THAT PROBLEM HAS CAUSED YOU DURING THE PAST MONTH INCLUDING TODAY. Check only one space for each problem and do not skip any items.

HOW MUCH WERE YOU BOTHERED BY:	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
1. Headaches	—	—	—	—	—
2. Nervousness or shakiness inside	—	—	—	—	—
3. Unwanted thoughts, words, or ideas that won't leave your mind	—	—	—	—	—
4. Faintness or dizziness	—	—	—	—	—
5. Loss of sexual interest or pleasure	—	—	—	—	—
6. Feeling critical of others	—	—	—	—	—
7. The idea that someone else can control your thoughts	—	—	—	—	—
8. Feeling others are to blame for most of your troubles	—	—	—	—	—
9. Trouble remembering things	—	—	—	—	—
10. Worried about sloppiness or carelessness	—	—	—	—	—
11. Feeling easily annoyed or irritated	—	—	—	—	—
12. Pains in heart or chest	—	—	—	—	—
13. Feeling afraid in open spaces or on streets	—	—	—	—	—
14. Feeling low in energy or slowed down	—	—	—	—	—
15. Thoughts of ending your life	—	—	—	—	—
16. Hearing voices that other people do not hear	—	—	—	—	—
17. Trembling	—	—	—	—	—
18. Feeling that most people cannot be trusted	—	—	—	—	—
19. Poor appetite	—	—	—	—	—
20. Crying easily	—	—	—	—	—
21. Feeling shy or uneasy with the opposite sex	—	—	—	—	—
22. Feelings of being trapped or caught	—	—	—	—	—
23. Suddenly scared for no reason	—	—	—	—	—
24. Temper outbursts that you could not control	—	—	—	—	—
25. Feeling afraid to go out of your house alone	—	—	—	—	—
26. Blaming yourself for things	—	—	—	—	—
27. Pains in lower back	—	—	—	—	—

HOW MUCH WERE YOU BOTHERED BY	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
28. Feeling blocked in getting things done	—	—	—	—	—
29. Feeling lonely	—	—	—	—	—
30. Feeling blue	—	—	—	—	—
31 Worrying too much about things	—	—	—	—	—
32. Feeling no interest in things	—	—	—	—	—
33 Feeling fearful	—	—	—	—	—
34. Your feelings being easily hurt	—	—	—	—	—
35 Other people being aware of your private thoughts	—	—	—	—	—
36 Feeling others do not understand you or are unsympathetic	—	—	—	—	—
37. Feeling that people are unfriendly or dislike you	—	—	—	—	—
38 Having to do things very slowly to insure correctness	—	—	—	—	—
39 Heart pounding or racing	—	—	—	—	—
40. Nausea or upset stomach	—	—	—	—	—
41. Feeling inferior to others	—	—	—	—	—
42. Soreness of your muscles	—	—	—	—	—
43. Feeling that you are watched or talked about by others	—	—	—	—	—
44. Trouble falling asleep	—	—	—	—	—

HOW MUCH WERE YOU BOTHERED BY	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
45. Having to check and doublecheck what to do	—	—	—	—	—
46 Difficulty making decisions	—	—	—	—	—
47 Feeling afraid to travel on buses, subways, or trains	—	—	—	—	—
48 Trouble getting your breath	—	—	—	—	—
49. Hot or cold spells	—	—	—	—	—
50. Having to avoid certain things, places, or activities because they frighten you	—	—	—	—	—
51. Your mind going blank	—	—	—	—	—
52 Numbness or tingling in parts of your body	—	—	—	—	—
53. A lump in your throat	—	—	—	—	—
54. Feeling hopeless about the future	—	—	—	—	—
55. Trouble concentrating	—	—	—	—	—
56. Feeling weak in parts of your body	—	—	—	—	—
57 Feeling tense or keyed up	—	—	—	—	—
58. Heavy feelings in your arms or legs	—	—	—	—	—
59. Thoughts of death or dying	—	—	—	—	—
60 Overeating	—	—	—	—	—
61 Feeling uneasy when people are watching or talking about you	—	—	—	—	—

HOW MUCH WERE YOU BOTHERED BY:	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
62 Having thoughts that are not your own					
63. Having urges to beat, injure, or harm someone					
64. Awakening in the early morning					
65. Having to repeat the same actions such as touching, counting, washing					
66. Sleep that is restless or disturbed					
67 Having urges to break or smash things					
68. Having ideas or beliefs that others do not share					
69. Feeling very self-conscious with others					
70. Feeling uneasy in crowds, such as shopping or at a movie					
71. Feeling everything is an effort					
72 Spells of terror or panic					
73 Feeling uncomfortable about eating or drinking in public					
74 Getting into frequent arguments					
75. Feeling nervous when you are left alone					
76 Others not giving you proper credit for your achievements					

HOW MUCH WERE YOU BOTHERED BY	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
77. Feeling lonely even when you are with people					
78. Feeling so restless you couldn't sit still					
79 Feelings of worthlessness					
80 Feeling that something bad is going to happen to you					
81. Shouting or throwing things					
82. Feeling afraid you will faint in public					
83 Feeling that people will take advantage of you if you let them					
84. Having thoughts about sex that bother you a lot					
85. The idea that you should be punished for your sins					
86 Thoughts and images of a frightening nature					
87 The idea that something serious is wrong with your body					
88 Never feeling close to another person					
89. Feelings of guilt					
90. The idea that something is wrong with your mind					

K Scale

		True	False
1.	At periods my mind seems to work more slowly than usual.	T	F
2.	I have sometimes felt that difficulties were piling up so high that I could not overcome them.	T	F
3.	I have often met people who were supposed to be experts who were no better than I.	T	F
4.	I find it hard to set aside a task that I have undertaken, even for a short time.	T	F
5.	I like to let people know where I stand on things.	T	F
6.	At times I feel like swearing.	T	F
7.	At times I am full of energy.	T	F
8.	At times I feel like smashing things.	T	F
9.	I have never felt better in my life than I do now.	T	F
10.	It takes a lot of arguments to convince most people of the truth.	T	F
11.	I have periods in which I feel unusually cheerful without any special reason.	T	F
12.	I certainly feel useless at times.	T	F
13.	Criticism or scolding hurts me terribly.	T	F
14.	I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others.	T	F
15.	Often I can't understand why I have been so cross and grouchy.	T	F
16.	I get mad easily and then get over it soon.	T	F
17.	What others think of me does not bother me.	T	F
18.	I have very few quarrels with members of my family.	T	F
19.	I am against giving money to beggers.	T	F
20.	At times my thoughts have raced ahead faster than I could speak them.	T	F

		True	False
21.	I frequently find myself worrying about something.	T	F
22.	I worry over money and business.	T	F
23.	It makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important.	T	F
24.	People often disappoint me.	T	F
25.	I often think, "I wish I were a child again."	T	F
26.	I find it hard to make talk when I meet new people.	T	F
27.	When in agroup of people I have trouble thinking of the right things to talk about.	T	F
28.	Most people will use somewhat unfair means to gain profit or an advantage rather than lose it.	T	F
29.	It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of things.	T	F
30.	I think nearly anyone would tell a lie to keep out of trouble.	T	F

Compliance with Regimen

1. Are you taking your medications?

			a few				most	
none	1	2	3	4	5	6	7	all

2. How well are you complying with your diet?

				moderately				
not at all	1	2	3	4	5	6	7	extremely well

3. How well are you complying with your fluid restrictions?

				moderately				
not at all	1	2	3	4	5	6	7	extremely well

4. Overall, how well are you following your doctor's instructions?

not at all	1	2	3	4	5	6	7	extremely well

Spousal Ratings

Considering your spouse's life as a whole, would you describe it as

			Unhappy		Mixed		Happy	
Very Unhappy	1	2	3	4	5	6	7	Very Happy

Overall, how would you rate your spouse's self-esteem?

Very low	1	2	3	4	5	6	7	Very high

Overall, how much do you esteem/respect your spouse?

Not very much	1	2	3	4	5	6	7	Very much

At present, how would you rate your spouse's general physical health?

Very poor	1	2	3	4	5	6	7	Excellent

Spouse

Compliance with Regimen

1. Is your spouse taking his/her medications?

			a few				most	
none	1	2	3	4	5	6	7	all

2. How well is he/she complying with his/her diet?

				moderately			
not at all	1	2	3	4	5	6	7	extremely well

3. How well is he/she complying with the fluid restrictions?

				moderately			
not at all	1	2	3	4	5	6	7	extremely well

4. Overall, how well is he/she following the doctor's instructions?

				moderately			
not at all	1	2	3	4	5	6	7	extremely well

Spousal Ratings

Considering your spouse's life as a whole, would you describe it as

			Unhappy		Mixed		Happy	
Very Unhappy	1	2	3	4	5	6	7	Very Happy

Overall, how would you rate your spouse's self-esteem?

Very low	1	2	3	4	5	6	7	Very high

Overall, how much do you esteem/respect your spouse?

Not very much	1	2	3	4	5	6	7	Very much

At present, how would you rate your spouse's general physical health?

Very poor	1	2	3	4	5	6	7	Excellent

Physician

Compliance with Regimen

Patient _____

Rater _____

Date _____

1. Is (the patient) taking his/her medications?

			a few					most
none	1	2	3	4	5	6	7	all

2. How well is he/she complying with his/her diet?

				moderately				
not at all	1	2	3	4	5	6	7	extremely well

3. How well is he/she complying with the fluid restrictions?

				moderately				
not at all	1	2	3	4	5	6	7	extremely well

4. Overall, how well is he/she following his/her medical regimen?

				moderately				
not at all	1	2	3	4	5	6	7	extremely well

Overall, considering (this patient's) life as a whole, would you describe it as

			Unhappy		Mixed		Happy		
Very Unhappy	1	2	3	4	5	6	7	Very Happy

Background Information

Sex: M or F Birth date _____ Age _____

Education _____ Country of birth _____

Religion _____ Are you currently practicing? Yes__ No__

At present, are you working? Yes __ No __

If not, when did you stop? _____ Why? _____

Are you working Full time ____ or Part time ____

Number of hours per week _____

Occupation _____ Annual salary _____

Date you and your spouse were married _____

Any previous marriages? Yes __ No __

Date(s) terminated _____ _____ Length _____ _____

Please list your children's ages and place an * by those children who are still living at home (for example, 10*, 16*, 24):

_____

Are you planning on having any (more) children? Yes __ No __

Do any of your children have any medical problems? If so, who (by age) and what type(s) of problem(s):

_____

With how many people other than your spouse and children do you live with? _____ Who? _____

How many close friends do you have (people you feel at ease with, can talk to about private matters, and can call on for help)?

None 1 or 2 3 to 5 6 to 9 10 or more

How many relatives do you have that you feel close to?

None 1 or 2 3 to 5 6 to 9 10 or more

How many of these friends or relatives do you see at least once a month?

None 1 or 2 3 to 5 6 to 9 10 or more

Do you belong to any of these kinds of groups?

a social or recreational group Yes No

a labor union, commercial group, professional organization Yes No

a group concerned with children Yes No church group Yes No

a group concerned with community betterment, charity or service Yes No

Any other groups? Describe _____

Medical Background

Hospital you are treated at _____

Date of first visit to a nephrologist _____

Date of first creatinine level ≥ 4 _____

List any other medical problems you have: _____

_____

Family history of renal disease Yes __ No __

Family history of any chronic illness(es) Yes __ No __

Type(s): _____

General Health

Here is a general health scale from 1 to 7, where one is "very poor health" and seven is "excellent health". At present, how would you rate your general physical health? (please circle)

Very poor 1 2 3 4 5 6 7 Excellent

dialysis

Medical Background

Hospital you are treated at _____

Date of first visit to a nephrologist _____

Onset of kidney failure: sudden __ insidious __

Date of first creatinine level ≥ 4 _____

Date of first dialysis _____

Have you ever had a kidney transplant? Yes __ No __

List any other medical problems you have: _____

_____

Family history of renal disease Yes __ No __

Family history of any other chronic illness(es) Yes __ No __

Type(s): _____

Dialysis

Mode: CAPD / hemodialysis: staff-hospital self-hospital self-home

Hours per week _____ Days per week _____

Who is your primary helper spouse __ none __ other _____

General Health

Here is a general health scale from 1 to 7, where one is "very poor health" and seven is "excellent health". At present, how would you rate your general physical health? (please circle)

Very poor 1 2 3 4 5 6 7 Excellent

transplant

Medical Background

Hospital you are treated at _____

Date of first visit to a nephrologist _____

Onset of kidney failure: sudden __ insidious __

Date of first creatinine level ≥ 4 _____

Date of first dialysis _____

Date of transplantation _____

Have you had any previous kidney transplants Yes __ No __

List any other medical problems you have: _____

_____

Family history of renal disease Yes __ No __

Family history of any other chronic illness(es) Yes __ No __

Type(s): _____

General Health

Here is a general health scale from 1 to 7, where one is "very poor health" and seven is "excellent health". At present, how would you rate your general physical health? (please circle)

Very poor 1 2 3 4 5 6 7 Excellent

Spouse

Medical Background

Family history of renal disease Yes __ No __

Family history of any other chronic illness(es) Yes __ No __

Type(s): _____

Do you have any chronic illness(es) Yes __ No __

Type(s): _____

Any other medical problems: _____

_____

General Health

Here is a general health scale from 1 to 7, where one is "very poor health" and seven is "excellent health". At present, how would you rate your general physical health? (please circle)

Very poor 1 2 3 4 5 6 7 Excellent

ORGAN DYSFUNCTION SCALE

Patient_____ Date_____

Rater_____

HEART FAILURE

0 = not meeting criteria 1, 2, or 3

1 = Definite cardiomegaly on X-ray; cardiomegaly unspecified (equivocal, possible, probable or not specified; or interstitial pulmonary edema on X-ray.

2 = Airspace or unspecified edema on X-ray; > 2+ peripheral edema, with serum albumin ≥ 2.5 gms.

3 = Emergency admission for pulmonary edema; a) paroxysmal nocturnal dyspnoea at least as often as once per week, or b) shortness of breath on minimal exertion (walking to bathroom on same floor, or talking): either a or b with criteria to meet 2, and S.O.B. not also attributed to respiratory problems.

ISCHEMIC HEART DISEASE

0 = not meeting 1, 2, or 3

1 = Definite or probable ischemic changes on cardiogram, or history or evidence of old myocardial infarction.

2 = Angina Pectoris brought on by moderate* or severe* exertion, or brought on by mild* exertion less often than once per day (accept clinical diagnosis of angina if not disputed in chart).

2a = Satisfies criteria for 2 but not for 1.

2b = Satisfies criteria for 2 and for 1.

3 = Angina Pectoris brought on by mild exertion at least as often as once per day.

3a = Satisfies criteria for 3 but not for 1.

3b = Satisfies criteria for 3 and for 1.

PERIPHERAL ISCHEMIA

0 = not meeting 1, 2, or 3.

1 = At least one foot with absent pulses not disputed in chart.

2 = Intermittent claudication (accept clinical diagnosis if not disputed).

2a = Satisfies criteria for 2 but not for 1 (on the same side).

2b = Satisfies criteria for 2 and for 1 (on the same side).

3 = Gangrene, feet ulcers due to ischemia, ischemic pain at rest, or amputation due to ischemia.

RESPIRATORY SYSTEM

0 = not meeting 1, 2, or 3

1a = Chest X-ray showing chronic obstructive lung disease*.

1b = History of chronic bronchitis.

2 = Shortness of breath on moderate* to severe* exertion not attributed to other causes.

2a = Satisfies criteria for 2 but not for 1a.

2b = Satisfies criteria for 2 and for 1a.

3 = Shortness of breath on mild* exertion, or chronically short of breath at rest not attributed to other causes.

3a = Satisfies criteria for 3 but not for 1a.

3b = Satisfies criteria for 3 and for 1a.

BONE DISEASE

0 = not meeting 1, 2, or 3

1 = Radiologic evidence of bone disease but no fractures or pain.

2 = Radiologic evidence of bone disease, with at least one fracture attributed to bone disease or pain due to bone disease.

3 = Radiologic evidence of fractures at $\geq$2 different "sites" (3 ribs would not count, for instance) or severe chronic pain due to bone disease.

ANEMIA

0 = not meeting 1 or 2

1 = Hematocrit < 25 on more than one occasion

2 = Hematocrit < 20 on more than one occasion

LIVER

0 = not meeting 1, 2, or 3

1 = Patient diagnosed as having chronic liver disease or cirrhosis.

2 = As for 1 with prothrombin time ≥ 15 sec's (if not on coumadin), albumin < 3.0, or bilirubin ≥ 2 mg%.

3 = As for 1 with bilirubin ≥ 10, ascites, or evidence of hepatic coma or precoma.

G.I.

0 = not meeting 1 or 2

1 = Chronic** diarrhea, anorexia, or vomiting, but not severe

2 = Severe (≥ 10 bowel movements per day) chronic diarrhea, or chronic anorexia or vomiting leading to ≥ 10 lbs. weight loss.

PTH

0 = not meeting 1

1 = PTH level ≥ 300 on at least one occasion and parathyroidectomy not subsequently performed.

SKIN

0 = not meeting 1 or 2

1 = Itching but not said to be severe more than once or severe more than once without excoriation.

2 = Itching said to be severe more than once with excoriation.

PERIPHERAL NERVOUS SYSTEM

0 = No evidence of neuropathy

1 = "Restless legs", mild-moderate burning, tingling, or pain in extremities attributed to neuropathy.

2 = Decreased sensation, severe burning or tingling, or decreased strength in one or more limbs due to neuropathy.

3 = Paralysis of one or more limbs due to neuropathy.

VISION

0 = Not meeting 1, 2, or 3

1 = Minor decrease in visual acuity

2 = Major decrease in visual acuity but the patient still sees well enough to be able to carry on an independant existence if no other factors prevented it.

3 = Blindness sufficient to necessitate help with activities of normal daily living.***

HEARING

0 = Not meeting 1 or 2

1 = Decrease in hearing but patient still able to understand a conversation if speaker raises his/her voice somewhat.

2 = Patient unable to hear at all or only when speaker shouts.

JOINTS

0 = Not meeting 1, 2, or 3

1 = Minor arthritis sufficient to cause discomfort but no real limitation in activities.

2 = Arthritis severe enough to limit activities but not to the point of making the patient dependant on outside help in normal activities of daily living.***

3 = Arthritis severe enough to severely limit activities to the point that the patient would need help with normal activities of daily living.***

MUSCLE STRENGTH

0 = Not meeting 1, 2, or 3

1 = Mild decrease in muscle strength insufficient to cause difficulties with normal activities of daily living.***

2 = Decrease in muscle strength sufficient to cause difficulties with normal activities of daily living but patient would not require outside assistance to function.

3 = Decrease in muscle strength sufficiently bad to necessitate outside help in order to carry out normal activities of daily living.***

OTHER

If there are any other physical abnormalities, diseases or syndromes that you feel would be likely of themselves to limit the patient's activities or to cause significant discomfort, please describe these abnormalities and your assessment of how much and in what ways they affect the patient.

_____

_____

_____

_____

*EXERTION: Walking 1 block on flat ground is mild exertion. Any hill, any further, any faster is moderate or severe exertion.

**CHRONIC: Called chronic in chart or known to have lasted >1 month.

***The relevant activities of daily living to consider are: Bathing, dressing, going to the toilet, transferring, and feeding. Transferring in this context refers to the patient's ability to move in and out of bed and in and our of a chair.

N.B. If a patient fits two possible categories for any of the individual systems score the most severe. Also be sure not to use the same symptom (e.g., shortness of breath) to classify a patient for two separate variables. If necessary choose one variable on an arbitrary basis and ignore the symptom already used when scoring the second.

When assessing the affect on an organ dysfunction on activities of daily living, as you are asked to do for vision, hearing, joints, and muscle strength, make a judgement based on what the effect of the organ dysfunction would be in an otherwise healthy well-adjusted person. Thus, the fact that a patient has arthritis and is unable

to get out of bed or function without assistance does not merit a score of 3 for "joints" unless you feel that the arthritis would produce the same disability in an otherwise healthy person.

At present, how would you rate this patient's general physical health?

Very poor 1 2 3 4 5 6 7 Excellent

Appendix III

Illness/Treatment Intrusiveness Statistics: Patients

	M (SD)	M (SD)	M (SD)
Individual Areas			
	Health	Diet	Work
Group			
Nephrology Clinic	1.83 (1.15)	2.11 (1.71)	1.67 (1.28)
Pre-dialysis	4.06 (2.11)	4.65 (2.45)	4.18 (2.19)
Home-dialysis	4.84 (1.89)	3.53 (1.90)	4.74 (2.10)
Unit-dialysis	4.28 (1.71)	4.17 (1.95)	3.72 (2.27)
Post-transplant	2.88 (1.90)	2.82 (2.30)	2.88 (2.23)
	Financial	Community	
Group			
Nephrology Clinic	1.28 (0.96)	1.28 (0.96)	
Pre-dialysis	2.71 (1.76)	3.00 (1.94)	
Home-dialysis	2.79 (2.07)	3.89 (2.16)	
Unit-dialysis	3.06 (2.41)	2.33 (2.00)	
Post-transplant	2.71 (1.99)	2.12 (1.65)	
Marital Areas			
	Sex	External	Household
Group			
Nephrology Clinic	1.72 (1.56)	1.39 (0.92)	1.67 (0.38)
Pre-dialysis	3.00 (2.26)	2.82 (1.74)	2.82 (1.91)
Home-dialysis	4.63 (1.98)	3.31 (1.63)	3.53 (2.04)
Unit-dialysis	3.72 (2.32)	2.50 (1.79)	2.61 (1.82)
Post-transplant	2.76 (2.31)	1.88 (1.17)	1.82 (1.55)
	Div. of Resp.	Family Tog.	
Group			
Nephrology Clinic	1.22 (0.43)	1.22 (0.94)	
Pre-dialysis	2.71 (1.86)	2.24 (1.60)	
Home-dialysis	3.21 (1.96)	2.42 (1.71)	
Unit-dialysis	2.33 (1.61)	2.28 (1.71)	
Post-transplant	1.88 (1.58)	1.65 (1.32)	

Appendix IV

Two Factor (Group by Sex) ANOVAs,
Illness/Treatment Intrusiveness: Patients

	Group F (4,88)	Sex F (1,88)	Interaction F (4,88)
Individual Areas			
Health	8.04***	1.60	0.34
Diet	4.07**	0.33	0.59
Work	6.14***	0.83	0.96
Finances	2.51*	5.87*	1.13
Community Activities	5.34**	0.01	0.65
Marital Areas			
Sexual Relations	4.72**	2.20	0.23
External Relations	4.59**	1.96	0.61
Household Affairs	5.36**	0.74	0.09
Division of Responsibility	4.12**	1.07	0.26
Family Togetherness	2.01	0.65	0.70

* $p < .05$

** $p < .01$

*** $p < .001$

Appendix V

Illness/Treatment Intrusiveness Statistics: Spouses

	M (SD)	M (SD)	M (SD)
Individual Areas			
	Health	Diet	Work
Group			
Nephrology Clinic	1.88 (1.54)	1.71 (1.36)	1.71 (1.21)
Pre-dialysis	2.06 (1.34)	1.94 (1.34)	2.52 (1.97)
Home-dialysis	3.32 (1.83)	2.26 (1.69)	3.36 (2.03)
Unit-dialysis	2.35 (1.77)	2.29 (1.86)	2.59 (1.62)
Post-transplant	1.59 (1.18)	1.47 (0.87)	1.65 (1.32)
	Financial	Community	
Group			
Nephrology Clinic	1.53 (1.07)	1.41 (0.71)	
Pre-dialysis	2.88 (2.29)	2.41 (2.24)	
Home-dialysis	3.37 (2.24)	3.05 (2.07)	
Unit-dialysis	3.71 (2.17)	2.76 (2.05)	
Post-transplant	1.71 (1.16)	2.59 (2.00)	
Marital Areas			
	Sex	External	Household
Group			
Nephrology Clinic	2.41 (1.91)	1.41 (1.00)	1.65 (1.11)
Pre-dialysis	3.41 (2.79)	2.35 (2.15)	2.35 (1.87)
Home-dialysis	4.53 (2.09)	3.47 (2.04)	3.16 (1.83)
Unit-dialysis	4.59 (2.50)	2.47 (1.70)	3.06 (1.98)
Post-transplant	3.06 (2.46)	2.00 (1.66)	2.12 (1.90)
	Div. of Resp.	Family Tog.	
Group			
Nephrology Clinic	1.65 (1.22)	1.18 (0.39)	
Pre-dialysis	2.71 (2.39)	1.88 (1.58)	
Home-dialysis	3.37 (2.03)	2.47 (2.01)	
Unit-dialysis	3.12 (2.06)	2.00 (1.41)	
Post-transplant	1.88 (1.45)	1.53 (1.01)	

Appendix VI

Two Factor (Group by Sex) ANOVAs,
Illness/Treatment Intrusiveness: Spouses

	Group F (4,86)	Sex F (1,86)	Interaction F (4,86)
Individual Areas			
Health	3.30*	0.01	1.22
Diet	1.02	0.17	1.15
Work	3.19*	0.01	0.87
Finances	4.57**	0.95	0.72
Community Activities	2.06	7.58**	0.96
Marital Areas			
Sexual Relations	2.66*	0.09	0.18
External Relations	3.28*	1.52	0.78
Household Affairs	2.28	0.02	1.08
Division of Responsibility	2.94*	2.00	2.05
Family Togetherness	2.07	0.05	0.37

* $p < .05$

** $p < .01$

Appendix VII.

Repeated Measures (Status-position) Univariate Fs: Illness/Treatment Intrusiveness

	F (1,76)
Individual Areas	
Health	33.37*
Diet	34.26*
Work	17.20*
Finances	0.68
Community Activities	0.15
Marital Areas	
Sexual Relations	3.12
Division of Responsibility	1.83
Household Affairs	0.19
Family Togetherness	0.22
External Relations	0.02

* $p < .001$

Appendix VIII

Repeated Measures (Status-position) Univariate Fs: Marital Relations

	F (1,72)
Marital Relations	
MRQ Solidarity	1.51
MRQ Internal Instrumentality	0.05
MRQ External Relations	0.05
MRQ Division of Responsibility	1.02
MRQ Sexual Relations	0.07
KDS-15a	1.35
Locke-Wallace MAT	1.24
Respect for Partner	0.58

Appendix IX

Repeated Measures (Status-position) Univariate Fs: Psychological Well-being

	F (1,77)
Psychological Well-being	
Positive Affect Scale	0.23
Negative Affect Scale	0.48
Overall Happiness	0.01
Rosenberg Scale	0.59
Overall Happiness, Partner-rated	5.87*
Self-esteem, Partner-rated	1.53
SCL-90-R Somatization	3.85
" Depression	0.08
" Phobic Anxiety	0.32
" Obsessive-compulsive	0.38
" Anxiety	0.20
" Paranoid Ideation	2.60
" Interpersonal Sensitivity	0.02
" Hostility	0.39
" Psychoticism	0.01
" PSDI	0.26

* $p < .05$

Appendix X

Marital Relations & Psychological Well-being Statistics: Nephrology Clinic Group

	Patients		Spouses	
	M	(SD)	M	(SD)
Marital Relations				
MRQ Solidarity	0.93	(0.34)	1.20	(0.45)
" Internal Instrumentality	0.89	(0.38)	0.84	(0.36)
" External Relations	1.02	(0.40)	1.20	(0.41)
" Division of Responsibility	0.90	(0.40)	0.95	(0.42)
" Sexual Relations	0.91	(0.52)	0.86	(0.47)
MRQ Total	0.94	(0.29)	1.06	(0.28)
KDS-15a	0.20	(0.15)	0.24	(0.18)
Locke-Wallace MAT	115.5	(22.8)	110.1	(23.5)
Respect for Partner	6.06	(0.94)	6.28	(0.83)
Psychological Well-being				
Positive Affect Scale	3.06	(1.31)	3.00	(1.24)
Negative Affect Scale	0.56	(0.78)	1.17	(1.43)
Affect Balance Scale	7.50	(1.58)	6.83	(1.69)
Rosenberg Scale	8.83	(1.38)	8.89	(1.08)
Overall Happiness, Self-rated	5.33	(1.28)	5.22	(1.17)
Overall Happiness, Partner-rated	5.22	(1.17)	5.56	(1.04)
Self-esteem, Partner-rated	5.67	(1.50)	5.61	(1.29)
Dr.'s Rating of Happiness	5.83	(0.86)	-	
SCL-90-R Somatization	0.52	(0.51)	0.54	(0.64)
" Depression	0.53	(0.64)	0.63	(0.52)
" Phobic Anxiety	0.15	(0.23)	0.28	(0.41)
" Obsessive-compulsive	0.53	(0.60)	0.58	(0.46)
" Anxiety	0.41	(0.56)	0.43	(0.51)
" Paranoid Ideation	0.52	(0.75)	0.64	(0.58)
" Interpersonal Sensitivity	0.48	(0.53)	0.62	(0.49)
" Hostility	0.45	(0.58)	0.54	(0.73)
" Psychoticism	0.32	(0.55)	0.36	(0.40)
" GSI	0.45	(0.50)	0.53	(0.41)

Appendix XI

Marital Relations & Psychological Well-being Statistics: Pre-dialysis Group

	Patients		Spouses	
	M	(SD)	M	(SD)
Marital Relations				
MRQ Solidarity	0.98	(0.38)	0.85	(0.53)
" Internal Instrumentality	1.03	(0.65)	0.93	(0.52)
" External Relations	1.00	(0.38)	1.00	(0.40)
" Division of Responsibility	0.81	(0.44)	0.90	(0.46)
" Sexual Relations	0.85	(0.54)	0.70	(0.57)
MRQ Total	0.93	(0.29)	0.89	(0.35)
KDS-15a	0.18	(0.14)	0.20	(0.18)
Locke-Wallace MAT	121.7	(18.3)	127.7	(15.8)
Respect for Partner	6.53	(0.72)	6.71	(0.59)
Psychological Well-being				
Positive Affect Scale	3.00	(1.50)	2.94	(1.20)
Negative Affect Scale	1.29	(1.31)	0.82	(1.07)
Affect Balance Scale	6.71	(2.31)	7.12	(1.69)
Rosenberg Scale	8.47	(2.07)	9.00	(2.12)
Overall Happiness, Self-rated	5.00	(1.41)	5.76	(1.15)
Overall Happiness, Partner-rated	5.29	(1.61)	5.47	(1.42)
Self-esteem, Partner-rated	5.35	(1.66)	5.41	(1.18)
Dr.'s Rating of Happiness	5.24	(1.30)	-	
SCL-90-R Somatization	0.64	(0.55)	0.43	(0.34)
" Depression	0.88	(0.75)	0.57	(0.39)
" Phobic Anxiety	0.34	(0.45)	0.08	(0.18)
" Obsessive-compulsive	0.75	(0.61)	0.38	(0.31)
" Anxiety	0.52	(0.52)	0.27	(0.25)
" Paranoid Ideation	0.43	(0.57)	0.44	(0.53)
" Interpersonal Sensitivity	0.73	(0.82)	0.46	(0.31)
" Hostility	0.47	(0.28)	0.35	(0.28)
" Psychoticism	0.36	(0.44)	0.16	(0.18)
" GSI	0.61	(0.51)	0.38	(0.22)

Appendix XII

Marital Relations & Psychological Well-being Statistics: Home-dialysis Group

	Patients		Spouses	
	M	(SD)	M	(SD)
Marital Relations				
MRQ Solidarity	0.95	(0.52)	1.10	(0.67)
" Internal Instrumentality	1.05	(0.59)	1.06	(0.66)
" External Relations	1.05	(0.56)	1.12	(0.54)
" Division of Responsibility	0.85	(0.49)	0.88	(0.49)
" Sexual Relations	0.91	(0.81)	0.84	(0.90)
MRQ Total	1.00	(0.49)	1.04	(0.60)
KDS-15a	0.23	(0.18)	0.27	(0.19)
Locke-Wallace MAT	121.1	(22.3)	113.8	(20.9)
Respect for Partner	6.58	(0.51)	6.47	(0.70)
Psychological Well-being				
Positive Affect Scale	2.53	(1.26)	2.42	(1.54)
Negative Affect Scale	1.16	(1.46)	1.42	(1.31)
Affect Balance Scale	6.37	(2.19)	6.00	(2.21)
Rosenberg Scale	8.63	(1.71)	8.79	(1.62)
Overall Happiness, Self-rated	4.58	(0.90)	4.47	(1.61)
Overall Happiness, Partner-rated	4.74	(1.66)	5.42	(0.84)
Self-esteem, Partner-rated	5.05	(1.54)	5.74	(0.93)
Dr.'s Rating of Happiness	4.89	(1.25)	-	
SCL-90-R Somatization	1.02	(0.58)	0.66	(0.59)
" Depression	0.95	(0.68)	0.91	(0.84)
" Phobic Anxiety	0.18	(0.26)	0.25	(0.45)
" Obsessive-compulsive	0.83	(0.82)	0.82	(0.68)
" Anxiety	0.54	(0.44)	0.65	(0.81)
" Paranoid Ideation	0.27	(0.44)	0.44	(0.60)
" Interpersonal Sensitivity	0.58	(0.53)	0.59	(0.46)
" Hostility	0.57	(0.61)	0.51	(0.70)
" Psychoticism	0.36	(0.36)	0.36	(0.41)
" GSI	0.66	(0.43)	0.63	(0.55)

Appendix XIII

Marital Relations & Psychological Well-being Statistics: Unit-dialysis Group

	Patients		Spouses	
	M	(SD)	M	(SD)
Marital Relations				
MRQ Solidarity	1.20	(0.76)	1.17	(0.68)
" Internal Instrumentality	0.99	(0.48)	1.04	(0.58)
" External Relations	1.25	(0.61)	0.91	(0.63)
" Division of Responsibility	0.90	(0.58)	1.01	(0.47)
" Sexual Relations	1.40	(1.11)	1.63	(1.27)
MRQ Total	1.16	(0.54)	1.14	(0.57)
KDS-15a	0.21	(0.19)	0.28	(0.20)
Locke-Wallace MAT	116.1	(27.6)	108.1	(30.5)
Respect for Partner	6.72	(0.57)	6.11	(0.96)
Psychological Well-being				
Positive Affect Scale	3.28	(1.64)	3.28	(1.36)
Negative Affect Scale	1.11	(1.28)	1.06	(1.16)
Affect Balance Scale	7.17	(1.86)	7.22	(2.05)
Rosenberg Scale	8.39	(2.36)	9.00	(1.23)
Overall Happiness, Self-rated	5.22	(1.26)	4.67	(1.33)
Overall Happiness, Partner-rated	4.78	(1.70)	5.67	(1.19)
Self-esteem, Partner-rated	5.50	(1.10)	6.22	(1.22)
Dr.'s Rating of Happiness	5.50	(0.92)		
SCL-90-R Somatization	0.70	(0.55)	0.57	(0.57)
" Depression	0.73	(0.77)	0.70	(0.63)
" Phobic Anxiety	0.16	(0.27)	0.17	(0.33)
" Obsessive-compulsive	0.67	(0.37)	0.58	(0.54)
" Anxiety	0.40	(0.40)	0.35	(0.41)
" Paranoid Ideation	0.49	(0.41)	0.69	(0.63)
" Interpersonal Sensitivity	0.53	(0.53)	0.47	(0.39)
" Hostility	0.49	(0.53)	0.50	(0.60)
" Psychoticism	0.31	(0.43)	0.25	(0.34)
" GSI	0.54	(0.39)	0.51	(0.39)

Appendix XIV

Marital Relations & Psychological Well-being Statistics: Post-transplant Group

	Patients		Spouses	
	M	(SD)	M	(SD)
Marital Relations				
MRQ Solidarity	0.94	(0.31)	1.04	(0.47)
" Internal Instrumentality	0.74	(0.34)	0.79	(0.39)
" External Relations	0.86	(0.44)	0.85	(0.49)
" Division of Responsibility	0.92	(0.32)	1.01	(0.37)
" Sexual Relations	1.06	(0.75)	1.19	(0.95)
MRQ Total	0.92	(0.27)	0.98	(0.34)
KDS-15a	0.23	(0.19)	0.25	(0.17)
Locke-Wallace MAT	115.5	(19.0)	114.7	(23.0)
Respect for Partner	6.47	(0.62)	6.47	(0.62)
Psychological Well-being				
Positive Affect Scale	3.35	(1.17)	3.06	(1.09)
Negative Affect Scale	1.12	(1.05)	1.24	(1.79)
Affect Balance Scale	7.24	(1.56)	6.82	(2.33)
Rosenberg Scale	9.29	(1.11)	8.82	(1.78)
Overall Happiness, Self-rated	5.47	(1.01)	5.35	(1.00)
Overall Happiness, Partner-rated	5.65	(0.93)	5.53	(0.72)
Self-esteem, Partner-rated	5.82	(1.13)	5.59	(1.33)
Dr.'s Rating of Happiness	5.12	(1.05)	-	
SCL-90-R Somatization	0.45	(0.45)	0.39	(0.50)
" Depression	0.59	(0.39)	0.78	(0.75)
" Phobic Anxiety	0.08	(0.15)	0.29	(0.67)
" Obsessive-compulsive	0.52	(0.31)	0.69	(0.69)
" Anxiety	0.38	(0.36)	0.72	(0.80)
" Paranoid Ideation	0.39	(0.39)	0.50	(0.56)
" Interpersonal Sensitivity	0.54	(0.32)	0.68	(0.67)
" Hostility	0.31	(0.23)	0.65	(0.80)
" Psychoticism	0.28	(0.40)	0.48	(0.62)
" GSI	0.44	(0.28)	0.59	(0.58)

Appendix XV

Composition of the Demographic Factor

Demographic Variables

Sex, Age, Religion, Practicing Religion, Work Status, Income, Years Married, Marital History, Family Life Cycle, Years of Education, Number of Children at Home

Patients

GSI
- Work Status[a]

Depression (DEP)
- Work Status[a]
- Religion[a]
- Family Life Cycle[a]

ABS
- Practicing Religion
- Work Status[a]
- Sex
- Age

Spouses

GSI
- Sex
- Religion[a]
- Years Married
- Years Education

Depression (DEP)
- Sex
- Religion[a]
- Age
- Years Married
- Years Education

ABS
- Religion[a]
- Family Life Cycle[a]
- Practicing Religion
- Years Married
- Years Education

Couples

GSI
- Age
- Religion[a]
- Income
- Years Married
- Years Education
- Family Life Cycle[a]

DEP
- Age
- Religion[a]
- Income
- Family Life Cycle[a]

ABS
- Income
- Family Life Cycle[a]

[a] dummy coded