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## A Pilot Investigation on Psychological Variables in Pre- and Post-renal First Attempt Transplant Patients

Renal patients, first attempt (13 male and 10 female): 9 pre- (mean age 45.1, Sd = 3.2) and 14 post-transplant (mean age 50.5, Sd = 3.3) responded to an 11 item attitude questionnaire, the State-Trait Anxiety Inventory (Spielberger et al., 1983), the Multidimensional Health Locus of Control Inventory (Wallston & Wallston, 1981) and a 11 item Multiple Choice Knowledge of Renal Transplantation Questionnaire (MCQ). Acting as control, 23 Social Sciences students (mean age 32, Sd = 3.6) were asked to complete the MCQ.

Patients were significantly more anxious at the post compared to the pre-transplantation stage. Patients with a higher belief that one's health is determined by chance factors showed lower levels of anxiety. Male patients showed stronger agreement with statements: "Others will consider me as a different person" and "I will see myself as a different person after transplantation". Patients scored higher than students on the MCQ. Implications are discussed.

### Key words:

renal transplantation, anxiety

### *Pilotstudie zu den psychologischen Variablen bei Patienten vor und nach erstmaliger Nierentransplantation*

*Patienten mit erster Nierentransplantation (13 Männer und 10 Frauen), davon 9 Pat. vor Tx (mittleres Alter 45,1, Sd = 3,2) und 14 nach Tx (mittleres Alter 50,5, Sd = 3,3) beantworteten einen Fragebogen mit 11 Fragen zu ihrer Einstellung, den State-Trait Anxiety-Fragebogen (Spielberger et al., 1983), den Multidimensional Health Locus of Control-Fragebogen (Wallston & Wallston, 1981) sowie einen 11 Fragen umfassenden Multiple Choice Knowledge of Renal Transplantation-Fragenbogen (MCQ). Als Kontrollen wurden 23 Studenten der Sozialwissenschaften (mittleres Alter 32, Sd = 3,5) gebeten, den MCQ auszufüllen.*

*Es zeigte sich eine signifikant stärkere Angst/Besorgnis bei den Patienten nach im Vergleich zu denen vor Transplantation. Patienten, die mehr daran glaubten, dass die Gesundheit von Zufallsfaktoren bestimmt würde, wiesen hier niedrigere Werte auf. Für die männlichen Patienten ergab sich eine größere Zustimmung zu Aussagen wie „Andere Personen werden mich als einen anderen Menschen betrachten“ und „Ich werde mich selbst nach der Transplantation als einen anderen Menschen sehen“. Patienten erzielten beim MCQ höhere Werte als Studenten. Die Ergebnisse und Folgerungen werden diskutiert.*

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### Schlüsselwörter:

Nierentransplantation, Angst

## Introduction

Whilst there has been extensive research on psychological factors associated with peoples' tendency to donate their organs (see e.g. Baluch & Randhawa, 1997; Radecki & Jaccard, 1997, Baluch, Randhawa, Holmes & Duffy, 1998, Campbell & De-Man, 2000), there has been less research on psychological factors associated with undergoing organ transplantation (Beidel 1987). In particular, little has been reported on psychological factors in renal transplantation (see Abram & Buchanan, 1977, for an earlier review). Understanding psychological factors associated with undergoing a major surgical treatment has been shown to be associated with patient survival and post-transplant adjustment (Beard, 1971, Beidel, 1987, Ai, Dunkle, Peterson, Saunders, Daniel & Bolling, 1998). For example, Chapman and Cox (1977) report that kidney recipient patients with a higher degree of trait anxiety also show a greater degree of perceived pain. Moreover, a number of significant relationships between health locus of control and psychological variables for renal patients and recipients have been reported. For example, Christensen et al. (1991) have reported that less anxiety and depression for 96 haemodialysis patients is associated with greater belief that one's health is controlled by one's own actions (see also Bremer, 1995; Christensen, Wiebe, Benotsch & Lawton, 1996).

In addition to the psychological factors listed above, there have also been attempts to examine the extent to which patients' level of knowledge about their surgical process has implications for post surgical adjustment (Clum Scott & Burnside, 1979, Lamarche, Taddeo & Pepler, 1998). However, very little evidence has been reported for level of knowledge of organ transplantation patients, and in particular for renal patients (Katz et al., 1998). Finally, what attitudes patients may have regarding various aspects of organ transplantation, for example, whether or not patients may see themselves as a different person post- compared to pre-transplantation has received little, if any, attention and is worthy of systematic investigation (Baluch & Randhawa, 1997). Finally, the little reported research on psychological variables asso-

ciated with renal patients has incorporated a cohort of patients undergoing their first or more than one attempt. It would be interesting to see if psychological variables in renal transplantation vary as a function of the number of attempts patients have undergone.

The main aim of the present pilot investigation is, therefore, to examine the relationships and possible psychological attitude and anxiety differences in first attempt pre- and post transplant patients. An additional objective is whether renal patients are more knowledgeable about various aspects of renal transplantation than a sample of non-medical university students. Furthermore, to examine the degree of relationship between level of factual knowledge a person may have about renal transplantation and its relationship with personality measures, and attitudes towards renal transplantation.

## Method

### Participants

Twenty three patients responded to the questionnaires. Of these 13 were male and 10 were female. Nine were at the pre-transplantation stage, mean age 45.1, Sd = 3.2, mean time waiting for transplantation 3 years, Sd = 1.6 and 14 were post-transplantation, mean age 50.5, Sd = 3.3 with mean post transplantation 15 months. Fourteen stated their religion as Christian and 9 as belonging to other faiths. Only two patients responded to having a signed organ donor card. All pre- and post-transplant patients approached have had, or were undergoing their first transplant attempt. In addition to the patients, 23 Social Sciences undergraduate and postgraduate students (mean age 32, Sd = 3.6) 9 male and 14 female responded only to the MCQ knowledge questionnaire.

### Procedure

All pre- and post-renal transplant patients were randomly approached in the outpatient wards and dialysis unit by the transplant surgical Senior House Officers (first and fourth authors). The aims of the project were explained to the patients and they were given an in-

formation sheet which comprehensively outlined the objectives and steps involved in how to participate. Patients who chose to participate signed a formal consent form after reading the information sheet.

### Materials

1. A general demographic information sheet to include information about the patients' age, ethnicity, religion, and whether or not they have a signed organ donor card.
2. The Attitude Questionnaire - An 11 item attitude statement with Likert scale responses based on a range of responses from Strongly agree, Agree, Disagree and Strongly disagree (see table 1 for a full list of items). The items from the attitudes questionnaire were adopted from previous reviews of literature on organ donation and in particular adopted from Radecki and Jaccard (1997). The higher the score on each item the more disagreement the patient had with that statement.
3. State-Trait Anxiety Spielberger et al (1983) - An 40 item questionnaire, with 20 items relating to state anxiety which gives a measure of how anxious the individual is at the time of testing and a 20 items trait anxiety in which there is a measure of the individual's general trait anxiety. The responses are on a scale from 1 to 4, with 1 representing a "not at all" response to an item and 4 a response of "very much so". The higher an individual's score the more anxious (State or Trait) is the individual. For reliability and validity measures see Spielberger et al. (1983).
4. Multidimensional Health Locus of Control (MHLC), Wallston & Wallston (1981) - An 18 item questionnaire in which the items relate to the following sub-scales: Chance factors (for example whether bad luck is responsible for one's health). Powerful others (for example whether doctors play a role in determining one's health). Internal factors (for example, whether one's own actions are responsible for one's health). MHLC is responded to on a 1 to 7 Likert scale with 1 = strong agreement

and 7 = strong disagreement with a statement. Thus if one scores higher on a subscale such as chance, he/she has less belief that one's health is determined by chance factors. For reliability and validity measures see Wallston and Wallston (1981).

5. MCQ on Knowledge of Organ and Renal Transplantation - An 10 item Multiple Choice Questionnaire (MCQ) based mainly on assessing individual's level of renal/organ transplantation with four options, one of which is the correct answer.

There is also a fifth "don't know" option to avoid participants guessing a correct answer. Transplantation programme began in the UK in a) early 1950s; b) early 1960s; c) early 1970s; d) early 1980s; e) don't know

A score of 1 is given for a correct answer. The higher the score the more knowledgeable a person is (a copy of the MCQ is available from the second author).

## Results

Mean ratings to each statement of the attitudes questionnaire and the scores for State-Trait anxiety, Multidimensional Health Locus of Control (MHLC) and knowledge questionnaire and corresponding Standard Deviations (Sds) for renal patients (and the data from students) at pre- and post-transplantation are shown in table 1.

As can be seen in the above table there seems to be little difference on the personality and attitude measures between

Tab. 1: Mean ratings to each statement of the attitude questionnaire (on the basis of 1 to 4 Likert scale 1 = strongly agree to 4 strongly disagree), and the scores for State-Trait anxiety, Health Locus of Control and MCQ Knowledge questionnaire and corresponding Standard Deviations (in brackets) for 23 renal patients and for the 23 university students who responded to MCQ knowledge questionnaire only.

Measures used in the present investigation	Mean (Sd) Total n = 23	Pre-transplant Mean (Sd) n = 9	Post-transplant Mean (Sd) n = 14
1. I would rather have a kidney from a live donor than a cadaveric donor	2.6 (0.92)	2.2 (0.97)	3 (0.78)
2. I would rather have a kidney from a live-related donor than a live-unrelated donor	2.4 (0.94)	2.5 (1.1)	2.4 (0.85)
3. The ethnic origin of the renal donor must not be considered as an issue	2.2 (1)	2.1 (1.00)	2.2 (1.00)
4. I support the idea that one of my close family members becomes a renal donor	2.2 (0.68)	2.4 (0.88)	2.1 (0.53)
5. Being on the waiting list is in itself a stressful event	2 (0.73)	1.8 (0.78)	2.2 (0.70)
6. The donor's religion must be considered as an issue in organ transplantation.	3.3 (0.76)	3.1 (0.93)	3.4 (0.65)
7. Younger recipients should be given priority for renal transplantation	2.2 (0.85)	1.8 (0.93)	2.4 (0.76)
8. I have strong trust in the medical profession regarding success of renal transplantation	1.7 (0.68)	2 (0.87)	1.5 (0.51)
9. I believe that God's will plays the ultimate role in success of any transplantation	2.00 (1.00)	1.7 (0.67)	2.2 (1.20)
10. I think that others will consider me as a different person if I undergo renal transplantation	2.8 (0.65)	2.8 (0.60)	2.7 (0.70)
11. I will see myself as a different person if I undergo organ transplantation	2.4 (0.94)	2.2 (0.97)	2.6 (0.93)
Spielberger's State anxiety	43.6 (10.2)	37.1 (7.54)	47.9 (9.6)
Spielberger's Trait anxiety	44.9 (8.04)	44.3 (9.5)	45.2 (7.3)
Multidimensional Health Locus of Control - Internal	3.6 (1.1)	3.2 (1.3)	3.9 (0.98)
Multidimensional Health Locus of Control - Powerful others	3.7 (1.2)	3.9 (1.4)	3.6 (1.2)
Multidimensional Health Locus of Control - Chance	4.1 (1.1)	4.1 (1.4)	4.2 (0.89)
MCQ- Knowledge (ten items, a score of 1 for each correct response). Patient data	3.5 (1.5)	3.2 (1.2)	3.7 (1.6)
MCQ- Knowledge (ten items, a score of 1 for each correct response). Student data	1.5 (0.70)		

those patients that are in the pre-transplantation stage compared to post-transplantation. The only significant difference was the State anxiety with patients at the post-operation stage being significantly more anxious than pre-operation ( $U = -2.2, p < 0.02$ ).

The Spearman's correlations between psychological measures and MCQ together with Age showed the following significant correlations: Age with Knowledge  $r = 0.47, p < 0.01$ , an expected significant correlation between State and Trait  $r = 0.58, p < 0.01$ . and an unexpected significant negative correlation between State and Chance MHLC,  $r = -0.42, p < 0.05$  and between Trait and Chance MHLC,  $r = -0.39, p < 0.05$ . This implies that patients scoring higher on chance as a factor responsible in one's health are less anxious patients. A separate analysis of data for male and female patients showed a significant difference on both items 10 and 11 in the above table with men more strongly favourable of the view that "I will see myself as" and "others will consider me as a different person after transplantation", Mann-Whitney  $U = 2.3, p < 0.018$ , for item 10 and  $U = 1.93, p < 0.05$  for item 11.

A further Analysis of Covariance (ANCOVA), controlling for age and gender between knowledge scores and scores obtained from university students showed a significantly superior level of knowledge for patients compared to students with  $F(1, 42) = 3.8, p < 0.05$ .

## Discussion

The results showed that, insofar as the data from a relatively small sample of patients is concerned, there is little difference between first attempt pre- and post-transplantation patients on the psychological variables employed in the present study. The only significant difference was post-transplant patients being significantly more anxious than pre-transplant patients. This is in line with a high level of anxiety that has been reported for patients undergoing various major surgical processes (e.g. Manyande & Salmon, 1992, Vingerhoets, 1998). In the present study, however, there was evidence of a significant increase for post-transplantation patients. Pommer et al. (1985) reported a higher level of fear concerning surgical

outcome and less willingness to agree preoperatively to a second transplantation in case of failure of the first graft for renal patients. Perhaps in the present study patients' high level of post transplantation anxiety is associated with feelings of possible rejection and failure. It would be of interest to monitor the anxiety level of post-renal patients and see whether there is a change in anxiety level as function of time passage post-transplantation and the number of attempts one has undergone.

Another observation was a significant correlation between both anxiety measures (state and trait) and patients' responses to Chance sub-scale of MHLC. Those patients with lower state and trait anxiety were found to show greater belief that one's health is determined by chance variables than those with higher state and trait anxiety. Bremer (1995) reported that renal patients MHLC does correlate with their psychological adjustments but is not related to treatment modality. Christensen et al (1991) reported that renal patients who believe that one's health is controllable by their own actions and by powerful others show less anxiety and depression. The finding that patients in the present study show less anxiety if they believe that chance variables have a greater role to play in their health is, therefore, of interest and to some extent contradicts previous research. However, it might be possible that individuals' response to MHLC also varies depending on number of attempts and experiences of renal failures. Christensen et al's (1991) study was a mixture of patients who had no experience of renal failure and those who had experienced renal failure. In the present study all patients were first attempt for renal transplantation. Further research with larger samples and with greater controls on whether the patients had experience of failure may verify these claims.

Another significant aspect of the present study, was the significant differences between men and women in the degree to which they would believe they will be, or others will perceive them as, a different person after transplantation. The fact that patients' body image may be different after major surgery has been the subject of past research (e.g. Fauerbach et al, 2002). However, no research has been directed on renal patients' possible change of "image" pre-and post-transplantation.

Whilst it is acknowledged that the present sample is relatively small and perhaps a repeated measures design would have been more informative (i.e. the same patients at pre and post transplantation), the present pilot data may open interesting avenues for further investigation.

Finally, the level of knowledge amongst first attempt renal patients was found to be significantly higher compared to a population of undergraduate and post-graduate university students. It has been noted that the amount of information patients possess regarding their surgery has implications for post-surgical adjustment (Clum Scott & Burnside 1979, Lamarche, Taddeo & Pepler 1998). In relation to renal patients Katz et al (1998) administered a 30 item "Kidney Disease Questionnaire" to 56 dialysis patients (mean age 60.5 yrs). The results showed no difference between those who knew more about the disease than those who knew less regarding dietary compliance or their emotional well-being. In the present study there was also no significant relationship between level of patients' knowledge and psychological measures. However, what is interesting is the amount of knowledge patients may have about their diseases even at their first attempt compared to undergraduate and post-graduate non-medical university students.

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184 Seiten, ISBN 3-89967-012-4, Preis: 15,- Euro

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