SELECTION CRITERIA AND PSYCHOLOGICAL ADAPTATIONS TO THE ONGOING DIALYSIS AND RENAL TRANSPLANT PROGRAMME

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THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF CAPE TOWN

1974.

ACKNOWLEDGEMENTS.

My sincerest appreciation is extended to my supervisor, Dr. H.I.J. van der Spuy (Senior Lecturer in Psychology, University of Cape Town) for his continual advice and encouragement.

Warm words of thanks are also extended to Dr. E. Nash (Consultant Psychiatrist, Department of Psychiatry, Groote Schuur Hospital and Consultant Psychiatrist to the Renal Department, Groote Schuur Hospital) for her invaluable assistance.

To the staff of the Renal Department, Groote Schuur Hospital particularly the many friendly Consultants, Registrars, Social Workers, Nursing and Secretarial Staff, I have had the priviledge of meeting over the years, I should like to extend a sincere thank you.

Special words of appreciation are extended to Dr. G. Thatcher (Consultant Physician, Renal Department, Groote Schuur Hospital) for his unreserved co-operation and interest, and to Sr. Bradley, Miss Hammersma and Mrs. Godden for their help.

I should like to thank Mrs. T. Sumption for her excellent typing, Mr. A. Basson for his technical skills and Mr. L. Gilbert for his statistical help.

I should like to express my deepest gratitude to my subjects who co-operated in answering questions and filling in questionnaires under the most trying of circumstances.

To two special people, Mrs. Ethel Zabow and Mr. Mike Kessel who gave me encouragement and support at a time when I most needed it, I express my deep appreciation.

Finally I should like to thank my devoted parents, Joseph and Dora Rabinowitz, who have sacrificed so much in providing me with my education. Without their untiring efforts my success could never have been achieved.

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To my wife Barbara.

For her unselfish devotion and encouragement.

With Love

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ABSTRACT.

The aims of the study were:- (1) to investigate the criteria of selection for an ongoing dialysis and transplant programme; and (2) to study psychological changes made by patients at various phases of the programme. A total sample of forty-five patients being treated at the Renal Department of Groote Schuur Hospital, Cape Town, were psychologically assessed. In studying the selection process, intellectual factors, social class, educational measures and personality factors were contrasted between a sample of patients accepted and rejected for the programme. In the investigation of the psychological changes occuring within the programme, total and directional hostility, intelligence, anxiety, dependency and self-control measures were contrasted between a predialysis, short-term dialysis, long-term dialysis and transplant sample. Results revealed:- (1) that the accepted sample had significantly higher verbal intelligence, educational and social class scores than the rejected group; (2) no significant differences in general hostility, anxiety, dependency and self-control measures between the patients at the various ongoing phases. However the long-term dialysis sample showed significantly more extra-punitiveness than the transplant sample while the transplant sample showed a significantly higher level of intellectual functioning than the predialysis and long-term dialysis groups. These results show that (1) selection is possibly based on superficial characteristics, with which the selection team can identify; (2) projection of hostility is a possible important defence mechanism used in coping with the rigorous demands of the programme; (3) due to the possible absence of toxic substances after transplantation, the transplant sample showed a higher level of intellectual functioning. Other possible explanations for the findings were provided.

SUMMARY.

INTRODUCTION:

The limited availability of dialysis and transplantation facilities in most industrialized countries have raised many crucial ethico - moral problems - particularly related to the selection process. In the selection procedure the selection team is given the unenviable task of deciding who is to be accepted and rejected for the programme - more fundementally, who is to live and who is to die. Problems involved in the selection procedure concern :- (i) the lack of rigid selection criteria; (ii) the composition of the selection team; (iii) the risk of bias through the use of internal criteria by the selection team; (iv) patient resistance for acceptance onto the programme.

On dialysis itself the patients face three broad areas of stress :- (i) Physically they face the stress of physiological changes and physical discomfort while they are also forced to adhere to a strict diet which include restrictions of fluid intake; (ii) Psychologically they face the stress of increased dependency on the dialyzer and the renal team (see Abram 1969) and the subsequent difficulty in coping with their anxiety and aggression; (iii) Socially and personally they face increased financial and emotional dependency on their family, frustration of their instinctual drives and social limitations due to their illness.

Researchers have differed in their assumptions about what valid predictors of favourable adaptation to the demands of the dialysis and transplant programme involve. Although earlier studies (Sand et al 1966: Menzies 1968) emphasize the importance of average/above average intellectual factors in favourable dialysis adjustment, recent investigations (for example Winokur, Czaczkes and Kaplan De Nour 1973) have not upheld this viewpoint.

It is now felt that while a certain minimal intellectual level of functioning is necessary to cope with the demands of the programme, intelligence measures per se is a poor predictor of favourable dialysis adjustment.

The area of personality factors in favourable dialysis adjustment is a generally confusing one with few common conclusions reached by the various researchers. However, researchers generally agree that favourable features of adjustment are :- free and open admission of anxiety and hostility and an adequate range of dependency adaptation while negative factors include overdependency, gross hostility and frequent psychosomatic complaints. Insofar as psychiatric and social factors are concerned patients with known psychiatric disturbances are not regarded as suitable candidates for the programme (see Abram 1969). Social factors, particularly emotional support and the availability of adequate socio-economic resources have also been noted as important features in favourable dialysis adjustment and selection (see Sand, Livingston and Wright 1966; Abram 1969).

The methods used by patients to cope with the rigorous demands of the programme have been well documented in the literature. Researchers agree that the primary adaptive feature is the utilization of the defence mechanism of denial (see Wright et al 1966; De Nour, Shaltiel and Czaczkes 1968; Short, Wilson and Durham 1969; Gentry and Davis 1972). Other defence mechanisms involved in adaptation include : displacement, isolation of affect, projection, reaction formation (see Kaplan De Nour, Shaltiel and Czaczkes 1968).

Aims and Hypotheses of the Present Study.

The aims of the study were :- (1) to study the criteria of selection for the renal programme (long-term dialysis or transplantation); (2) to investigate personality characteristics and psychological adjustments made by patients through the various ongoing stages of the programme from the time of selection through to the stage of post - transplantation.

The seven hypotheses of the present study were :-

(1) Those patients with whom the selecting team can more readily identify are more likely to be accepted for the programme than those patients with whom the selecting team can less readily identify.

(2) Those patients accepted for the programme will be more stable, adjusted, emotionally mature individuals than those patients rejected for the programme.

(3) Those patients on short-term dialysis will be more emotionally adjusted than the same sample of patients in the predialysis phase.

(4) Those patients on long-term haemodialysis will be more emotionally adjusted than the patients in the predialysis stage.

(5) There will be no significant difference in emotional adjustment between the patients on long-term dialysis and the patients on short-term dialysis.

(6) The transplant sample will be more emotionally adjusted than the predialysis, short-term dialysis and long-term dialysis samples.

(7) (i) There will be no significant difference in the level of intellectual functioning between the transplant sample and the sample on long-term dialysis.

(7) (ii) The transplant sample will function at a significantly higher intellectual level than the patients in the predialysis stage.

METHOD.

Forty-five patients at various stages within the ongoing dialysis and transplant programme at Groote Schuur Hospital, Cape Town were administered a battery of psychological tests. The subjects were assessed at four stages within the ongoing renal programme :-

Phase I in which a comparison was made between 17 patients accepted for the programme and 11 patients rejected for the programme on the following psychological tests:- Wechsler Bellevue Adult I.Q. Scale (verbal sub-tests). Standard Progressive Matrices (Raven 1938); Rorschach Inkblot Test. Social class and educational measures were also contrasted between the groups.

Phase II in which changes in personality measures were assessed between 10 patients in the predialysis phase and the same sample of patients after short-term dialysis experience (defined as patients on dialysis for a period of 14 weeks with a range of 6 - 25 weeks). The following measures were used :- (i) Hostility - total and directional as measured the HDHQ (Caine and Foulds 1967) and the Dom, Agg scales of the Adjective Check-list (Gough and Heilbrun 1965); (ii) Anxiety as measured by the I P A T Anxiety Scale (1957); (iii) Dependency as measured by the Nur, Suc and Aba scales of the Adjective Check-list; (iv) Self-control - A.C.L.

Phase III in which 8 long-term dialysis patients (defined as patients on haemodialysis for a mean of 32 months with a range of 16 - 50 months) were compared with the sample of short-term and predialysis patients. The measures described in Phase II were also utilized in Phase III. Furthermore the long-term dialysis sample was compared with the predialysis sample on the Wechsler Bellevue Adult I.Q. Scale (verbal) and the Standard Progressive Matrices Test.

Phase IV in which the transplant sample comprising of 9 patients was compared on all psychological measures described in Phase II with the predialysis, short-term dialysis and long-term dialysis samples. The I - E Scale (Rotter 1966) was an additional measure of dependency contrasting the transplant with the long-term dialysis groups. Intellectual level of functioning was contrasted between the groups by making use of the 16 PF (Factor B) sten scores for the transplant sample, and the Standard Progressive Matrices raw scores converted to sten scores for the predialysis and long-term dialysis samples.

RESULTS.

Results of Phase I revealed significant differences between the accepted and rejected groups on the following measures :- (1) Verbal intelligence as measured by the W A I S (verbal sub-tests) where the accepted sample had a significantly higher verbal IQ than the rejected group ($t = 2.51$, $p < .02$). Individual W A I S sub-tests revealed significant differences on measures of General Information ($t = 2.81$, $p < .01$); General Comprehension ($t = 2.49$, $p < .01$); Arithmetic Reasoning ($t = 2.11$, $p < .05$); and similarities ($t = 2.56$, $p < .02$). No significant difference was found between the means of the accepted and rejected groups on the Digit Span sub-test. (2) Social Class and educational levels, with both these variables being significantly higher in the accepted group than the rejected group ($t = -2.3$, $p < .05$; $t = 2.9$, $p < .01$). Hypothesis 1 was thus confirmed. However no significant differences were found between the groups on the Standard Progressive Matrices Test measuring general intelligence. (Spearman and Jones 1950) nor on the Rorshach Inkblot Test tapping certain personality dimensions. This did not confirm hypothesis 2.

Results of Phase II showed no significant changes on all measures between the predialysis and short-term dialysis periods while results of Phase III of the present study showed no significant differences between the long-term dialysis sample and the sample of patients in the predialysis and short-term dialysis periods. Thus while hypothesis 3 and 4 were not confirmed, hypothesis 5 was confirmed.

The following results were found for Phase IV of the present study :- (1) The long-term dialysis sample showed a significantly higher extra-punitive score on the HDHQ than the transplant sample ($F = 3.18$, $p < .06$). Furthermore there was also a notable (although non-significant) increase on the extra-punitive measure, from the predialysis stage through to the short-term and long-term dialysis stages. (2) Measures of intellectual levels of functioning, showed a significant difference between the transplant sample (measured by the sten score of the 16 PF - Factor B) and the predialysis

and long-term dialysis samples (measured by Standard Progressive Matrices scores being converted to sten scores) with the transplant sample showing a significantly higher intellectual level of functioning than the other two groups. ($F = 9.45$, $p < .001$; $F = 6.38$, $p < .01$). In short, hypothesis 6 was not confirmed (except on the directional hostility measure between the transplant and the long-term dialysis groups) while hypothesis 7 (i) was not confirmed and hypothesis 7 (ii) was confirmed.

DISCUSSION AND CONCLUSIONS.

A striking feature to emerge from the results of the present study concerns the method of selection for the programme. The fact that the accepted sample showed (1) a significantly higher W A I S (verbal) score, (ii) and significantly higher social class and educational scores than the rejected sample does suggest that selection for the programme is based on rather superficial characteristics, features with which the selecting team can more readily identify. Future follow-up research at other centres are crucial in order to investigate whether this finding is limited only to the unit under investigation, or whether this is a general finding. The fact that there was no significant difference on intellectual measures (W A I S and Standard Progressive Matrices) between the long-term dialysis and predialysis samples can be explained in terms of a cancelling-out effect, due to the presence of uremia in the predialysis phase and due to dialysis dementia in the long-term dialysis stage (Mahurkar et al 1973). However, one should be cautious in coming to any definite conclusion with regard to the insignificant results found between the groups because (i) of the small sample size and (ii) the groups may not have been necessarily comparable with one another.

The fact that the transplant sample showed a higher level of intellectual functioning than the predialysis and long-term dialysis samples can be explained as follows :- (1) with transplantation uremia and dialysis dementia may have been absent which may have accounted for their higher level of intellectual functioning; (2) the transplant patients will to live, that is, the effects of motivation and drive on performance (Wechsler in Cancro ed. 1971). However it should be made clear that these assumptions are speculative, for the higher levels of intellectual functioning in the transplant sample may have been an artifact of the higher mean educational level of this group, or of a previous selection process.

Another interesting feature to emerge from the results concerns the fact that the long-term dialysis sample showed a significantly higher extra-punitive score than the transplant sample. This assumes particular relevance when it is noted that there was a definite (although not statistically significant) increase in the mean extra-punitive score in the pre-dialysis, short-term dialysis and long-term dialysis samples. These results may be explained in terms of the acting out of hostility as stress within the programme increases. It may also be important for the day-to-day management and handling of the patient.

The non-significant results found on the measures of general and directional hostility, anxiety, dependency and self-control between the subjects in the predialysis and short-term dialysis phases goes against the finding of Abram (1969) who noted psychological changes between these periods. Speculative explanations for the fact that there were no significant differences on these measures (except on the directional hostility measure) between the predialysis, short-term dialysis, long-term dialysis and transplant groups are :-

(i) the patients may have been denying their illness and put up a "healthy" front in order to minimize (and deny) their illness; (ii) they may have put up psychological defences even before the predialysis stage and may thus have made minor psychological adjustments once placed on the programme.

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CHAPTER I.

INTRODUCTION.

DIALYSIS AND RENAL TRANSPLANTATION - ETHICAL AND MORAL DILEMMAS.

While the enormous technological achievements in our modern world have helped alleviate much undue suffering, have aided in making our lives much more comfortable and pleasurable and have helped to satisfy our insatiable curiosity, scientific achievement particularly in the medical field has brought us face to face with certain crucial moral and ethical questions related to fundemental phenomenological and existential problems of living. The question of dialysis and transplantation raises these very questions.

Besides the numerous medical problems involved in the dialysis programme, (e.g. peripheral neuropathy, the management of uremic anemia, hypertension and its management by diet, fluids and drugs) ethico-moral questions are raised from the very time of selection through to management on haemodialysis and during post-operative care. The cardinal point underlying all the ethico-moral questions to follow concerns the fact that in most countries there are not sufficient facilities to accept all terminal renal patients onto the long-term dialysis and transplant programmes. Thus the selection team is given the unenviable task of deciding who is to live and who is to die, since those who are not selected, die. With no clear-cut, recognised psychiatric or psychological criteria for selection, the decision is a difficult one and must inevitably involve many of their own intrapsychic, subjective impressions.

Another important question concerns the basic aims and goals of chronic dialysis and transplantation. Is it aimed at merely prolonging life for life's sake or is the aim allowing the patient to reach as far as possible his pre-illness level of functioning ?

Schreiner and Maher (1965) ask "Is the goal of chronic dialysis the prolongation of life or total rehabilitation ? Is it (rehabilitation) simply his ability to leave the hospital to function as a part of his family, to work part-time, to work full-time, to enjoy leisure ?"

Various problems come to mind when looking at the selection procedure. They include :-

(1) The composition of the selecting team. Who should it comprise of and should all its members be given equal say in the decision making ?

(2) The Method of Selection. Is there any way in which a team can validly assess (and predict) a patient's adaptation to the demands of the programme at the predialysis uremic stage ? Investigations have shown the various psychiatric and emotional problems often encountered at this stage, and thus with the continual emotional adjustments which the patient has to make during the various phases, is it possible to predict future adjustment at the predialysis stage ? After all it is possible that personality correlates of good adjustment may fluctuate in the same patient from one phase in the dialysis continuum to another. In short the problem of uremia and its management may reduce the validity of personality assessment.

(3) The Risk of bias. Notwithstanding the good intentions of the renal team to use careful empirical selection procedures, is it not possible that in the pooling of information and assessments, the team invariably gives preference to the patients whom they understand and thus with whom they closely identify ? Do they not in fact choose patients who are most similar to themselves, educationally, socio-economically, culturally and in personality ?

(4) Patient resistance. Some individuals for religious (and cultural) reasons refuse to accept transplantation. How far should members of the team go to persuade the individual to accept treatment ?

(5) The Place of criteria in a fluid situation. Schreiner and Maher (1965) ask two pertinent questions in connection with the criteria of selection. "Can criteria (for selection) change ? What happens if a patient no longer fulfills the original criteria ?"

After acceptance for the programme other moral and ethical questions arise. How much does one inform the patient of the extent of his illness and how much part should he play in the day-to-day management of his illness ? Schreiner and Maher (1965) enquire "Are the patients being fully informed of all the medical problems involved, or, are they being given a picture through rose coloured glasses ? Can the average layman be fully informed of a programme of this magnitude ? What should his reaction be if he feels it merely a prolongation of ill health ?" Finally as far as the transplant patient is concerned, many existential problems are often encountered in the patient's adaptation to his new organ and his introjection of it into his self-concept.

These are but a few of the essentially humanistic moral and ethical problems posed by long-term dialysis and transplantation. It highlights the dire necessity for more extensive empirical studies in this field in order to obtain more reliable procedures for selection. Since the criteria for selection have never been adequately formulated no explicit policy for acceptance or rejection of patients for the programme has been developed. Thus the question that comes to mind and is extensively explored in this study is to what extent the team uses internal criteria in the selection process.

AN HISTORICAL REVIEW OF THE LITERATURE :

THE STRESSES OF DIALYSIS.

When perusing through the ever-increasing literature on the psychological aspects involved in the dialysis programme, one becomes immediately aware of the significant increase in knowledge gained in this relatively new field since the first reported paper published in 1960 by Scribner, B.H. et al. These authors focussed essentially on the technical problems involved in dialysis, whereas to-day we have at our disposal a great deal of published research dealing with the wide spectrum of psychological and social adjustments to dialysis.

Before understanding and accepting the criteria regarded by other investigators as important for satisfactory dialysis adjustment, it is necessary to give an outline of the stresses— physical, psychological and social - which are inherent in the dialysis programme. Although agreeing broadly on the various stresses involved in the programme, different investigators emphasize different fields of stress. Shea et al (1965) give an excellent detailed account of the stresses involved in nine of their dialysis patients, before, during and after dialysis over a period of $2\frac{1}{2}$ years. In brief they indicate that before dialysis most of their patients experienced some degree of restlessness and increased irritability during the night prior to dialysis; while on dialysis most anxiety is experienced at the beginning and end of dialysis when the shunt is disengaged from or placed on the cannulae, After dialysis these authors describe a general feeling of relief that the procedure is over.

Wright (1966) et al studied eleven patients on chronic dialysis for a period ranging between six to thirty-four months and mentions the following stresses affecting their sample :- (a) loss of body part or body functions, loss of group membership, and loss of financial status and employment; (b) physical injury associated with cannula maintenance and (c) frustration of natural instinctive drives (sex, eating, aggression).

De Nour (1970) in concurring to a large extent with the forementioned investigators, outlines four broad areas of stress which he regards as important in the dialysis patient :- (a) loss or threatened loss of part of the body or body function. In this category he includes pre-occupation with the shunt previously described by Cramond et al (1967) and Shea et al (1965); another stress found in this category concerns the threat or threatened loss of urination and its obvious ramifications which Kaplan De Nour extensively reviews in his 1969 paper entitled "Some notes on the psychological significance of urination". (b) Dependency on the machines and the medical team. Kaplan De Nour intimates that from his own experiences he has found this factor to be an area of extreme importance. (c) Threat of death coupled with the inability to plan a future. (d) The frustration of drives and their derivatives.

Abram (1969) also emphasizes the dependency issue and regards it as an important element in patient management. He elaborates : "A dominant theme related to accepting chronic haemodialysis centred around the marked independency - dependency conflicts of the patient and his relationship to the 'machine' (dialyzer or "artificial kidney"). In brief the patient must be dialyzed 15 hours twice weekly for the remainder of his life (usually at night so that he can work during the day), adhere to a strict diet, at times not physically well and have physical complications related to the "shunt" (the arterial and venous plastic cannulae inserted in the patients arm or leg by which he is connected to the dialyzer)". Abram concludes that the patient is in constant conflict psychologically in that while being dependent upon the medical staff and dialyzer for many hours during the week he must nevertheless lead a normal independent life outside the unit. Greenberg, Davis and Massey (1973) found in their sample of 24 kidney patients a significant decrease in the amount of energy available for coping with stress. They detected lower affective arousal (as measured by the Rorschach) and also found that many of their patients became compliant and passive recipients of treatment.

The psychological and social stresses aside, dialysands are also subjected to many painful and severe physical stresses. They are forced to adhere to a strict dietary programme which includes fluid, and potassium restrictions and the discomforts associated with it. They rarely feel physically well and often have unpredictable periods of ill health. These factors often increase their anxiety level. Basch (1973) in his interesting paper on the intra-psychic integration of the kidney, states that these patients have suffered the emotional effects of longstanding renal disease, disfigurement (scars as a result of the fistulae), noticeable skin discolouration and altered physical appearance of patients on high steroids. They also suffer from weakness, malaise, and a fear of technical hazards coupled with apprehension of physiological changes which often cause neurological disturbances. Other stresses outlined by the author include : the painful physical affects of peritoneal and haemodialysis; the loss of body integrity, material and work loss, food and sexual deprivation, disruption of recreational activities, hospitalization with separation from family and friends and the unpredictability of health.

In summing up, the patient faces three distinct broad areas of stress :- (1) as far as physical stresses are concerned, they have to adhere to a strict diet and fluid restrictions and they have to also cope with dramatic physiological changes, and physical discomfort. (2) in the psychological sphere they have to face the independency/ dependency issue while they have to also learn to cope with handling their own anxiety and aggression. (3) in the social and personal area they have to face the stress of increased financial and emotional dependency on their family, frustration of their instinctual drives and significant social limitations due to their illness. Basch (1973) in his outline of the various stresses involved in the programme provides a fitting conclusion to this section, he states: "Ultimately the patient realistically fears the loss of his life".

FEATURES OF FAVOURABLE ADJUSTMENT TO THE DIALYSIS PROGRAMME.

A GENERAL OVERVIEW.

It should at this stage be pointed out that this appears to be a somewhat contentious area in which various researchers (and renal teams) have different criteria of, and requirements for, good dialysis adjustment. For the sake of clarity, this section will be divided into four categories each one dealing with a particular area regarded by previous investigators as important for favourable adjustment to the programme.

A. GENERAL FACTORS.

Before looking at the dialysis programme in particular it is necessary to obtain some general information with regard to patients' compliance with their doctor's orders and adjustment to their illness. Probably the most significant research in this field has been the work of Davis (1968). In his paper on patient's compliance with their doctor's advice he lists various general features which he found to be important in his empirical study :- female patients were more likely to default than males: older patients in the lower socio-economic group and patients with little education were least likely to follow their doctor's orders. Davis also reports that patients with long-term illness are more likely to be compliant if they are provided with careful instructions.

Turning to the dialysis programme in particular, general factors which have been found to be important concerns the different expectations of the teams. Kaplan De Nour and Czaczkes (1972) found in their study of various dialysis units in Israel that each dialysis unit had different attitudes towards dialysis which they summarized as follows :-

"Team A is of the opinion that chronic haemodialysis is an excellent method of treatment, that a good patient can lead a productive, fairly happy life for a long period of time, that their patients are on the whole good, and that they get first class treatment although they are inclined not to appreciate it.

Team B is of the opinion that chronic haemodialysis means a miserable life, that they receive the "wrong" patients and that they are spending a tremendous amount of effort (and money) for these unappreciative and unco-operative patients.

Team C is somewhere in the middle. They do 'believe' in dialysis but feel that they themselves as well as their patients could do much better. They often feel frustrated about patients not achieving goals set for them." (Kaplan De Nour and Czaczkes 1972, p. 442 - 443). This impressionistic study emphasizes the fact that the attitude and expectations of the team to dialysis may play a significant role in good patient adjustment. However, this has to still be empirically verified.

B. INTELLECTUAL FACTORS.

Because the demands of the dialysis programme require a certain minimal level of intellectual functioning (e.g. the patient must be able to follow instructions, count and differentiate medication etc.) much work has been carried out in this field. Earlier studies seem to suggest the importance of intellectual factors in good patient adjustment. Gombos (1964) and Sand et al (1966) agree that average and above average intelligence is required to meet the demands of the programme while Menzies (1968) noted that one of the important factors influencing adaptation to the programme was evidence of intelligent co-operation and participation. Sheldon (1968) however prefers patients of average I.Q. to those of above average intelligence. Borkman (in Winokur, Czaczkes and Kaplan de Nour 1973) found that intellectual factors, while not associated with dietary adherence, was nevertheless significantly correlated with rehabilitation.

However more recent research has thrown some doubt on the importance of intelligence as a factor of importance in good dialysis adjustment.

A notable paper stressing this point is the one by Winokur, Czaczkes and Kaplan De Nour (1973) who found in their study of 38 patients on long-term dialysis that intelligence (as measured by the W A I S) was on the whole a poor predictor of adjustment (measured by dietary adherence and vocational functioning). In summary, it is felt that while a certain basic intellectual ability is necessary for coping with the demands of the programme, intelligence per se does not seem to be a reliable predictor of favourable dialysis adjustment. The consensus of various investigators is that only those patients who prove to be intellectually defective in intelligence can be confidently considered unsuitable for the programme.

C. PERSONALITY AND INTRA-PSYCHIC FACTORS.

Personality factors, particularly the ability to handle the stress of the dialysis programme have been widely documented. Sand, Livingston and Wright (1966) found in their sample that those patients who had adjusted more successfully to dialysis contrasted in personality features from the patients who had adapted less well to the demands of the programme in the following ways :-
(1) they were less defensive in admitting anxiety or emotional difficulties; (2) they avoided emotional defences that included physical symptoms such as hypochondriasis and hysteria. Norris (1967) (in Glassman and Siegel 1970) who worked with 15 men in the Veterans Administration Hospital divided his sample into essentially three categories according to their performance before and during dialysis :- (a) conformist (who exhibited passive-dependent traits); (b) masculine type (who were individulistic and independent) and (c) adaptive type (who were successful people who did not use the defence mechanism of denial, and were more prone to become anxious and depressed).

Norris believes that any of the patients within his categories could be regarded as successful dialysis patients and it is only those candidates in the extremes of these categories who were unsuitable. The author presents management proposals and advises that the conformist type be helped to avoid dependency and foster independency while the masculine type he predicted would have a problem as a patient, but not with rehabilitation. Norris concluded that the adaptive type would provide no real problem.

Menzies (1968) who recorded the psychological features of 7 patients on regular dialysis treatment in a renal unit over a 9 month period concluded that two important personality factors influencing adaptation to the dialysis regimen were :-

(1) acceptance of illness and the demands of treatment given before haemodialysis commences, and (2) the ability to discuss freely the anxieties and problems involved in the programme.

Menzies found that unfavourable factors involved in long-term dialysis were :-
(a) excessive use of the defence mechanism of denial, and
(b) excessive dependency.

Kaplan De Nour and his associates have made a notable contribution to the field of the psychological aspects involved in the haemodialysis programme in general, and in the field of personality correlates of dialysis adjustment in particular. Kaplan De Nour et al (1968) investigated the emotional problems involved in nine patients undergoing haemodialysis and suggests that patients who feel that dependency is more acceptable and/or patients for whom feelings and expressions of aggression are less threatening may adapt favourably to the programme with no overt signs of psychiatric symptomatology. Two 1972 publications by Kaplan De Nour and his associates deserve special mention. In their paper entitled "Selection of Patients for Regular Haemodialysis" (1972), Czaczkes and Kaplan De Nour found that at least two aspects of adjustment to dialysis, adherence to the dietary demands and rehabilitation - can be predicted by pre-dialysis assessment of three aspects of personality functioning :- frustration tolerance, dependency

needs and methods of handling aggression. Their results which were computed by a psychiatrist and a nephrologist can be summed up as follows :- Personality traits which they found to be important for adherence to the diet were :- (i) high frustration tolerance; (ii) obsessive compulsive mechanisms for handling aggression, while personality traits found to be important in causing abuse of the diet were :-

(i) low frustration tolerance; (ii) acting out of aggression; (iii) introjected aggression; (iv) highly accepted dependency needs, and (v) rejection of dependency needs.

Personality traits causing a low level of functioning were :- (i) high and accepted dependency needs; (ii) introjection of aggression; and (iii) low frustration tolerance, while personality traits causing a high level of functioning were :- rejection of dependency needs (reaction formation etc).

This study can be criticised on a number of methodolgical grounds. Since a perusal through the literature confirms that adjustment to dialysis can be looked at in terms of broad features encompassing the physical, psychological and social adaptation of the patient, it becomes clear that the above researchers look at adjustment (in terms of dietary adherence and rehabilitation) in a somewhat narrow manner. Furthermore little information was provided as to the precise manner in which the personality traits were measured. Finally mention had been made in the paper that assessment of functioning was measured by the nephrologist and psychiatrist "according to information received from the patient by the team". No information was provided as to who comprised the team and how much weight was given to the views of different members of the team.

A second paper dealing with personality factors in chronic haemodialysis patients (Kaplan De Nour and Czaczkes 1972) the same team found in a sample of 43 patients that low frustration tolerance and primary and secondary gains from the sick role were the most significant personality variables found in non-compliers with the medical regimen while acting-out behaviour was found to be frequent in both groups, though more severe in the non-compliers.

Mention must also be made of the recent work of Fishman and Schneider (1972) who focused their attention on two related features of home dialysis adjustment. They gave a staff rating scale to three members of the team - the physician, nurse and technician. The scale contained three questions relating to the patients emotional and physical adjustment to dialysis and a question relating to whether the staff member felt well disposed towards the patient or not. This was an attempt to measure the extent to which the other two ratings were a reflection of the raters subjective liking of the patient. Adjustment as rated by the staff was correlated with three tests given to the patient, the Multiple Affect Check-list, the MMPI and the Shipley Hartford I.Q. Scale. These investigators found that a patient's emotional adjustment during his first year in the home dialysis as rated by the staff was predictably poor, if he admitted on the MMPI and the MACL to :- (1) feelings of anxiety and depression; (2) hostility and other problems in object relations; (3) physical complaints associated with dialysis; (4) hostility and competitiveness; (5) introversion and ego weakness.

It should be noted that even though the criteria for good adjustment in this study was limited, this was nevertheless an improvement over previous studies since objective empirical measures of personality traits were obtained.

In concluding this section it should be emphasized that the area of personality factors in favourable dialysis adjustment seems to be a confusing one with few common conclusions reached by the various researchers. However, broadly speaking it seems agreed that positive features for good adjustment are : free and open admission of anxiety and hostility and an adequate range of dependency adaptation. Negative factors seem to include over-dependency, gross hostility and frequent psychosomatic complaints.

D. PSYCHIATRIC AND SOCIAL FACTORS.

Researchers generally agree that patients with known psychiatric disturbances are not suitable for the programme. Abram (1969) states that four patients within his sample were not selected because one patient had a longstanding schizophrenic psychosis, one patient exhibited a psychotic denial of her illness while the other two patients were found to be mentally defective and thus unable to understand or follow the implications of the medical regimen.

Social factors often play a decisive part in patients assessed for the programme. Sand, Livingston and Wright (1966) found that within their sample of adjusted versus non-adjusted patients, one feature found in the former sample but absent in the latter sample concerned the more adequate emotional support received from the families of the adjusted sample. Abram (1969) emphasizes the importance of social factors in patients selected for the programme. While one of the patients within his sample refused to move to the vicinity stipulated for dialysis, he also found that another patient's environment was so deprived that it became necessary to refuse her, particularly since her environment prevented the necessary hygiene care for dialysis patients.

It should therefore, be noted that psychiatric and social factors play a vital role in favourable dialysis adjustment, and selection.

STRATEGIES OF ADAPTATION.

The manner in which patients at the various phases within the programme adapt to the increasing stresses and demands of the dialysis programme is a subject which has received much attention over the years. In the impressionistic study of Abram (1969) the authors look at various phases in the adaptation process, starting from the uremic predialysis phase right through to the phase when the patient has been on dialysis for twelve months.

During the predialysis, uremic phase, patients were fatigued, apathetic, drowsy and exhibited signs of "organicity"; during the first two weeks of dialysis, apathy decreases and sense of well being increases while the anxiety level increases initially but is merely transient; from the third week to the third month on dialysis, Abram states that the patient has reached "a phase of equilibrium and must face the realities of his situation". He may often become anxious, and depression is often manifested during this period. While on the one hand he has become dependent on the kidney machine and the staff, he now also has to become independent and try to adjust physically, emotionally and socially to his situation. Abram feels that he starts to limit his secondary gain "and allows his 'healthy' independence to become dominant". During the final phase which ranges from the third to the twelfth month the patient has adjusted adequately to the routine of the dialysis programme. Here the patient although possibly plagued by some doubts comes to terms with his condition. Abram (1969) concludes. "For all patients, hope has over-balanced despair and the will to live has overcome the desire to die" (p. 160).

A closer look at specific adaptative processes will now be discussed. Wright and his co-workers (1966) using the MMPI configurational patterns found that reactions to stress on the programme are manifested in the patient using the twin mechanisms of denial and projection. In their study they found that the hysteria scales of the MMPI (which are sensitive to the extent of repression) were more elevated in their dialysis patients than in a normal sample. This of course supported the clinical evidence that denial was the defence mechanism used. Kaplan De Nour, Shaltiel and Czaczkes (1968) who investigated the emotional reactions of nine patients on chronic haemodialysis using a whole battery of psychological tests found various mechanisms used by their subjects in coping with the demands of the programme. Denial was the major defence pattern utilized. Under the rubric of denial these authors include : denial of their original kidney;

denial of dependency on the machine and medical staff; denial of disease in toto; denial of the possibility of death; and denial of emotional problems (for example sexual problems). Other (secondary) defence mechanisms used were :- (1) displacement - this involved an abnormally intense pre-occupation with the shunt. De Nour et al conclude : "This intense pre-occupation with the shunt was understood as displacement of the fear of bodily changes, the threat of a major mutilation and of death, to something less terrifying and more controllable as the shunt". In essence it seems that this defence mechanism enabled patients to obtain some degree of control over their situation. (2) isolation of affect so that nothing was regarded as harmful, frightening or important. (3) projection which was sometimes used but not to such a degree as to distort reality. (4) reaction formation. Using such a defence mechanism these investigators hypothesize that the patients fail to act out and form good relationships with the team - all as a defence against their own covert aggression.

These authors conclude that the dependency aspect is the main feature found in patients on dialysis. Dependency in turn, they hypothesize, leads to unexpressed aggression which precipitates the patient using new defences denial, projection etc. against the aggression. It was this defensive structure which led to the limitation of ego functions clearly observed on the clinical level and the psychological test results administered to the sample.

A comprehensive study of the development of denial was investigated by Short, Wilson and Durham (1969). In their research they looked at the use of denial throughout the dialysis programme, studying changes in the MMPI profiles. They found that denial increased as stress within the programme increased. They concluded by suggesting that in order to cope with the stress of their life situation the patients need to marshall the defence mechanism of denial.

Short Wilson and Durham in their article also elaborate on community and social denial and emphasize how the patients perceive the subtle rejections of close friends and acquaintances who often become uncomfortable in their presence. Their social disabilities aside, these patients also display definite physical disabilities. They acquire a definite "sick appearance" and are often avoided by previous contacts. Thus the patients' social psychological and physical limitations help to increase the use of the denial mechanism.

Cramond et al (in Short Wilson and Durham 1969) and Gentry and Davis (1972) have also investigated the denial mechanism. The former state that during the first few weeks or months the patients on the dialysis programme accepts his future as being uncertain and does not really utilize the denial mechanism. Thus often patients abuse the dietary regimen, denying the seriousness of their illness. It is only when the patient through experience is able to fully accept his limitations - physical, psychological and social - that he needs to handle his disappointments by using the denail mechanism. Gentry and Davis (1972) working at the Duke University Medical Centre and Durham VAH units, and utilizing a battery of psychological tests also found that the mechanism of denial is a feature prominent throughout the chronic haemodialysis procedure.

A more recent paper in this area is that of Goldstein and Reznikoff (1971) entitled "Suicide in chronic haemodialysis patients from an external locus of control framework" who used Rotter's I - E Scale as a measure of internal and external control. They compared 22 male haemodialysis patients on the programme for more than four months with a control group of 24 male patients in the convalescent stage of a minor medical condition controlling for age and socio-economics background. They found that patients on chronic haemodialysis showed evidence of a greater degree of external locus of control than did patients in their control sample. Whereas Harrow and Ferrante (in Goldstein and Reznikoff 1971) in a sample of psychiatric patients found that as treatment and progress is continued the external direction is shifted to a more internal stance, patients on chronic haemodialysis, Goldstein and Reznikoff (1971) state,

do not experience a return to internality as treatment progresses. Since the chronically ill patient, adopting an external stance believes that reinforcement occurs on a random basis, his behaviour has no effect upon what happens to his life. Goldstein and Reznikoff (1971) conclude : "If the chronically ill patient perceives his behaviour as being unrelated to his condition, the likelihood of his rejecting his role in the treatment programme increases". As far as management recommendations are concerned, these investigators insist that long-term dialysis patients should have their orientation changed to a more internal stance. This they believe should be encouraged through such means as training the person for a more productive life in which he can obtain personal reinforcement for his activities.

An important drawback of this study concerns the fact that no indication was given of the weeks and months spent in hospital by the control group. This is a crucial point since it is possible that patients attached closely to a hospital for long periods and not on haemodialysis may also develop an external orientation. In other words the external orientation found in the study may not be a function of long-term dialysis experience but rather a function of close and prolonged hospital attachment. A methodological criticism concerns the unnecessary control made in the above study for sex. This becomes especially clear when Rotter (1966) in his paper on the development of the I - E Scale outlines that sex differences appear to be minimal.

Before concluding, mention must be made of how the transplant patient reacts to his new organ. An excellent paper on this subject is Muslin's (1971) investigation of the psychological adaption of transplant patients at the University of Illinois Hospital. He outlines essentially four stages in the process of adaptation to a new organ. At first the person experiences the new kidney as a foreign body, it is regarded as "ego alien". In the second stage, the stage of partial incorporation, the person becomes less anxious about his new organ and he exhibits less mental energy involved with his new organ. Thirdly Muslin talks of the stage of complete incorporation in which the image

of the new acquisition is integrated and incorporated with the internal images of the patient's body and ego. Finally there is the "stage of regression to foreign body reaction" in which the patient reveals anxiety and revived feelings of newness. It should be noted that the patient's adaptation to his new kidney encompases a variety of conflicts and feelings between himself and his feelings and attitudes towards the donor.

In conclusion it should be stated that from the literature it becomes clear that even though certain secondary strategies are often used, the primary common adaptive feature in the patient's adaptation to the extensive demands of dialysis is the utilization of the defence mechanism of denial.

A CRITICAL EVALUATION OF PREVIOUS STUDIES:

Before looking at the aims and methodology of the present study, it is necessary to make an objective appraisal of previous psychiatric and psychological research in this field.

A word about the methodological defects of past research. In the Short, Wilson and Durham (1969) study no statistical verification for its results is provided, in addition, this study and the investigation by Glassman and Siegel (1970) fall so short of basic scientific expertise that they failed to adequately describe their population samples. A further criticism of the latter study and that of the Wright et al (1966) concerns the fact that these investigators lumped all the dialysands together instead of specifying the various points (in terms of time or number of dialysis) they had reached along the dialysis continuum. The study of Gentry and Davis (1972) was an advance on previous research in that a variety of psychological tests were given to a group of patients differing in their length

of involvement in the haemodialysis regime (measured in terms of number of months on dialysis and actual number of dialysis treatments).

Reviewing the modes in which dialysis adjustment is assessed, one is struck by the conflicting, restricted ways in which good dialysis adjustment is investigated. Elaborate studies are undertaken, impressive conclusions are drawn yet in the end the severe drawback of measuring dialysis adjustment in terms of such restricted criteria such as dietary adherence and level of vocational functioning (Kaplan De Nour et al 1968; 1972) prove to often make one somewhat sceptical of the conclusions drawn. Furthermore some researchers often fail to make effective use of psychological tests when studying personality variables and rely solely on the psychiatrist's subjective impression. It is only recently that investigators in the field have included the views of other members of the team in their investigations studying behaviour changes in dialysis patients. Since such members of the team as the sister (and to a lesser extent the technician) have much day to day contact with the patients this is indeed an encouraging sign.

Mention should also be made of a recent essentially psychological study by Greenberg, Davis and Massey (1973) who looked at intellectual deterioration and personality features in 24 kidney patients. This study can be criticised on a number of basic methodological and theoretical grounds. Firstly these investigators fail to provide detailed information with regard to the age or sex distribution of their sample and besides stating that psychological evaluations of 24 patients, over a three year period was carried out in a university hospital transplant programme, little precise information is given as to the specific times within the three year period when evaluation was made. Furthermore their method of measuring intellectual deterioration is open to question.

After obtaining W A I S scores of the 24 patients (and thereafter calculating the mean score of the sample) they operationally define deficit or loss"in terms of a performance at least one standard deviation below the mean on any subtest tapping a particular area of functioning" (Greenberg, Davis and Massey 1973, p. 275). They found that 21 of the 24 patients within their sample showed signs of deficit in one or more areas and conclude : "These data lend clear empirical support to the contention that renal disease results in organic like losses in intellectual functioning in most cases". This statement means very little when one considers many of the blatant errors involved in their approach :-

(a) No control group was used; although they showed that 21 of their 24 patients had a subtest score of one standard deviation below the mean, it should be made clear that the mean used was the mean of the same sample.

(b) They did not take into account what the W A I S score of the sample was before, or earlier in the dialysis programme. Thus variations of one standard deviation below the mean on any subtest could have been the result of a generally poor performance on that subtest rather than due to intellectual fall-off due to terminal illness. A further shortcoming of this study concerns the method of personality evaluation. Greenberg, Davis and Massey (1973) state that personality evaluation was based on information supplied from interviews and from many psychological test results including the Rorschach. However, no information is provided as to the nature or the composition of the psychological battery utilized nor the method of Rorschach evaluation.

From a critical review of a few of the studies in the field it becomes abundantly clear that very often basic research methodology is of a low standard. Fundemental criticisms in past research can be summarized as follows :- failure to adequately define population samples and to provide statistical verification for findings;

over-reliance on impressionistic, theoretical formulations which have often lacked empirical substantiation; failure to use control groups; and a tendency to look at the problem of dialysis adjustment in a rather restricted manner. One is therefore left with studies in this critically important field which have often not conformed with acceptable scientific standards. It therefore becomes necessary that more empirical research be undertaken in order to clarify the vitally important problems related to selection for, and adjustment to, the ongoing renal programme. The aim of the present study was to clarify some of these problems.

CHAPTER 2.

AIMS AND HYPOTHESES OF THE PRESENT STUDY:

AIMS OF THE STUDY:

(1) To study the criteria of selection of patients for a renal programme (that is, either for long-term dialysis treatment or for transplantation).

(2) To investigate personality characteristics and psychological adjustments made by patients through the various ongoing stages of the programme from the time of selection through to the stage of post-transplantation.

HYPOTHESES OF THE STUDY:

Main Hypothesis : Number 1.

1. Those patients with whom the selecting team can more readily identify, are more likely to be accepted for the programme than those patients with whom the selecting team can less readily identify.

Subsidiary Hypotheses:

1(a) There is a significant difference in intelligence between the accepted and the rejected group with the intelligence measures being more towards the intelligence of the selection team.

1(b) There is significant difference in social class between the accepted and the rejected group, with the social class measure being closer to the social class of the selection team.

1(c) There is a significant difference in educational achievement between the accepted and the rejected group with educational achievement being closer to the formal education of the selection team.

Main Hypothesis: Number 2.

Those patients accepted for the programme will be more stable, adjusted, emotionally mature individuals than those patients not accepted for the programme.

Here the assumption is that the assessment team as a whole by virtue of their professions can be generally regarded as respectable, successful people. Thus because the team may select those individuals with whom they can identify, it is assumed from the above hypothesis that they will select more stable, adjusted and emotionally mature individuals for the programme (as they regard themselves). While the assumption that the selection team is stable, adjusted and emotionally mature is not necessarily objectively correct, it is however the image which they project and which is projected on them by society by virtue of their standing. It is therefore, assumed that the selection team would more readily identify with those patients who came closest to this image whether this may be objectively true for the selection team or not. Furthermore, in taking a decision of such crucial importance as to whether a fellow human being is to live or die, it is conceivable that very deep seated emotional and other personality characteristics of the selection team will be intrinsically involved in the selection process, especially in the absence of explicit and clear-cut empirically - proven criteria for selection.

This hypothesis is a unique and fundementally important one for no empirical research published up to now has indicated that intra-psychic factors within the selection team had a significant part to play in the selection or rejection of patients for the programme.

Subsidiary Hypotheses:

2 (a) Those patients accepted for the programme will have significantly more adequate inner resources than those patients rejected for the programme.

2 (b) Those patients accepted for the programme will have significantly more adequate control functioning than those patients rejected for the programme.

2 (c) Those patients accepted for the programme will have significantly more adequate emotional reactivity to the environment than those patients rejected for the programme.

2 (d) Those patients accepted for the programme will have significantly more adequate affectional needs than those patients rejected for the programme.

2 (e) Those patients accepted for the programme will have a significantly more adequate intellectual manner of approach than those patients rejected for the programme.

PHASE II.

Main Hypothesis : Number 3.

Those patients on short-term dialysis will be more emotionally adjusted than the same sample of patients in the predialysis phase.

This is in keeping with the work of Abram (1969) who regards patients in the predialysis period ("in or near the terminal stages of uremia") as less psychologically and emotionally adjusted to patients on dialysis for the three weeks to three months. The uremia factor which is the common feature found in predialysis patients seems to be the major drawback to adequate emotional adjustment during this stage.

Subsidiary Hypotheses:

3 (a) Whereas in the predialysis stage the patient will be expected to exhibit general hostility levels outside the normal range (either too high or too low), after a few months on dialysis general hostility levels will move more significantly towards the normal range.

Baker and Knutson (1946) noted among other features that manic and paranoid type syndromes were commonly associated with uremia while Schreiner and Maher (In Abram 1969) and Abram (1969) found that apathy, asthenia and depression were some of the common variable associated with uremia.

This hypothesis is related to the findings of the forementioned workers. It is assumed that general hostility will be very low in the depressed predialysis patients since one of the features of depression is the inability to express aggression whereas general hostility will be high in the predialysis patients exhibiting hypomanic or paranoid symptoms since destructiveness and overt aggression are features often found in these patients.

3 (b) There is no significant difference in the direction of hostility between patients tested at the predialysis period and after short-term dialysis experience. Due to the fact that there is no empirical evidence in the literature nor reasonable argument to expect change in the direction of hostility (intro-punitive or extra-punitive) the forementioned hypothesis was formulated.

3 (c) There is no significant difference in dependency between patients at the predialysis period and after short-term dialysis experience.

This hypothesis was formulated because there seems little evidence from the literature to suggest a marked change in dependency from the predialysis to the short-term dialysis period. It appears that while during the predialysis period the patient relies on the medical staff in order to survive (and is also dependent on the support of his intimate family) dependency seems to be further intensified after his first few months on dialysis, since besides his dependency on the dialysis staff, he is also dependent on the dialyzer.

Nevertheless during the latter period he begins to realize the necessity of adjusting physically, emotionally and socially to his situation, and to acquire some degree of independence.

Thus there appears to be intrapsychic conflict between his depending on the dialyzer and the team, and the independence he wishes to assume in order to adjust to his life situation. Because it becomes difficult to assess whether dependency or independency will carry more weight the forementioned hypothesis was formulated.

3 (d) Those patients in the predialysis stage will be significantly more anxious than the same sample of patients after short-term dialysis experience.

Greater levels of anxiety can be expected in the predialysis stage for the following reasons :-
(i) a feature of the uremic syndrome is a high anxiety level (Abram 1969), and (ii) patients during the predialysis stage are confronted with the real prospect of death and this increases anxiety. Both these phenomena decrease after dialysis and hence it is assumed that anxiety will be less.

3 (e) Those patients in the predialysis stage will have significantly less self-control than the same sample of patients after short-term dialysis experience.

With an expected increase in anxiety coupled with expected general hostility outside the normal range during the predialysis stage, it is assumed that these factors will influence self-control. Hypothesis (d) and (e) tie in with the work of Abram (1969) who found that patients after a few months on dialysis reach "a phase of equilibrium" where they learn to adjust psychologically and emotionally to their situation.

PHASE III.

Main Hypothesis: Number 4.

Those patients on long-term haemodialysis will be more emotionally adjusted than those patients in the predialysis stage.

Main Hypothesis: Number 5.

There will be no significant difference in emotional adjustment between the patients on long-term dialysis and the patients on short-term dialysis.

The above hypotheses and the subsidiary hypotheses to follow are closely related to the extensive work done on ways in which human beings adjust emotionally to unfavourable situations. History is filled with man's incredible capacity to endure and survive in almost seemingly impossible situations - from fighting to survive in the freezing Antartica, to having the will to survive in the gruesome conditions of the concentration camp, and more recently to endure the innumerable hardships and loneliness of space travel. The question which now arises is what enables man to psychologically adapt to such situations ? Masserman (article by Nagler S.H. in Freedman and Kaplan 1967) provides a biodynamic explanation. He reports that individuals react to their environment in terms of their unique needs, capacities and experiences and is not determined by some ultimate reality. Reality he declares is relative and expounds, "it is dependent on biodynamic factors unique to the species and the individual and is subject to many modifications within this framework, as the results of specific needs, past experiences and present integrative capacities". (p 3832).

Thus it appears that in unfavourable situations man learns to compensate for his deficiency by slowly learning to come to terms with his situation. During the period of adaptation which differs from situation to situation (and is clearly dependent upon the intensity and nature of the stress and the nature of the gap between his past and present situation) the individual may exhibit certain atypical features.

However, after a time he may begin to show little or no physical or psychological evidence of strain as his new environment becomes his reality.

Relating these views to the present study it is assumed that patients on long-term dialysis have come to terms with their environment and that they will be significantly more emotionally adjusted to their situation than the patients in the predialysis phase. Furthermore it is hypothesized that patients on short-term dialysis have already been able to adjust emotionally to their situation and that there would therefore be no significant difference in personality factors related to emotional adjustment between the patients on long-term dialysis and the patients on short-term dialysis.

Subsidiary Hypotheses:

4 (a) The long-term dialysis patients will show significantly less general hostility than the predialysis patients.

5 (b) There will be no significant difference in general hostility between the long-term dialysis and the short-term dialysis patients.

4(c), 5(c) There will be no significant difference in the direction of hostility between the long-term dialysis patients and (i) the predialysis and (ii) short-term dialysis patients.

4 (d) The long-term dialysis patients will show significantly less dependency than the predialysis patients.

5 (e) There will be no significant difference in dependency between the long-term dialysis patients and the patients who have short-term dialysis experience.

4 (f) The long-term dialysis patients will show significantly less anxiety than the predialysis patients.

5 (g) There will be no significant difference in anxiety between the long-term dialysis patients and the patients with short-term dialysis experience.

4 (h) The long-term dialysis patients will show significantly more self-control than the predialysis patients.

5 (i) There will be no significant difference in self-control between the long-term dialysis and the short-term dialysis samples.

4 (j) The long-term dialysis patients will show a higher intellectual level of functioning than the predialysis patients. Due to uremia and psychological and emotional stress factors during the predialysis period, it is reasonable to assume that intellectual performance will be adversely affected.

PHASE IV:

While Muslin (1971) investigated the psychological adaptation of kidney transplant patients to their new organ, Pietro Castelnuovo-Tedesco (1973) outlined the great percentage of psychiatric disturbances found in kidney transplant patients. However, there has been no record in the literature of studies undertaken which contrasted personality variables in dialysis patients with transplant patients.

Thus in order to further our understanding of the patients psychological adaptation to dialysis and transplantation, it will be of interest to see whether the variables described in Phase III (hostility, anxiety etc) change after transplantation, or whether they are carried over post-operatively.

Main Hypothesis: Number 6.

The transplant sample will be more emotionally adjusted than :-

(1) the predialysis sample;
(2) the patients on short-term dialysis; and
(3) the patients on long-term dialysis.

Main Hypothesis: Number 7.

The transplant sample will show a higher level of intellectual functioning than the predialysis sample. However there will be no significant difference in the level of intellectual functioning between the transplant and long-term dialysis samples.

Subsidiary Hypotheses:

6 (a) The transplant sample will show significantly less general hostility than the patients in the other three conditions.

The underlying assumption here is that the transplant sample will be far less hostile and aggressive for the following reasons :-

(1) they are no more dependent on the dialyzer for life and are far less dependent on the team;
(2) they are no longer angry and frustrated over their physical and emotional limitations. They have to a large extent resumed employment and have reverted to their pre-illness emotional, psychological and social levels.

6 (b) There will be no significant difference in the direction of hostility between the transplant sample and the patients in the other three condtions.

Since there is no evidence to suggest in which direction hostility will be directed in the various samples, the forementioned hypothesis was formulated.

6 (c) The transplant sample will exhibit significantly less dependency than the patients in the other three conditions.
The two underlying assumptions related to this hypothesis are as follows :- (i) the transplant sample have terminated their dependency from the dialyzer and they have to a large extent become more independent of the renal team, and (ii) they have become more psychologically in control of their own situation. They do not rely on the dialyzer in order to live and furthermore do not have to be dependent financially or emotionally on close members of their family. They are able to work in the open labour market and resume their previous employment. In terms of Rotter's (1966) theory, they have now assumed a more internal stance.

6 (d) The transplant sample will show significantly less anxiety than the patients in the other three conditions. Here it is assumed that with the real danger of death now passed and with the intense stress of the programme now over, the transplant sample will be far less anxious than the patients in the other conditions.

6 (e) The transplant sample will show significantly more self-control than the patients in the other three conditions. With the psychological shift towards a more internal orientation coupled with the general feeling of independence, it is assumed that the transplant sample will feel that they have more personal control over their future than the other patients.

7 (f) (i) There will be no significant difference in the level of intellectual functioning between the transplant sample and the patients on long-term dialysis.

Although it has been assumed that the transplant sample will be significantly more emotionally adjusted than the other patients, there seems little convincing evidence to suggest a significant difference in intellectual functioning between the transplant sample and patients on long-term dialysis particularly since the uremia problem is removed.

7 (f) (ii) The transplant sample will function at a significantly higher intellectual level than the patients in the predialysis stage. The hypothesis is related to the work of Abram (1969) who mentions that psychological testing for brain damage has revealed some degree of organicity in uremic patients.

CHAPTER 3.

METHODOLOGY.

Procedure:

All subjects were administered the battery of psychological tests (English or Afrikaans versions) while undergoing ongoing treatment for their renal illness at the hospital. Individual testing comprised administration of intelligence tests within one or two sessions of not more than three hours altogether. The bulk of the psychological tests were self-administrative and all but two of the patients completed the tests without assistance. All subjects volunteered to participate in the study. There were occasions during testing sessions when patients became restless or were physically distressed at which point testing was immediately terminated and testing resumed at a more convenient time within a few days. In short it can be stated that none of the subjects was under undue stress at any time in the administration of the psychological tests.

Subjects were assessed at four specific points within the renal programme.

Phase 1.

Here a comparison was made using a battery of psychological tests between those patients accepted onto the programme and those patients rejected from the programme. While those patients not accepted onto the programme died, those patients accepted onto the programme were either :-

(1) placed on long-term haemodialysis or on the rare occasion on peritoneal dialysis which necessitated their being on at least once weekly dialysis for the rest of their lives, or (2) put on haemodialysis for a period of time after which they would receive a transplant. The normal procedure at the hospital was to assess a patient with a view to the latter. However a variety of interrelated factors - social, psychological, physical - sometimes make the team decide to put a patient on long-term dialysis without consideration for transplantation.

Nevertheless often patients originally considered for the long-term dialysis programme alone, with improvement in the variables involved in their original rejection, are reassessed for the transplant programme and often admitted onto the transplant list.

The decision of acceptance or rejection for the programme was a group one decided upon by the Physician, Psychiatrist, Clinical Psychologist and Social Worker. The criteria involved in selection of patients was a complex one involving a combination of psychological, personality and social factors. The psychological and personality factors of the team is also a possible significant factor in the selection procedure. Patients not accepted on essentially medical or social grounds alone were not included in the sample. The two groups were compared on the following variables :

(1) Intelligence as measured by the Standard Progressive Matrices and the W A I S (verbal);

(2) Social class factors and educational levels.

(3) Inner resources and impulse life, affectional needs, control functioning, emotional reactivity and intellectual manner of approach as measured by the Rorschach Inkblot Test. No pencil and paper psychometric personality tests could be used since many of the non-accepted sample had limited formal education which would have made it impossible for them to have validly completed the questionnaires.

All the tests were administered at the same point in time prior to selection for the programme which allows for meaningful comparisons.

Phase II.

In this condition changes in personality and other factors were assessed. Here a sample of patients accepted for the programme and psychologically assessed before (or on commencement of) dialysis were compared with themselves after a short period on dialysis. Changes in 4 aspects of functioning were investigated :-

(1) Hostility - total and directional as measured by Foulds'HDHQ Scale (1967) and the Dom and Agg scales of the Adjective Check-list (Gough and Heilbrun 1965); (2) Anxiety as measured by the IPAT Anxiety Scale - Self Analysis Form (1957); (3) Dependency as measured by the Nur, Suc and Aba scales of the Adjective Check-list. Although the I-E Scale (Rotter 1966) was given to the sample as an additional measure of dependency only 4 of the subjects completed the form in both conditions. Two of the subjects failed to return the form while 4 failed to complete the form. Thus because only 4 of the subjects filled in the form, this scale could not be validly used to assess dependency. Nevertheless it should be pointed out that this test was used to contrast long-term dialysis patients with a sample of transplant patients in Phase lV of the study.

(4) Self-control as measured by the S-Cn scale of the Adjective Check-list.

Phase III.

In this condition long-term haemodialysis patients were compared on the same personality factors with :- (a) the sample of patients assessed before (on an commencement of) dialysis, and (b) the sample of patients with short-term dialysis experience. Personality variables included measures of hostility, self-control, anxiety and dependency as described in Phase II.

A comparison was also made with regard to intellectual level of functioning between the long-term dialysis and predialysis groups as was measured by the W A I S (verbal sub-tests) and Standard Progressive Matrices.

Phase IV.

Here the predialysis sample of patients, the patients on short-term dialysis and the sample of long-term dialysis patients were compared on the psychological measures described in Phase II with a sample of transplant patients. The I - E scale of Rotter (1966) was used as an additional measure of dependency when contrasting the transplant sample with the long-term dialysis sample.

Practical difficulties particularly the fact that the transplant sample who were in regular employment and experienced difficulty in attending extra out-patient appointments made it impossible to personally administer the 2 tests of intelligence. Thus the Factor B of the 16 P F (Concrete versus Abstract Thinking) was used as a rough measure of intellectual level of functioning.

The investigators were aware that since the various samples may not have been totally matched they may not necessarily have been comparable. However, they presented the total sample of patients available at the time.

The South African norms were used to convert W A I S raw scores to standard scores, Standard Progressive Matrices raw scores were converted to percentile scores and then using Peck's (1970) conversion table these scores were converted to I.Q. equivalents. The rationale for using 2 tests of intelligence is as follows :- (a) the sample proved to be a rather diverse one in which patients from varying socio-economic backgrounds were assessed. Thus the Standard Progressive Matrices Test generally regarded as a relatively culture-free test, was used; (b) a physical factor often found in patients with chronic renal failure concerns their poor eyesight. This factor often made it very difficult to validly assess their Standard Progressive Matrices results. Therefore a verbal test of which the W A I S is probably the most highly regarded was utilized.

It should be pointed out that practical reasons made it impossible to administer the W A I S performance sub-tests, particularly the fact that the subjects were laid up in bed with a terminal illness and would have found it virtually impossible to have validly responded to the performance sub-tests.

Rorschach responses were scored according to the quantative proportions of Klopfer et al (1954) and information was elicited with regard to inner resources and impulse life, control functioning, emotional reactivity to the environment, affectional needs and intellectual manner of approach.

In order to make more valid and meaningful personality comparisons between the groups coupled with the fact that there were relatively small number of subjects in each of the conditions, percentages of responses of subjects in the two groups falling into the various ratios were compared. This follows the procedure of Van der Spuy (1972). The HDHQ (Caine and Foulds 1967) provided measures of general and directional hostility. The Dom and Agg scales of the Adjective Check-list also provided supplementary measures of aggression. Measures of dependency were provided by the Nur, Suc and Aba scales of the Adjective Check-list and in contrasting dependency in the transplant and long-term dialysis patients, Rotter's I - E Scale served as an additional measure of dependency. Anxiety measures were obtained through the use of the IPAT Anxiety Scale while measures of self-control was provided by the S - Cn scale of the Adjective Check-list.

SUBJECTS:

Forty-five patients at various stages within the programme were approached for participation in the study. All patients received regular treatment in the Renal Unit of Groote Schuur Hospital, Cape Town. The sample consisted of all such patients of both sexes available at the time.

The sample of patients used in the present study were referred to the Renal Unit of Groote Schuur Hospital from the following two sources : (i) they were referred via other wards within the hospital, or (ii) they were referred directly to the renal unit by doctors from other outlying centres where there were no adequate facilities available. It thus becomes clear that there may have been a preliminary selection process in operation even before the patients were formally assessed by the selection panel.

In Phase 1, 17 accepted patients were compared with 11 patients rejected for the programme, on intellectual, socio-economic, educational and personality factors. Due to unco-operativeness and poor eyesight 1 of the accepted patients failed to complete the Standard Progressive Matrices Test while 1 of the accepted and 1 of the non-accepted patients failed to complete the W A I S. Three out of the 11 non-accepted patients failed to grasp the basic instructions of the Rorschach and thus their protocols were not included in the study.

In Phase 11, 10 of the 17 accepted patients were assessed prior to dialysis treatment and after short-term dialysis experience. All the patients in the short-term condition had been on peritoneal dialysis for a short period of time (mean = 10.7 weeks, with a range of 1 - 25 weeks) while 7 of the patients had been thereafter placed on haemodialysis (mean = 6 weeks, with a range of 2 - 13 weeks). The total mean period on dialysis (both peritoneal and haemodialysis) for the short-term dialysis sample was 14 weeks, with a range of 6 - 25 weeks. Seven of the 17 accepted patients were not used in Phase II because:- (a) Four of the patients were unwilling to complete the questionnaires again; (b) one of the accepted patients received a transplant very soon after acceptance for the programme and thus did not have adequate dialysis experience; (c) one of the patients died before going onto dialysis; (d) one of the patients who was brought for assessment from an outlying area was not found to be so physically ill as to warrant immediate dialysis. Nevertheless she was formally assessed and accepted for the programme and was informed that she would receive immediate dialysis should her condition deteriorate rapidly in the future. It should be noted that 2 of the 10 subjects used in Phase II failed to correctly complete the Adjective Check-list and IPAT Anxiety Scale, while 1 subject failed to complete the HDHQ. Thus these results were not included in the study.

In Phase III, 8 long-term dialysis patients (defined as having had haemodialysis experience ranging between 16 months and 50 months with a mean of 32 months), were compared psychometrically with the 17 predialysis patients (i.e. the accepted sample in phase I), and the sample of 10 patients who had short-term dialysis experience. It should be noted that of the 17 predialysis patients who were requested to fill in the questionnaires, 2 of the patients refused to complete the HDHQ while 3 patients refused to fill in the Adjective Check-list and IPAT Anxiety Scale.

In Phase IV, 9 transplant patients were compared with 8 long-term haemodialysis patients the 17 predialysis patients and the 10 patients with short-term dialysis experience. The transplant sample consisted of a rather homogeneous group. Their date of transplant varied between 4 - 25 months with a mean of 13 months. They presented no serious medical, psychiatric or psychological problems and were all attending the out-patient department of the renal unit for regular follow-up post-operative appointments. It should be emphasized that 1 of the 9 transplant subjects filled in the Adjective Check-list and Rotter's I - E Scale incorrectly while 1 of the long-term dialysis patients failed to correctly fill in the I - E Scale.

BACKGROUND DETAILS OF THE SUBJECTS.

(1) Age Variable.

Table 1. Age Means and Standard Deviations for the Accepted and Rejected Groups.

Group	N	Mean	S D	t Value	p
Accepted	17	35	11.28	-1.19	NS
Rejected	11	39.72	8.23		

Table 2. Summary of Analysis of Variance of the Age Variable for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	17.72	2	8.86	5.60
Within	3792.27	24	158.01	NS

Table 3. Summary of Analysis of Variance of the Age Variable for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	10.50	2	5.25	3.63
Within	4485.87	31	144.70	NS

(2) Sex Variable.

Table 4. Chi-Square Analysis for the Sex Variable Between the Groups.

	Pre dialysis	Short-Term	Long-Term	Trans-plant	Rejected
Number of Males	9	6	4	3	5
Number of Females	8	4	4	6	6

Chi-Square = 1.53
(not significant).

(3) Race Variable.

Table 5. Chi-Square Analysis for the Race Variable between the Groups.

	Pre-dialysis	Short-Term	Long-Term	Trans-plant	Rejected
Number of Whites	8	6	6	8	3
Number of Coloureds	9	4	2	1	8

Chi-Square = 9.43, $p < .05$

As can be seen from table 1 no significant difference was found between the age means of the accepted and rejected groups. Furthermore the analysis of variance results for the short-term dialysis, long-term dialysis and transplant groups ($F = 5.60$ $df = 2,24$) and for the predialysis long-term dialysis and transplant groups ($F = 3.63$ $df = 2,31$) revealed no significant age difference between the groups (see tables 2 and 3). The Chi-Square analysis of the sex variable (see table 4) revealed no significant difference between the predialysis, short-term dialysis, long-term dialysis, transplant and rejected groups on the sex variable.

Table 5 showed a chi-square of 9.43 ($p < .05$). When carefully scrutinizing this finding it becomes clear that the proportion of Whites and Colouredswithin the transplant group differed from the proportions of the other groups, whilst the proportions of Whites and Coloureds in the rejected group differed from the proportions of the other groups. However, no significant differences were found for the race variable between the predialysis, short-term dialysis and long-term dialysis samples.

A BRIEF EVALUATION OF THE EXPERIMENTAL DESIGN.

A highlight of this research project concerns the fact that assessments were made at some of the most crucial points within the dialysis and transplant programme. The experimental design triumphed over many of its predecessors in that the investigators recognized the programme as a dynamic, ongoing process, with the patient continually having to make major psychological, emotional and social adaptations to the rigorous demands of the programme.

Another decided advantage concerns the fact that a sample of patients were psychologically assessed before (or at) the onset of dialysis. This made it easier to meaningfully compare changes involved within the dialysis programme both for the same sample and for other samples along the dialysis continuum. Furthermore this study essentially made use of a predialysis and post-dialysis (transplant) sample and besides having been able to compare these samples with one another, the samples were also compared with patients on short-term and long-term dialysis.

Finally a feature of the experimental design of this research project concerns the fact that the same patients were assessed at different times and in different conditions (see Main Hypothesis Number 3 and the 5 subsidiary hypotheses) while comparisons were also made between different samples of patients, at different points along the dialysis continuum. (See Main Hypotheses 1, 2, 4, 5, 6 and 7 and their respective subsidiary hypotheses). In short a longitudinal and cross-sectional approach was utilized.

A DESCRIPTION OF THE PSYCHOLOGICAL TESTS UTILIZED.

I. TESTS OF INTELLIGENCE.

Standard Progressive Matrices.

This test developed by J.C. Raven (1938) consists of 5 sets A, B, C, D and E each comprising of 12 problems. The problems become progressively more difficult. The test is essentially "a test of a person's capacity at the time of the test to apprehend meaningless figures presented for his observation, see the relations between them, conceive the nature of the figure completing each system of relations presented, and, by so doing, develop a systematic method of reasoning". (Raven, 1960). In essence the Standard Progressive Matrices Test provides a valid means of gauging a person's present capacity for clear-thinking and accurate intellectual work.

Insofar as scoring is concerned, raw scores are converted into percentile points which in turn are graded according to essentially 5 specific categories as follows :- Grade I - intellectually superior; Grade II - definitely above average in intellectual capacity; Grade III - intellectually average; Grade IV - definitely below average in intellectual capacity; Grade V - intellectually defective.

The age variable is carefully controlled for.

In the present study the conversion table of Peck (1970) was used in order to convert Progressive Matrices raw scores into deviation I.Q's. In phase IV of the study the Standard Progressive Matrices raw scores of the predialysis and long-term dialysis samples were converted to sten scores in order to meaningfully compare them with the transplant sample. In the latter sample the sten score of the 16 PF (Factor B) was used.

Wechsler Bellevue Adult I.Q. Scale (Verbal).

This is one of the most widely used tests of adult intelligence. It consists of 6 verbal and 5 non-verbal sub-tests. Five of the verbal sub-tests (the Vocabulary sub-test was excluded) was utilized in the present study. The five verbal sub-tests comprised of the following :- General Information, Comprehension, Arithmetic Reasoning, Digit Span and Similarities. Raw scores were converted to standard scores and total verbal I.Q. was then computed. The South African version of the W A I S developed by the National Institute for Personnel Research was used.

II. PERSONALITY TESTS.

Rorschach Inkblot Test.

The Rorschach is the most popular and widely used projective test for exploring the dynamic process of both normal and abnormal aspects of personality. It consists of a set of ten inkblots (5 chromatic and 5 achromatic) originally developed by Swiss Psychiatrist Herman Rorschach in 1922. The Rorschach is essentially a non-psychometric, clinical instrument aimed at studying deep, underlying dynamic processes within the individual's personality.

While acknowledging the many limitations of the Rorschach (particularly its questionable validity) there were however various reasons why this test was used in this study.

Firstly in phase I of this study where psychometric personality tests could not be administered to the non-accepted sample because of their educational limitations, the Rorschach proved to be the most effective measure of personality.

Secondly it was felt that the Rorschach provided an extra dimension of personality assessment which acted as a supplement to the main body of psychometric tests. Finally the quantative Rorschach assessment of Ainsworth, Klopfer and Holt (1954) was thought to be a reliable and valuable system of scoring.

The Adjective Check-List.

This check-list developed by H.G. Gough of the University of Carolina and A.B. Heilbrun of the State University of Iowa in 1965 consists of adjectives commonly used to describe attributes of a person. The administration of the test essentially involves the subject making check marks alongside adjectives which they consider to describe themselves. The test is able to tap 24 experimental scales and indices, 6 of which were made use of in the present research project. These included :- (1) Self control; (2) Dominance; (3) Nurturance; (4) Aggression; (5) Succorance; (6) Abasement.

Raw scores were converted into standard scores (controlled for the sex and number of adjectives checked), with the normal range being between 40 - 60 standard points.

Much valuable research has been done looking at the validity of this test. In one study (Heilbrun 1958) the Adjective Check-list scales were found to be related to their counterparts on Edwards Personal Preference Schedule (Edwards 1958) while in 1959 Heibrun found a significant relationship between the Ach, Nur, Aff, Exh and Aba scales and the non-test indices of the same dimension. Heilbrun (1963) established a relationship between 6 of the 15 need scales, and dropping out of college among females.

Other studies measuring the validity of the Adjective Check-list concerns :- (1) its relationship with established personality tests such as the C P I and the M M P I, and (2) its ability to discern "personality factors mediating adjustment in adolescents with varying child rearing histories" (Heilbrun and McKinley 1962 in Gough and Heilbrun 1965).

Insofar as reliability is concerned, a sample of 100 men filled out the check-list twice, approximately six months apart. The test retest reliability showed a mean of .54 with a standard deviation of .19.

Explanations of the scales coupled with the way in which high and low scorers on the scales tend to act according to Gough and Heilbrun (1965) are provided below :-

(1) Self-Control (S - Cn).

Indicative adjectives of self-control include conscientiousness, dependable, good natured, industrious, pleasant, retiring, stable, wholesome, and others. Contra-indicative adjectives are adventurous, argumentative, disorderly, hasty, rebellious, spend-thrift.

High scorers tend to be serious, sober individuals, interested in and responsive to their obligations. They are diligent, practical, loyal workers yet may have an element of overcontrol.

Low scorers tend to be inadequately socialized, headstrong, irresponsible, complaining, disorderly, narcissistic, and impulsive.

(2) Dominance (Dom).

Its definition is "to seek and sustain leadership roles in groups or to be influential and controlling in individual relationships". Indicative adjectives are :- aggressive, argumentative, autocratic, demanding, dominant, forceful, initiative, outgoing, resourceful and strong. Contra-indicative adjectives are :- apathetic, effeminate, inhibited, meek, retiring, shy, suggestible and unambitious.

High scorers are :- forceful, strong-willed, and persevering individuals. They are confident of their ability to do what they wish and are direct and forthright in their behaviour.

Low scorers are :- unsure of themselves, indifferent to both the demands and challenges of interpersonal life. They tend to avoid situations calling for choice and decision making.

(3) Nurturance (Nur).

Its definition is to engage in behaviours which extend material or emotional benefits to others. Indicative adjectives are :- affectionate, appreciative, considerate, co-operative, forgiving, friendly, kind, loyal, sentimental, soft-hearted, thoughtful, trusting. Contra-indicative adjectives are :- aloof, arrogant, bitter, cold, distrustful, greedy, hostile, nagging, selfish, unfriendly, vindictive.

High scorers are :- helpful, of nurturant dispositions, dependable, benevolent, and often too conventional and solicitous of the other person.

Low scorers are :- sceptical, clever, acute, self-centered with little attention showed to the feelings and wishes of others.

(4) Aggression (Agg).

Its definition is "to engage in behaviour which attack or hurt others". Indicative adjectives are :- aggressive, arrogant, autocratic, cruel, dissatisfied, forceful, hostile and vindictive. Contra-indicators are :- calm, forgiving, mannerly, obliging, praising, reserved, shy, soft-hearted, sympathetic, tolerant.

High scorers are :- competitive, aggressive, with strong impulses often under-controlled. Their behaviour is often self-agrandizing and disruptive.

Low scorers are :- conforming, patiently diligent, sincere in interpersonal relationships.

(5) Succorance (Suc).

Its definition is "to solicit sympathy, affectional or emotional support from others". Indicative adjectives are :- appreciative, demanding, emotional, immature, self-centered, self-pitying, submissive and whiny. Contra-indicative adjectives are :- aloof, confident, dominant, independent, indifferent, individualistic, mature, self-confident and strong.

High scorers are :- dependent on others, seeks support and expects to find it. Low scorers are :- independent, resourceful, self-sufficient, prudent and circumspect. They have a sort of quiet confidence in their own worth and capability.

(6) Abasement (Aba).

Its definition is "to express feelings of inferiority through self-criticism, guilt or social impotence". Indicative adjectives are :- anxious, cowardly, despondent, gloomy, retiring, self punishing, spineless, timid; while contra-indicative adjectives are :- aggressive, arrogant, boastful, egotistical, hard-headed, independent, self-confident.

High scorers tend to be submissive, self-effacing, and also have problems with self-acceptance. They see themselves as weak and undeserving and face the world with anxiety and foreboding. Their behaviour is self-punishing.

Low scorers are :- optimistic, poised, productive, decisive and alert and responsive to others. They are confident, brisk and their behaviour is effective.

Hostility and Direction of Hostility Questionnaire:(HDHQ).

This test developed by T.M. Caine and G.A. Foulds (1967) is designed to measure features of both intro-punitiveness and extra-punitiveness and has been used in both clinical (Caine 1967; Philip 1969) and non-clinical groups (Mayo and Bell 1971). Its origins lie in the development of Fould's theory of personality and personal illness where he regards punitiveness as a means of assessing personal illness. The HDHQ test provides a measure of total hostility (general punitiveness) which is the sum of the extra-punitive and intro-punitive scales. The extra-punitive scales comprise of three sub-scales : AH (urge to act out hostility); CO (criticism of others); PH (projected delusional hostility). The intro-punitive sub-scales comprise of the following :- SC (Self-criticism) and G (Guilt). Direction of hostility is measured by the following formula:- (2SC + G) - (AH + CO + PH) (Caine and Foulds 1967).

The scale itself comprises of 51 statements and the subject is required to state whether he agrees or disagrees with a statement by putting a circle around the "True" or "False" which follows each statement. Each response is scored in terms of the sub-scales outlined and in this way one is able to compute both his general punitiveness as well as the direction of his punitiveness.

As far as its construction is concerned, items were taken from MMPI from which the 5 sub-scales were developed. Foulds assumed that psychopaths would score high on items relating to aggression, paranoids would score highly on extra-punitive delusional items while hysteroid personalities would score highly on the criticism of others sub-scale (CO).

Insofar as the intro-punitive scales were concerned, items were allocated to two scales depending on whether the subjects showed delusional or non-delusional self-criticism. Obsessoid subjects it was assumed would score high on self-critical items while melancholics would score high on items of delusional guilt.

Caine 1965 used the Hostility and Direction of Hostility measures in an attempt to discriminate neurotics likely to get better from neurotics not likely to get better, on the basis of their scores on admission to hospital. In this study the direction score contributed 50% of the predictive power of five tests. Mayo and Bell (1971) investigating hostility among a student teacher population using the HDHQ questionnaire and Form A of the EPI found that extra-punitiveness is related to extraversion and intro-punitiveness is related to neuroticism.

The IPAT Anxiety Scale.

This is a brief objective, self-administrable questionnaire developed in 1957 which assesses general free anxiety level as distinct from general neurosis or psychosis. It is applicable to all but the lowest educational levels and appropriate for ages of 14 or 15 years upwards to the adult range. The test comprises of forty items which were selected from five scales of the 16 PF. The 40 items are divided so as to yield separate "covert" and "overt" anxiety scores whose ratio or difference is offered for interpretation.

Six scores can be obtained from the test. They are :- (1) Self sentiment development; (2) ego strength; (3) protension of paranoid trend (paranoid insecurity) (4) guilt proneness; (5) ergic tension; (6) total anxiety.

In the present study the total anxiety score based on all 40 items was utilized. Raw scores are converted by table into sten scores and percentile scores.

Separate male and female norms as well as male and female combination norms are given based on fairly large samples. Test - retest reliability over a 1 week and 2 week period yielded values of +.93 and +.87 respectively. Thus the reliability of the test is highly satisfactory. Construct validity is estimated conservatively as ranging between + .85 to + .90. A validity study was made against rating of anxiety in pathological subjects given by psychiatrists and a validity co-efficient of .92 was found.

In short, the IPAT Anxiety Scale is a brief, highly reputable and non-stressful test of anxiety.

I - E Scale.

This test was developed by J.B. Rotter in 1966 and consists of a 29 item forced-choice instrument including 6 filler items intended to make somewhat more ambiguous the purpose of the test. Each external choice in every item is italicized and the total score obtained is the total number of external choices. Essentially the I - E Scale deals exclusively with the person's belief about the nature of the world around him and is concerned with the person's expectations about how reinforcement is controlled - if he is able to control his environment in important life situations. It is believed that those people who fall at the internal end of the scale show more covert striving for achievement motivation and have more resistance to subtle suggestion than those people who fall at the external end of the scale.

A high correlation of -.41 was obtained between the Marlowe - Crowne Social Desirability Scale and the I - E Scale for subjects in the Ohio Federal Prison.

Internal consistency was only moderately high for the scale. Test - retest reliability over a period of one month was quite consistent in 2 different samples. Sex differences were generally insignificant.

16 PF.

This test based on a comprehensive factor analysis was developed by Raymond Cattell in 1949 with constant adaptation since then. It covers a wide range of personality dimensions. Split-half reliability range from .71 to .93, ten co-efficients being over .80, while its validity has been widely recognised (Adcock in Buros 1970). In the present research the 16 PF was given to the transplant sample in order to gauge their intellectual level of functioning. Thus Factor B (Concrete versus Abstract Thinking) was the only scale of the 16 PF utilized.

OTHER MEASURES USED.

Social Class Rating Scale.

This social class rating scale developed by the University of Cape Town Child Guidance Clinic in 1972 is divided into 6 main categories and the following occupations found in each of the class divisions are as follows :-

Class I. Traditional aristocracy, millionaires, Cabinet Ministers, Chancellors and Principals of Universities, Managing Directors or Chairman of Boards of nation-wide or international companies.

Class II. Professionals, salaried executives, owners of large firms, operators of moderate sized enterprises, students of universities and colleges, prosperous farmers and landowners.

Class III. Small businessmen, small farmers, clerical workers, white collar workers, semi-professionals.

Class IV. Skilled workers, qualified tradesman, apprentices.

Class V. Semi-skilled workers.

Class Vl. Unskilled workers, permanently unemployed.

Scores were assigned on a range 1 - 6 in ascending order for each class division, so that persons falling in class Vl obtained a score of 1, persons falling in class V obtained a score of 2, and so on.

Educational Ratings: One point for each year of education was allotted to the subjects in order to contrast the standard of education between the groups.

CHAPTER 4.

RESULTS AND INITIAL DISCUSSION.

RESULTS OF PHASE I.

Table 6. Wechsler Bellevue Adult Intelligence Scale (Verbal) Means and Standard Deviations for the Accepted and Rejected Groups.

Group	N	Mean	S D	t value	p
Accepted	16	95.87	19.89	2.51	$<.02$
Rejected	10	74.6	22.59		

Comparisons of Individual W A I S (Verbal) Sub-tests for the Accepted and Rejected Groups.

Table 7. W A I S General Information Sub-test Means and Standard Deviations for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	16	9.53	2.64	2.81	$<.01$
Rejected	10	6.75	2.07		

Table 8. W A I S General Comprehension Sub-test Means and Standard Deviations for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	16	10.46	2.26	2.49	$<.02$
Rejected	10	7.9	2.97		

Table 9. W A I S Arithmetic Reasoning Sub-test Means and Standard Deviations for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	16	9.31	1.94	2.11	$<.05$
Rejected	10	7.55	2.25		

Table 10. W A I S Digit Span Sub-test Means and Standard Deviations for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	16	9.18	2.53	1.32	NS
Rejected	10	7.8	2.71		

Table 11. W A I S Similarities Sub-test Means and Standard Deviations for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	16	9.43	2.42	2.56	$<.02$
Rejected	10	6.8	2.76		

Table 12. Standard Progressive Matrices Means and Standard Deviations for the Accepted and Rejected Groups.

Group	N	Mean	S D	t Value	p
Accepted	16	87.75	11.85	1.16	NS
Rejected	11	82.81	9.09		

Table 13. Social Class Means and Standard Deviations for the Accepted and Rejected Groups.

Group	N	Mean	S D	t Value	p
Accepted	17	4	1.27	-2.3	$<.05$
Rejected	11	5.09	1.13		

Table 14. Educational Level Means and Standard Deviations for the Accepted and Rejected Groups.

Group	N	Mean	S D	t Value	p
Accepted	17	8.4	2.85	2.9	$<.01$
Rejected	11	5	3.31		

INITIAL DISCUSSION OF RESULTS OF PHASE I.

Reference to Table 6 reveals that there was a significant difference between the means of the accepted and rejected groups, with the accepted group having a significantly higher W A I S (verbal) than the rejected group, ($t = 2.51$, $p < .02$).

When scrutinizing individual W A I S verbal sub-tests the following results were found :-

1. On the W A I S General Information sub-test, Table 7 shows that the accepted sample had a significantly higher mean score than the rejected sample ($t = 2.81$, $p < .01$).

2. On the W A I S General Comprehension sub-test, Table 8 reveals that the accepted sample had a significantly higher mean score than the rejected sample ($t = 2.49$, $p < .01$).

3. On the W A I S Arithmetic Reasoning sub-test, Table 9 indicates that the accepted sample had a significantly higher mean score than the rejected sample ($t = 2.11$ $p < .05$).

4. No significant difference was found between the means of the accepted and rejected groups on the Digit Span sub-test as revealed in Table 10.

5. On the W A I S Similarities sub-test, Table 11 indicates that the accepted group had a significantly higher mean score than the rejected group ($t = 2.56$, $p < .02$)

Insofar as the alternative test of intellectual functioning was concerned, reference to Table 12 indicates that there was no significant difference between the means of both groups on the Standard Progressive Matrices.

The discrepancy between the subjects' W A I S (verbal) results and the Standard Progressive Matrices results can best be explained by considering what the latter is measuring. Savage (in Mittler, P.(ed) 1970), states that the Standard Progressive Matrices Test was developed to measure Spearman's g factor while this investigator further elaborates that Spearman himself, (Spearman 1939; 1946; Spearman and Jones 1950) advocated that the Standard Progressive Matrices (1938) was the best non-verbal test of g. Although there has been some dispute as to whether the Standard Progressive Matrices can validly be regarded as a pure measure of the Spearman construct of g (Burke 1954; 1958) many researchers, example Williams, P.(in Mittler,P. (ed) 1970) still uphold the fact that the Standard Progressive Matrices is heavily loaded with the g factor.

If one agrees that the Standard Progressive Matrices does measure Spearman's g factor, then in the present study the discrepancy between the accepted and rejected samples' W A I S (verbal) and Standard Progressive Matrices results probably infers that while there is no significant difference in general intellectual functioning between the groups (as measured by the Standard Progressive Matrices) the accepted sample is of a significantly higher verbal intellectual level than the rejected sample (as measured by the Wechsler Bellevue Adult I.Q. Scale — verbal).

Subsidiary hypothesis 1a which states that there is a significant difference in intelligence between the groups with the intelligence measures being more towards the intelligence of the selection team, was confirmed on measures of verbal intelligence (W A I S verbal) but not on measures of general intellectual functioning (Standard Progressive Matrices).

Subsidiary hypothesis 1b and 1c were also confirmed. Table 13 indicates that the accepted group was significantly higher on social class measures than the rejected group ($t = -2.3$, $p < .05$) thus confirming hypothesis 1b while Table 14 indicates that the accepted sample have a significantly higher educational level than the rejected group ($t = 2.9$, $p < .01$) which confirms subsidiary hypothesis 1c.

The significant differences in social, educational and (verbal) intellectual factors between the accepted and rejected groups support the main hypothesis (Number 1) which states that those patients with whom the selecting team can more readily identify are more likely to be accepted for the programme than those patients with whom the selecting team can less readily identify. The main hypothesis will be further assessed by looking at the results of emotional adjustment between the groups.

THE RORSCHACH RESULTS.

Scoring and Analysis.

In the present study scoring of the Rorschach was undertaken according to the quantative proportions of Klopfer, Ainsworth and Holt (1954). Using this scoring system both locational and determinant variables are considered in order to look at certain important personality features such as :-

(a) inner resources and impulse life;
(b) affectional needs;
(c) control factors;
(d) emotional reactivity to the environment;
(e) intellectual manner of approach.

One of the most significant drawbacks in interpreting the Rorschach concerns the fact that it often lacks clearly defined norms and is not conducive to statistical scoring. Probably one of the most useful methods of Rorschach scoring for research purposes is the method followed by van der Spuy (1972). This researcher looked at the percentage of subjects falling into Klopfer's various proportions and contrasted his subjects in terms of the percentage of subjects falling into these proportions. Although not completely satisfactory since certain subjective impressions are still made, this approach goes a long way to making the Rorschach a more valuable instrument for research purposes. Van der Spuy's approach was followed in the present study in contrasting the accepted with the non-accepted sample.

Thus percentage of subjects falling into Klopfer's various categories were calculated and interpretative hypotheses provided. The two groups were thereafter contrasted with one another, utilizing a statistical and descriptive approach.

Main responses were counted as one while additional responses were scored as half. Because of the small number of responses given, some of the norms given by Klopfer as a guideline for interpretation could not as such be applied to a population which scored consistently lower than a normal population would. In sum all responses less than 2 were regarded as too few to be scored, in most of the ratios (except for example in M: FM proportion where few M and FM in itself has an interpretation attached to it). Klopfer's general ratios were therefore, used as a guideline but the norms were appropriately adjusted to the lower number of responses found in both the two groups studied as compared with the number of responses expected from a normal population.

PATIENTS ACCEPTED FOR THE PROGRAMME.

TABLE 15. THE NUMBER OF RESPONSES.

Class Interval	Frequency	Percentage
2 - 4	1	6.0
4 - 6	1	6.0
7 - 9	2	11.8
10 - 12	5	29.2
13 - 15	6	35.2
16 - 18	2	11.8
18 - 20	0	0
TOTAL	17	100.0

Range: 3 - 17

Mean: 11.2

Number of subjects with less than 20 responses = 100%

Discussion of the results of the number of responses.

As can be seen from Table 15 the mean number of responses of the accepted sample is 11.2 with a range of 3 - 17. This is far below the normal range of number of responses which is between 20 - 45.

Conclusion Number 1.

A total of 17 accepted subjects (100%) produced less than 20 responses which is a clear sign of underproductivity.

(a) Proportions Related to Inner Resources and Impulse Life.

Table 16. The M : FM Proportion.	Number	Percentage.
Number of subjects with FM greater than twice M	3	17.6
Number of subjects with FM between IM and 2 M	3	17.6
Number of subjects with M greater than FM	1	6.0
Number of subjects with M equal to FM	0	0
Number of subjects with M and FM both few (i.e. both less than 2).	10	58.8
TOTAL	17	100.0
Number of subjects with FM greater than 2 M and with CF more than FC (where CF or FC is represented by 2 or more responses.	1	6

Discussion of the results of the M: FM proportion.

As can be seen from Table 16 FM was greater than 2M in 3 of the subjects (17.6%). Klopfer (1954) states that this indicates that the person is ruled by immediate need for gratification rather than by long range goals. However it should be noted that an immature personality cannot be directly inferred because CF was not greater than FC in all 3 of the subjects. This was only true in 1 of the subjects. In 3 of the subjects (17.6%) FM was between 1 and 2 M. Although this ratio does not necessarily intimate favourable adjustment it is so very often found within the normal range that no particular hypothesis can be attached to it.

In 1 subject (6%) M was greater than FM which suggests that the impulse life is subordinate to the value system and that the ego can tolerate archaic impulses without being overwhelmed by them.

A capacity to delay gratification without too much frustration is also inferred. No less than 10 of the subjects (58.8%) showed M and FM both few (i.e. less than 2). This suggests that impulses are not acknowledged nor is imaginal ability available either in the sense of long range foresight or escapist fantasy. The fact that by far the greatest percentage of cases fell within this category must suggest ego weakness. In sum 23.6% of the subjects exhibited M: FM ratios within the normal limits (i.e. 17.6% with FM between 1 M and 2 M and 6% with M greater than FM) while 76.4% showed M: FM ratios outside the normal range.

Table 17. M: FM + m Ratio	Number	Percentage
Number of subjects with FM + m not greater than $1\frac{1}{2}$ M	1	6
Number of subjects with FM + m greater than $1\frac{1}{2}$ M	8	47
Number of subjects with FM + m and M both few (i.e. both less than 2) and thus not a meaningful ratio	8	47
TOTAL	17	100

Discussion of the results of the M :FM + m proportion:

Table 17 indicates that 1 subject (6%) showed FM + m not more than $1\frac{1}{2}$ M which falls within the normal range while 8 subjects (47%) had FM + m $>1\frac{1}{2}$ M. The latter suggests that tensions are too strong to allow the individual to utilize his inner resources for the constructive solution of his everyday problems of living (Klopfer 1954). However nearly half the subjects had FM + m and M both too few to allow meaningful analysis.

Conclusions related to the M: FM and M: FM + m ratios.

As has been noted over 70% of subjects showed M:FM ratio outside the normal range while only 23.6% of the subjects exhibited M:FM within the normal range. Of the former 10 of the subjects (58.8%) showed M:FM both few which suggests ego weakness while 3 of the subjects showed FM greater than twice M indicative of immediate gratificatory needs. Insofar as the M:FM + m ratio is concerned only 1 (6%) of the subjects fell with the normal limits. Eight subjects (47%) had M and FM + m both too few to be regarded as a meaningful ratio while the remaining 8 subjects (47%) had FM + m greater than 1½ M an indication that the tensions are too strong to permit utilization of inner resources for the constructive solution of every day problems of living.

Conclusion Number 2 (with regard to inner resources and Impulse life).

In 76.4% of the accepted sample's M:FM ratio and in 94% of the accepted sample's M: FM + m ratio the proportions fell outside the normal range (47% with FM + m greater than 1½ M and 47% with FM + m both too few). This seems to indicate ego weakness, immediate gratificatory requirements and overly strong tensions which have an affect on the effective utilization of inner resources in solving every day problems of living.

(b) Proportions Relating to the Organization of Affectional Need.

TABLE 18. Ratio of Differeniated (Fc + FK) to Undifferentiated Shading Responses. (K; KF; k; kF; c; cF).

	Number	Percentage.
Number of subjects where the undifferentiated shading responses outnumbered the differentiated shading responses.	3	17.7
Number of subjects where the differentiated shading responses outnumber the undifferentiated shading responses.	8	47.0
Number of subjects where both the differentiated and undifferentiated shading responses were below 2 and therefore not a meaningful ratio	6	35.3
TOTAL	17	100.0

Discussion of the results of the differentiated to undifferentiated shading responses.

Table 18 reveals that only 3 of the subjects (17.7%) showed undifferentiated shading responses outnumbering the differentiated shading responses which Klopfer hypothesizes as indicating poor affectional integration and a sign of very serious maladjustment. In 8 subjects (47%) the differentiated shading responses outnumbered the undifferentiated shading responses while in 6 subjects (35.3%) both differentiated and undifferentiated shading responses were too few in number to be regarded as a meaningful ratio (i.e. less than 2). In general it appears that signs of serious maladjustment cannot be indicated from the accepted subjects differentiated to undifferentiated shading response ratio.

Table 19. Ratio of F: FK + Fc

	Number	Percentage
Number of subjects with FK + Fc greater than $\frac{3}{4}$ of F.	3	17.7
Number of subjects with FK + Fc $\frac{1}{4}$ to $\frac{3}{4}$ of F	7	41.0
Number of subjects with FK + Fc less than $\frac{1}{4}$ of F	6	35.3
Number of subjects with FK and F both few and thus not able to be meaningfully interpreted	1	6. 0
TOTAL	17	100. 0

Discussion of the results of the F : FK + Fc ratio.

As can be seen from table 19, 3 of the subjects (17.7%) had FK + Fc greater than $\frac{3}{4}$ of F which infers a grossly overdeveloped need for affection so much so that it threatens to swamp the rest of the personality. In no less than 7 patients (41%) FK + Fc was $\frac{1}{4}$ to $\frac{3}{4}$ of F which indicates that the need for affection has developed adequately and integrated well with the rest of the personality structure so that it acts as a sensitive control function helping in the individual's interaction without necessarily leading to a gross overdependency on responses from others. Although not as high as the latter ratio 6 subjects (35.3%) showed FK + Fc less than one quarter of F. This intimates that there is denial and repression and underdeveloped need for affection. In only 1 subject (6%) was FK + Fc and F both too few to be meaningfully assessed. In summary it appears that while 7 of the subjects (41%) showed normal affectional needs, no less than 10 subjects (59%) showed some malfunctioning of the need for affection - either expressed too much (17.7%), too little (35.3%) or exhibited too few responses to be meaningfully assessed.

Table 20. Ratio of Achromatic (Fc + c + C') to Chromatic Responses (FC + CF + C).

	Number	Percentage
Number of subjects with achromatic twice chromatic	0	0
Number of subjects with achromatic half chromatic	4	23.5
Number of subjects with achromatic less than half chromatic	2	11.8
Number of subjects with achromatic equal to chromatic	6	35.3
Number of subjects with achromatic and chromatic both too few and thus not a meaningful ratio	5	29.4
TOTAL	17	100.0
Number of subjects with achromatic less than half chromatic and FC greater than CF + C (and where FC or CF + C represented by two or more responses).	2	12.5
Number of subjects with achromatic less than half chromatic and CF + C is greater than FC (and where CF + C or FC represented by two or more responses).	0	0

Discussion of the results of the achromatic to chromatic responses.

Table 20 reveals that no subjects exhibited achromatic twice chromatic. Thus there is no indication whatsoever that there is some interference with responsiveness to outside stimulation. In 4 of the subjects (23.5%) achromatic responses were half the chromatic responses.

According to Klopfer (1954) this suggests that the need for affection does not unduly influence the natural responsiveness to emotional situations and the ability to interact with the social environment. There are signs of acting out of emotions as reflected in 2 of the subjects' (11.8%) achromatic less than half of chromatic responses although this appears to be a generally small extent. While in 5 of the subjects (29.4%) both achromatic and chromatic responses were too few to be scored, in 6 of the subjects (35.3%) achromatic responses were equal to chromatic responses with no interpretive hypothesis attached to this ratio.

In short, a notable feature of these results is that while 11 of the 17 subjects (64.7%) failed to fit into any of the proportions, of the 6 remaining subjects, 4 subjects (23.5%) fell within the accepted category (achromatic half of chromatic), and only 2 of the subjects (11.8%) showed acting out of emotions.

Conclusions related to the :- (1) differentiated/ undifferentiated shading responses, (2) F: FK + Fc ratio, (3) achromatic/chromatic ratio

In only 3 of the subjects (17.7%) did the undifferentiated shading responses out-number the differentiated shading responses indicative of ego weakness while 10 of the subjects (59%) showed some malfunctioning in the need for affection as expressed in the F: FK + Fc ratio. However 7 of the subjects (41%) exhibited a normal range of affectional needs. While 11 of the subjects failed to fit into any of the categories, 2 of the remaining subjects showed achromatic to chromatic responses ratios outside the normal range. Thus in total (76.5%) of the sample showed chromatic: achromatic responses outside the normal range.

Conclusion: Number 3 (with regard to organization of affectional need).

It appears from the accepted subjects proportions related to affectional needs that there does appear to be malfunctioning in the need for affection.

(C) Proportions Relating to Constrictive Control.

Table 21 • The Distribution of the F Percentages.

Class Interval %	Frequency	Percentage
0 - 9.9	2	11.8
10 - 19.9	0	0
20 - 29.9	3	17.6
30 - 39.9	5	29.4
40 - 49.9	3	17.6
50 - 59.9	2	11.8
60 - 69.9	2	11.8
TOTAL	17	100.0

Range 9.5% - 67.0%
Mean 37.3%

Table 22. Percentage of Form Responses.

	Number	Percentage
Number of subjects with F% between 20% and 50%	11	64.7
Number of subjects with F% more than 80%	0	0
Number of subjects with F% between 50% and 80%	4	23.5
Number of subjects with F% less than 20%	2	11.8
TOTAL	17	100.0

Discussion of the Results of the Percentage of form responses.

Table 21 reveals that the mean F percentage in the accepted sample was 37.3% which falls well within the optimum amount which is between 20% - 50%. Furthermore as can be seen from Table 22 in 11 of the subjects (64.7%) the F percentage fell between 20% and 50%. This indicates an ability to view the world in an impersonal matter-of-fact manner which serves as controlled adjustment. An interesting feature of the accepted samples results, lies in the fact that no subjects produced F percentages greater than 80%. Klopfer (1954) regards an F percentage greater than 80 percent as pathological. In 4 subjects (23.5%) the F percentage was between 50 and 80 percent which may suggest "neurotic constriction". Klopfer (1954) elaborates "The hypothesis of neurotic constriction is that although the person is intellectually capable of a more richly differentiated response to his world, he is inhibited in such response, having repressed his tendencies to acknowledge and respond to his own inner needs and act according to his own emotional reactions" (pg 295). In 2 subjects (11.8%) the implication is that the person places little emphasis on maintaining an impersonal, matter-of-fact relationship with his world.

In summary these results suggest that the subjects display fair controlled adjustment (no fewer than 11 subjects fell within the normal range of F percentage which lies between 20% and 50%.) It furthermore can be regarded as a sign of adequate intellectual control over the emotions. This is further substantiated by the accepted subjects' FK + F + Fc percentage presented below.

Table 23. Total of F plus Differentiated Shading Responses.

	Number	Percentage
(FK + F +Fc)% is greater than 75%	1	6
(FK + F + Fc)% is less than 75%	16	94
TOTAL	17	100

Discussion of the results of the (FK + F + Fc)%

As can be seen from table 23 only 1 of the subjects (6%) showed (FK + F + Fc)% greater than 75% while 16 out of the 17 subjects (94%) produced (FK + F + Fc)% less than 75%. In short the hypothesis of neurotic constriction cannot be applied in this case.

Conclusion: Number 4 (with regard to control factors).

The results of the percentage of form responses and the total of F plus differentiated shading responses in the accepted sample indicate that they are able to handle situations in an optimum way and there is a sign of adequate controlled adjustment.

(d) Proportions Relating to Emotional Reactivity to the Environment.

Table 24. Ratio of FC: CF + C .

	Number	Percentage
Number of subjects with FC greater than CF + C	4	23.5
Number of subjects with FC less than CF + C	6	35.3
Number of subjects with FC and CF + C both few (i.e. both less than 2).	7	41.2
TOTAL	17	100.0

Discussion of the results of the FC: CF + C Ratio.

As can be seen from Table 24, 4 of the subjects (23.5%) showed FC greater than CF + C suggestive of control over emotional expression, while no fewer than 6 of the subjects (35.3%) showed FC less than CF + C which indicates weak emotional control where emotions are acted out in an overt behavioural manner. However, the bulk of the subjects (41.2%) had FC and CF + C both few in number (i.e. both less than 2) and thus not falling into either of the previously mentioned categories. In short 76.5% of the subjects (35.3% with FC less than CF + C and 41.2% with FC and CF + C both few in number) showed FC: CF + C ratio outside the normal range while only 23.5% of the subjects had FC: CF + C within the normal range.

Table 25. Sum C.

	Number	Percentage
Number of subjects with Sum C less than 3	13	76.5
Number of subjects with Sum C more than 3	4	23.5
TOTAL	17	100.0

Discussion of sum C.

Thirteen of the subjects (76.5%) as revealed in table 25 produced Sum C less than 3 which according to Klopfer suggests that there seems little responsiveness to influences from the environment.

Table 26. Percentage of Responses to Cards 8, 9 and 10.

	Number	Percentage
Number of subjects with percentage of responses to cards 8, 9 and 10 between 30% and 40%	11	64.8
Number of subjects with percentage of responses to cards 8, 9 and 10 more than 40%	3	17.6
Number of subjects with percentage of responses to cards 8, 9 and 10 less than 30%	3	17.6
TOTAL	17	100.0

Discussion of the results of the percentage of responses to cards 8, 9 and 10.

As is revealed in table 26, 11 subjects (64.8%) exhibited percentage of responses to cards 8, 9 and 10 between 30% - 40%, that is within the normal range. Three of the subjects (17.6%) produced percentages of responses to the three cards greater than 40% and 3 subjects (17.6%) produced percentage of responses to cards 8, 9 and 10 less than 30%. What is suggestive of these results is as follows:- Although a fair number of subjects (6, i.e. 35.2%) exhibited percentage of responses to the 3 cards outside the optimum limits (i.e. either greater than 40% or less than 30%) the majority of the subjects (11, i.e. 64.8%) showed percentage of responses to the 3 cards within the normal limits of 30% - 40% which suggests average responsiveness to emotional stimuli from the environment.

Conclusions related to the :- (1) FC: CF + C ratio, (2) sum C, (3) percentage of responses to cards 8, 9 and 10.

When analysing the 3 quantative proportions associated with emotional reactivity to the environment it becomes obvious that although no clear consistent pattern seems to have emerged, there are indications of disturbed emotional reactivity to the environment. In 76.5% of the subjects there was a disturbance in the FC: CF + C ratio, while 76.5% of the subjects produced sum C less than 3. This indicates limited responsiveness to environmental influences. However the accepted samples' responses to cards 8, 9 and 10 generally suggest average responsiveness to emotional stimuli from the environment.

Conclusion: Number 5 (with regard to emotional reactivity to the environment).

Although no consistent pattern emerged as far as these proportions are concerned there is a strong suggestion of limited responsiveness to environmental influences as reflected in sum C and a disturbance in control over emotional expression as reflected in the FC: CF + C ratio.

(e) Proportions Relating to the Intellectual Manner of Approach.

Table 27. The Distribution of the W Percentage.

Class Interval %	Frequency	Percentage
20 - 29%	1	6.0
30 - 39%	2	11.8
40 - 49%	0	0
50 - 59%	0	0
60 - 69%	3	17.6
70 - 79%	4	23.5
80 - 89%	4	23.5
90 - 100%	3	17.6
TOTAL	17	100.0

Range 29% - 100%
Mean 72.4%

Table 28. Percentage of W Responses.

	Number	Percentage
Number of subjects with W % less than 20%	0	0
Number of subjects with W % more than 30%	16	95.3
Number of subjects with W % between 20% - 30%	1	4.7
TOTAL	17	100.0

	Number	Percentage
Number of subjects with W responses	7	41.1
Number of subjects with D W responses	3	17.6
Number of subjects with tendencies towards W responses	6	35.3
Number of subjects with no types of W responses	1	6.0
TOTAL	17	100.0

Discussion of the results of the distribution of the W percentage, the percentage of W responses and the types of W responses.

As appears in table 27 the mean W percentage was 72.4% with a range of 29% - 100%. This is far above the normal range which is between 20% - 30%. The overproduction of W responses can further be seen from table 28. Here it was revealed that in none of the subjects was W % less than 20%, while in only 1 subject was (4.7%) the W % within the normal range. In no fewer than 16 of the 17 subjects (95.3%) was W % more than 30%. In sum the latter coupled with the mean W percentage of 72.4% indicates according to Klopfer (1954) a compulsive need to do big things in an intellectual sense with an over-riding intellectual ambition. This Klopfer emphasizes could be due to emotional interferences and may be a defence mechanism of a compensatory sort.

When looking at the type of W responses produced it can be seen that 7 of the subjects (41.1%) exhibited W responses (with a mean of 5.1% and a range of 6% - 20%) which intimates an interest in organizing experience. This is regarded as a favourable sign particularly since it was given in moderate quantity.

In 3 of the subjects (17.6% as appears in table 28) there was a production of DW responses (with a mean of 3.2% and a range of 6% - 38%). Because of the small mean percentage coupled with the fact that it was found in only 17.6% of the cases, this cannot be regarded as a overproduction of DW responses.
In 6 of the subjects (35.3%) there was a tendency towards W responses (with a mean of 3.9% and a range of 6% - 20%). Although a fair number of subjects produced a tendency towards W responses indicative of overgeneralization, this hypothesis cannot be confidently upheld in the case of the present sample since the mean percentage was a mere 3.9%.
In sum the sample generally produced adequate types of W responses which can be regarded as a favourable sign.

Table 29. The W: M Ratio.

	Number	Percentage
Number of subjects with W: M in the proportion 2 : 1	0	0
Number of subjects with W more than 2 M	17	100
Number of subjects with W less than 2 M	0	0
TOTAL	17	100

Discussion of the results of the W: M ratio.

The emphasis on achievement previously mentioned when describing the W percentage of the accepted sample is further verified by their W: M ratio (see table 29). All 17 of the accepted patients produce W responses greater than 2 M which clearly infers that the level of aspiration is too high. It suggests an overly high aspirational level with ambition outstripping the creative resources of the personality.

Table 30. The Distribution of the D Percentages.

Class Interval %	Frequency	Percentage
0 - 9%	4	23.5
10 - 19%	2	11.8
20 - 29%	4	23.5
30 - 39%	4	23.5
40 - 49%	0	0
50 - 59%	0	0
60 - 69%	3	17.7
70 - 79%	0	0
TOTAL	17	100.0

Range 0% - 65%
Mean 27.4%

Table 31. Percentage of D Responses.

	Number	Percentage
Number of subjects with D% more than 55%	3	17.7
Number of subjects with D% less than 45%	14	82.3
TOTAL	17	100.0

Discussion of the results of the distribution of the D percentages and the percentage of D responses.

Table 30 shows that the mean D percentage is 27.4% with a range of 0% - 65%. This is far below the optimal level. The depressed D percentage is further reflected in table 31 which shows that no fewer than 14 of the subjects (82.3%) showed a D% less than 45%. Both these sets of results indicate an inability to differentiate between the obvious facts presented in the world around, probably because of emotional disturbances.

Table 32. The Distribution of the d percentage.

Class Interval %	Frequency	Percentage
0 - 4%	15	88.2
5 - 9%	2	11.8
TOTAL	17	100.0

Range 0% - 7.7%
Mean .8%

Table 33. Percentage of the d responses.

	Number	Percentage
Number of subjects with d percentage more than 15%	0	0
Number of subjects with d percentage between 5% - 15%	2	11.8
Number of subjects with d percentage less than 5%	15	88.2
TOTAL	17	100.0

Discussion of the results of the distribution of the d percentage and the percentage of d responses.

It becomes evident after scrutinization of tables 32 and 33 that by far the bulk of the accepted subjects' responses appear to be less than 5%. This intimates a low level of interest in the minutiae of experience.

Table 34. The Distribution of the (Dd + S)%

Class Interval %	Frequency	Percentage
0%	16	94.0
More than 0%	1	6.0
TOTAL	17	100.0

Range 0% - 5%
Mean .28%

Table 35. The Percentage of Dd + S Responses.

	Number	Percentage
Number of subjects with Dd + S greater than 10%	0	0
Number of subjects with Dd + S less than 10%	17	100
	17	100

Discussion of the results of the distribution of the Dd + S percentage and the percentage of Dd + S responses.

As can be seen from tables 34 and 35 all of the subjects scored within the optimum of Dd + S responses which is less than 10%.

Conclusions related to the :- (1) W percentage and types of W percentages; (2) W: M ratio; (3) D percentage; (4) d percentage and (5) Dd + S percentage.

There was an overemphasis of W responses in the accepted sample as reflected in table 27 and 28 and which infers an overriding intellectual ambition. No pathological signs could be detected from the subjects'type of W responses which generally suggest favourable intellectual organization. The high aspirational level was further inferred by the accepted subjects' W: M ratio, with W more than 2M in 100% of the cases, (see table 29).

Low D percentages as reflected in table 31 indicates an inability to differentiate between obvious facts in the world probably due to emotional disturbances while the low production of d percentages suggests a low level of interest in the minutiae of experience.

Conclusion Number 6. (with regard to the intellectual manner of approach).

The fundemental conclusion which can be reached from the proportions relating to the intellectual manner of approach lies in the fact that the accepted sample :- (1) tend to have marked overly high aspirational level; (2) show an inability to differentiate between obvious facts in their world; (3) have a low level of interest in the minutiae of experience.

Towards a Synthesis of Rorschach Results in the Subjects Accepted for the Programme.

When reviewing the Rorschach findings of those subjects accepted for the programme one is immediately struck by the often confusing and conflicting information with regard to the protocols. In this section in order to effectively synthesize the findings the investigators will utilize those results which affect a clear majority of the cases. The following conclusions can be reached with regard to the specific personality dimensions studied :-

(1) 100% of the subjects produced less than 20 responses which strongly suggest underproductivity.

(2) Inner Resources and impulse life.

(i) 76.4% of the sample produced M: FM ratios outside the normal range, and

(ii) 94% of the subjects produced M: FM + m ratios outside the normal range.

Taking these two ratios into account there does appear to be a disturbance in impulse life and inner resources of the subjects which manifests itself in ego weakness, immediate gratificatory requirements and overly strong tensions which affect effective utilization of inner resources.

(3) Affectional Needs. In only 17.7% of the subjects did the undifferentiated shading responses outnumber the differentiated shading responses. Fifty-nine percent of the subjects showed some malfunctioning in the need for affection as reflected in the FK + Fc: F ratio, while in 76.5% of the subjects the achromatic: chromatic ratio was outside the normal range. The FK + Fc: F ratio as well as the achromatic: chromatic ratio does seem to indicate malfunctioning in the need for affection.

(4) Constrictive Control. In 64.7% of the subjects the F% was between 20% and 50% which is within the normal range while in 94% of the sample the FK + F + Fc percentage was less than 75% which does not suggest constrictive control operative. The F% as well as the FK + F + Fc percentage indicate no inadequacy in control functioning in the accepted subjects.

(5) Emotional Reactivity. In 76.5% of the subjects the FC: CF + C ratio was outside the normal range while 76.5% of the subjects produced Sum C less than 3 which suggests limited responsiveness to environmental influences. However, 64.8% of the subjects produced percentages to cards 8, 9 and 10 within the normal limits. Although no clearly consistent pattern emerged there was nevertheless evidence of limited responsiveness to environmental influences as well as a disturbance in control over emotional expression.

(6) Intellectual Functioning: The mean W% was 72.4% while W% was more than 30% in 95.3% of the cases. Furthermore W responses were greater than 2 M in 100% of the cases. These results clearly point to an overly-high aspirational level, an overriding intellectual ambition operative. There were also indications of an inability to differentiate between obvious facts in the world, reflected in the fact that in 82.3% of the cases D% was less than 45%. In 88.2% of the subjects the d percentage was between 0 - 4 percent which is suggestive of a low level of interest in the minutiae of experience.

PATIENTS REJECTED FOR THE PROGRAMME.

Table 36. The Number of Responses.

Class Interval %	Frequency	Percentages
4 - 6	0	0
7 - 9	2	25.0
10 - 12	3	37.5
13 - 15	0	0
16 - 18	2	25.0
18 - 20	1	12.5
TOTAL	8	100.0

Range 7 - 18.5

Mean 12.0

Number of subjects with less than 20 responses = 100%.

Discussion of the results of the number of responses.

Table 36 reveals that the mean number of responses of the rejected sample was 12.0 with a range of 7 - 18.5. This is far below the normal range of number of responses which is between 20 - 45.

Conclusion: Number 7.

A total of 8 rejected subjects (100%) produced less than 20 responses which indicates underproductivity.

(a) Proportions Related to Inner Resources and Impulse Life.

Table 37. The M: FM Proportion.

	Number	Percentage.
Number of subjects with FM greater than twice M	2	25.0
Number of subjects with FM between 1 M and 2M	3	37.5
Number of subjects with M greater than FM	1	12.5
Number of subjects with M equal to FM	0	0
Number of subjects with M and FM both few (i.e. both less than 2).	2	25.0
TOTAL	8	100.0
Number of subjects with FM greater than 2M and with CF more than FC (where CF or FC is represented by 2 or more responses	1	12.5

Discussion of the results of the M: FM proportion.

Table 37, reveals that FM is greater than twice M in 2 of the subjects (25.0%). This intimates that the individual is ruled by immediate need for gratification rather than by long range goals. Furthermore 1 of the 2 subjects (12.5%) also had CF greater than FC which

clearly suggests immature behavioural impulsivity. In 3 of the subjects (37.5%) FM fell between 1M and 2M which falls within the normal range. A healthy state whereby the impulse life is subordinate to the value system was found in 1 of the subjects (12.5%) as reflected in the ratio M greater than FM. No fewer than one quarter of the sample (2 in number) produced M and FM both few. This indicates that there is "neither acknowledgement of impulse nor is imaginal ability available either in the sense of long range foresight or escapist fantasy". (Klopfer 1954). An hypothesis of ego weakness is applicable. In summarizing the rejected sample's M: FM ratio it can be seen that a total of 4 subjects (50%) produced M: FM ratios within the normal range (i.e. 37.5% with FM between 1M and 2M and 12.5% with M greater than FM) while the other 4 subjects (50%) produced M: FM ratios outside the normal range (i.e. 25% with FM greater than twice M or more; M and FM both few in 25% of the subjects).

Table 38. M: FM + m Ratio.

	Number	Percentage
Number of subjects with FM + m not more than $1\frac{1}{2}$ M	1	12.5
Number of subjects with FM + m greater than $1\frac{1}{2}$ M	5	62.5
Number of subjects with FM + m and M both few (i.e. both less than 2 and thus not a meaningful ratio).	2	25.0
TOTAL	8	100.0

Discussion of the results of the M: FM proportion.

In table 38, 1 subject (12.5%) showed FM + m not more than 1½ M which falls within the normal range while 2 subjects (25%) had FM + m and M both too few to be validly scored. However the highlight of this ratio is that 5 out of the 8 subjects (62.5%) showed FM + m greater than 1½ M which according to Klopfer (1954) indicates that tensions are too strong to allow utilization of inner resources for the constructive solution of every-day problems of living.

Conclusions related to the M: FM and M: FM + m ratio.

In 50% of the subjects there was a disturbance in the M: FM ratio while no fewer than 5 out of the 8 subjects (62.5%) showed FM + m greater than 1½ M which intimates that strong tensions do not allow utilization of inner resources in solving everyday problems of living.

Conclusion Number 8.(with regard to inner resources and impulse life).

When looking at the M: FM and M: FM + m ratio as a whole, there does appear to be a marked disturbance in inner resources and impulse life of the rejected sample. Indications of ego weakness and impulsivity can be interpreted as well as a clear suggestion of severe tensions affecting optimal utilization of inner resources.

(b) Proportions Relating to the Organization of Affectional Need.

Table 39. Ratio of Differentiated (Fc + FK) to Undifferentiated Shading Responses (K, KF, k, kF, c, cF)

	Number	Percentage
Number of subjects where the undifferentiated shading responses outnumber the differentiated shading responses	0	0
Number of subjects where the differentiated shading responses outnumber the undifferentiated shading responses	2	25.0
Number of subjects where both the differentiated and undifferentiated shading responses were below 2 and therefore not a meaningful ratio	6	75.0
TOTAL	8	100.0

Discussion of the results of the differentiated to undifferentiated shading responses.

Since no subjects as can be seen from table 39 produced undifferentiated shading responses more than the differentiated shading responses, no sign of poor affectional needs indicating very serious maladjustment can be deduced.

Table 40. Ratio of F: (FK + Fc).

	Number	Percentage
Number of subjects with FK + Fc greater than $\frac{3}{4}$ of F	0	0
Number of subjects with FK + Fc $\frac{1}{4}$ to $\frac{3}{4}$ of F	3	37.5
Number of subjects with FK + Fc less than $\frac{1}{4}$ of F	5	62.5
Number of subjects with (FK + Fc) and F both few and thus not able to be validly interpreted	0	0
TOTAL	8	100.0

Discussion of the results of the F: FK + Fc ratio.

Differentiated shading responses as revealed in table 40 were given in moderate quantity (FK + Fc = $\frac{1}{4}$ to $\frac{3}{4}$ F) in 3 (37.5%) of the subjects. Klopfer (1954) outlines that this suggests that the need for affection has developed well within the personality organization so that it has a sensitive control function helping the person in his interaction with others without implying overdependency. However, the most notable feature of the subjects' FK + Fc: F ratio is that in 5 of the subjects (62.5%) FK + Fc was less than $\frac{1}{4}$ of F. This tends to indicate denial, repression or underdevelopment of the need for affection. The fact that the latter ratio outstripped the FK + Fc = $\frac{1}{4}$ to $\frac{3}{4}$ of F by 25% must make it a fairly notable feature.

Table 41. Ratio of Achromatic (Fc + c + C') to Chromatic responses (FC + CF + C).

	Number	Percentage
Number of subjects with achromatic twice chromatic	1	12.5
Number of subjects with achromatic half chromatic	1	12.5
Number of subjects with achromatic less than half chromatic	1	12.5
Number of subjects with achromatic equal to chromatic	2	25.0
Number of subjects with achromatic and chromatic both too few and thus not a meaningful ratio	3	37.5
TOTAL	8	100.0

	Number	Percentage
Number of subjects with achromatic less than half chromatic and FC greater than CF + C (and where FC or CF + C represented by two or more responses).	0	0
Number of subjects with achromatic less than half chromatic and CF + C greater than FC (and where CF + C or FC represented by two or more responses).	1	12.5

Discussion of the results of the achromatic to chromatic responses.

As table 41 reveals in 1 subject (12.5%) achromatic was twice the chromatic responses which suggests that the responsiveness to outside stimulation has been interfered with and that the "burnt child" hypothesis can be applied in this case. Klopfer (1954) describes this as follows "The implication is that the need for an affectional response from others is so great that the person is inhibited and toned down in his overt reactions to others for fear of being hurt and repulsed". In 1 of the subjects (12.5%) the achromatic were half of the chromatic responses which is regarded as an optimal ratio. Here the affectional need does not influence the person's responsiveness to emotional situations and the ability to relate to others. In 1 subject achromatic responses were less than half of chromatic responses and with CF + C greater than FC. This indicates the acting out of emotions. In 62.5% of the subjects (5), responses did not fall into any of the forementioned categories, (two of subjects had achromatic equal to chromatic while a further 3 subjects had achromatic and chromatic both too few in number to be meaningfully interpreted). In short 87.5% of the subjects produced achromatic : chromatic ratios outside the normal range while a mere 12.5% of the subjects produced achromatic : chromatic ratios within the normal range.

Conclusions related to the (1) differentiated/ undifferentiated shading responses; (2) F: FK + Fc ratio; (3) achromatic/chromatic ratio.

Whereas the undifferentiated/differentiated shading responses show no sign of poor affectional need, the F: FK + Fc ratio does reveal some sort of denial, repression on underdevelopment of the need for affection. Over 80% of the subjects produced achromatic : chromatic ratios outside the normal range which does suggest a disturbance in affectional need.

Conclusion Number 9. (with regard to the organization of affectional need).

There is a suggestion of denial, underdevelopment or repression of affectional need as reflected in the F: FK + Fc ratio while a disturbance in affectional need can furthermore be deduced from the achromatic : chromatic ratio. However no disturbance can be concluded from the undifferentiated/differentiated shading responses.

(c) Proportions Relating to Constrictive Control.

Table 42. The Distribution of the F Percentages.

Class Interval %	Frequency	Percentage.
20 - 29.9	1	12.5
30 - 39.9	3	37.5
40 - 49.9	0	0
50 - 59.9	1	12.5
60 - 69.9	1	12.5
70 - 79.9	1	12.5
80 - 89.9	1	12.5
TOTAL	8	100.0

Range 25.8% - 87.5%

Mean 51.4%

Table 43. Percentage of Form responses.

	Number	Percentage
Number of subjects with F% between 20% and 50%	4	50.0
Number of subjects with F% more than 80%.	1	12.5
Number of subjects with F% between 50% and 80%	3	37.5
Number of subjects with F% less than 20%	0	0
TOTAL	8	100.0

Discussion of the results of the distribution of form percentages and percentages of form responses.

Table 42 reveals that the mean F percentage was 51.4% with a range of 25.8% to 87.5% which falls slightly higher than the optimum range which is between 20% and 50%. This gives some indication of "neurotic constriction". Table 43 reveals that 4 of the subjects (50%) fell within the optimum range of 20% - 50%. This suggests controlled adjustment, an ability to act impersonally on occasion yet still able to respond to emotional impact from the environment. In 3 of the subjects (37.5%) the F percentage was between 50% and 80% which further suggests that the "neurotic constriction" hypothesis can be applied. No subjects produced F% less than 20%. In 1 subject (12.5%) F percentage was greater than 80% which is a pathological sign.

In synthesizing these results it becomes clear that whereas 4 of the subjects (50%) showed F% within the optimum range, the other 4 subjects (50%) showed some disturbance in F percentage with the indication of "neurotic constriction" most marked in 3 out of the 4 subjects.

Table 44. Total of F Plus Differentiated Shading Responses.

	Number	Percentage
(FK + F + Fc)% is greater than 75%	1	12.5
(FK +F + Fc)% is less than 75%	7	87.5
TOTAL	8	100.0

Discussion of the results of the(FK + F + Fc)%

As appears in table 44 only 1 of the subjects (12.5%) exhibited (FK + F + Fc)% greater than 75% while 7 out of the 8 subjects (87.5%) produced (FK + F + Fc)% less than 75%. These results suggest that the neurotic constriction hypothesis cannot be applied.

Conclusions related to the percentage of form responses, and the total F plus differentiated shading responses.

In 4 out of the 8 subjects the F percentage was between 20 and 50 percent which suggests optimal control. In the 4 subjects who fell outside the optimal range, in the case of 3 of them (37.5%) the hypothesis of neurotic constriction could be applied. However the latter conclusion was nullified by the fact that 7 of the subjects showed FK + F + Fc percentages less than 75 percent which does not suggest neurotic constriction.

Conclusion: Number 10 (with regard to constrictive control).

The results of the percentage of form responses and the total of F plus differentiated shading responses in the subjects rejected for the programme generally indicate no marked disturbance in controlled adjustment.

(d) Proportions Relating to Emotional Reactivity to the Environment.

Table 45. Ratio of FC: CF + C

	Number	Percentage
Number of subjects with FC greater than CF + C	0	0
Number of subjects with FC less than CF + C	2	25.0
Number of subjects with FC and CF + C both few (i.e. both less than 2).	6	75.0
TOTAL	8	100.0

Discussion of the results of the FC: CF + C Ratio.

Table 45 reveals that although no subjects showed FC greater than CF + C indicative of control over impulsive expression of emotionality, in three quarters of the subjects FC and CF were both few and therefore not a meaningful ratio. In 2 of the subjects (25%) FC was less than CF + C which is suggestive of weak emotional control. In short 100% of the subjects produced FC: CF + C outside the normal range.

Table 46. Sum C.

	Number	Percentage
Number of subjects with Sum C less than 3	7	87.5
Number of subjects with Sum C more than 3.	1	12.5
TOTAL	8	100.0

Discussion of Sum C.

In 7 out of the 8 subjects (87.5%) as revealed in Table 46 Sum C was less than 3 which can be interpreted as indicating little responsiveness to influences from the environment.

Table 47. Percentage of Responses to cards 8, 9 and 10.

	Number	Percentages
Number of subjects with percentage of responses to cards 8, 9 and 10 between 30% and 40%.	5	62.5
Number of subjects with percentage of responses to cards 8, 9 and 10 more than 40%	0	0
Number of subjects with percentage of responses to cards 8, 9 and 10 less than 30%	3	37.5
TOTAL	8	100.0

Discussion of the results of the percentage of responses to cards 8, 9 and 10.

Five out of the 8 subjects'(62.5%) responses to cards 8, 9 and 10 were within normal limits as revealed in Table 47. This indicates adequate responsiveness to emotional stimuli from the environment. No subjects showed percentage of responses to cards 8, 9 and 10 of more than 40% while 3 subjects (37.5%) produced percentage of responses to cards 8, 9 and 10 less than 30%. The hypothesis here is that the individual is either inhibited in his productiveness becasue of strong environmental impact or basically lacking in responsiveness to such impact. In short it appears that a fair percentage of the sample respond adequately to emotional stimuli from the environment whether this is expressed overtly or not. However of those that deviate from the optimum it appears that inhibition in productiveness is most marked.

Conclusions related to the FC: CF + C ratio; the sum C ratio and the percentage of responses to cards 8, 9 and 10.

One hundred percent of the sample showed the FC: CF + C ratio outside the normal range which suggests disturbance in control over impulse expression. Furthermore Sum C was less than 3 in 87.5% of the sample which suggests limited responsiveness to environmental influence. In 62.5% of the subjects the percentage of responses to cards 8, 9 and 10 were within normal limits.

Conclusion Number 11 (with regard to emotional reactivity to the environment).

No consistent pattern emerged with regard to these subjects' emotional reactivity to the environment. However there is a suggestion of limited responsiveness to environmental influences as reflected in Sum C and a strong suggestion of a disturbance in control over impulse expression as reflected in the FC: CF + C ratio.

(e) Proportions Relating to the Intellectual Manner of Approach.

Table 48. The Distribution of the W Percentage.

Class Interval %	Frequency	Percentage
20 - 29%	1	12.5
30 - 39%	1	12.5
40 - 49%	2	25.0
50 - 59%	1	12.5
60 - 69%	1	12.5
70 - 79%	1	12.5
80 - 89%	1	12.5
TOTAL	8	100.0

Range 25% - 85.7%

Mean 52.5%

Table 49. Percentage of W Responses.

	Number	Percentage
Number of subjects with W% less than 20%	0	0
Number of subjects with W% more than 30%	7	87.5
Number of subjects with W% between 20% - 30%	1	12.5
TOTAL	8	100.0
Number of subjects with W responses	4	50.0
Number of subjects with DW responses	1	12.5
Number of subjects with tendencies towards W responses	3	37.5
TOTAL	8	100.0

Discussion of the results of the distribution of W percentage, the percentage of W responses and the types of W responses.

Table 48 reveals that the mean W percentage was 52.5% with a range of 25% - 85.7%. This is above the average range which is between 20% - 30%. From Table 49 relating to the percentage of W responses it becomes apparent that no fewer than 7 out of the 8 subjects (87.5%) showed a W percentage above 30 percent while only 1 subject (12.5%) exhibited a W percentage of between 20%- 30%. This indicates a compulsive need to do big things, an overriding intellectual ambition without the ability to back it up.

When scrutinizing the types of W responses it becomes apparent that half the subjects produced W responses (in a range 6% - 20% with a mean of 7.25%). This intimates an ability to organize experience "with an intellectual criticalness prompting the subject to omit from a generalization those aspects of experience that do not fit in" (Klopfer 1954, p. 301). It is regarded as a good sign because it was given in moderate quantity.

In 1 subject (12.5%) a DW response was provided which suggests a weakness in the link with reality and is not a favourable sign. A tendency towards W was produced in no less than 3 of the subjects (37.5%) (with a mean of 4.4% and a range of 10% - 14%). It implies a tendency towards overgeneralization without the same weakness in reality testing as is indicated by DW. It furthermore suggests a tendency towards integrating experience but without enough intellectual differentiation and criticism to achieve good integration.

Table 50. The W: M Ratio.

	Number	Percentage
Number of subjects with W: M in the proportion 2 : 1	0	0
Number of subjects with W more than 2M	8	100.0
Number of subjects with W less than 2M	0	0
TOTAL	8	100.0

Discussion of the results of the W: M ratio.

As can be seen from Table 50, W is more than 2M in no fewer than 8 of the subjects (100%). This suggests an overly-high, overriding ambition with the aspirational level being too high to be regarded as a favourable sign.

Table 51. The Distribution of the D percentages.

Class Interval %	Frequency	Percentage
0 - 9%	0	0
10 - 19%	1	12.5
20 - 29%	1	12.5
30 - 39%	2	25.0
40 - 49%	0	0
50 - 59%	3	37.5
60 - 69%	0	0
70 - 79%	1	12.5
TOTAL	8	100.0

Range 14.3% - 75%
Mean 43.8%

Table 52. Percentage of D Responses.

	Number	Percentage
Number of subjects with D% more than 55%	2	25.0
Number of subjects with D% less than 45%	4	50.0
Number of subjects with D% between 45% - 55%	2	25.0
TOTAL	8	100.0

Discussion of the results of the distribution of D percentages and the percentage of D responses.

Of interest in the subjects' distribution of D percentage is the fact that the mean (43.8%) was only slightly lower than normal with a range of 14.3% - 75% (see table 51). Table 52 showsthat no less than 2 of the subjects (25%) showed a D percentage within the normal range of 45% - 55% while 4 of the subjects (50%) produced D percentages less than 45%. This shows an inability to differentiate between the obvious facts presented by the world around probably because of emotional disturbances. Two of the subjects (25%) produced D percentages above 55%.

Table 53. The Distribution of the d percentage.

Class Interval %	Frequency	Percentage
0 - 4%	6	75.0
5 - 9%	1	12.5
10 - 15%	1	12.5
TOTAL	8	100.0

Range 0% - 10%

Mean 2.1%

Table 54. Percentage of d Responses.

	Number	Percentages
Number of subjects with d percentage more than 15%	0	0
Number of subjects with d percentage between 5 - 15%	2	25.0
Number of subjects with d percentage less than 5%	6	75.0
TOTAL	8	100.0

Discussion of the results of the distribution of the d percentage and the percentage of d responses.

Table 53 indicates that the mean d percentage is 2.1% with a range of 0% - 10%.

From Table 54 it appears that no subjects had d percentages more than 15% while only two of the subjects (25%) had an average d production between 5% - 15%. In 6 of the subjects (75%) the d percentage was less than the lower limit of normal (5%) and suggests a "low level of interest in the minutiae of experience". (Klopfer 1954 p. 306).

Table 55. The Distribution of the (Dd + S)% and the percentage of Dd + S responses.

Class Interval %	Frequency	Percentage
0%	8	100.0
More than 0%	0	0
TOTAL	8	100.0

	Number	Percentage
Number of subjects with (Dd + S)% greater than 10%	0	0
Number of subjects with (Dd + S)% less than 10%	8	100.0
TOTAL	8	100.0

Discussion of the results of the distribution of the (Dd + S) percentage, and the percentage of Dd + S responses.

Table 55 reveals that all the subjects scored within the optimum amount of Dd + S responses of less than 10%.

Conclusions related to the (1) W percentage and types of W percentage; (2) W: M ratio; (3) D percentage; (4) d percentage; and (5) Dd + S percentage.

There was an over-emphasis of W responses as reflected in the mean W percentage of 52.5% and the fact that 7 subjects (87.5%) had W% more than 30%. Insofar as the types of W responses were concerned, 4 of the subjects (50%) produced W responses which is regarded as a good sign according to Klopfer (1954). Only 1 DW response was produced while 37.5% of the subjects produced a tendency towards W. Generally it can be stated that no pathological indications can be gauged from the subjects' types of W responses.

Overly high aspirational level intimated earlier was confirmed by the subjects' W: M ratio in which all the subjects produced W more than twice M. Indications of an inability to differentiate between the obvious facts presented by the world around probably because of emotional disturbances was reflected in the fact that half the subjects produced D percentages less than 45%. A lack of interest in the minutiae of experience can be interpreted from the fact that 75% of the subjects produced d percentages of less than 5% while the Dd + S% of all the subjects fell within the optimum amount.

Conclusion Number 12 (with regard to the intellectual manner of approach).

The sample of subjects rejected for the programme show:- (1) an overly high level of aspiration; (2) an inability to distinguish between obvious facts in their world, and (3) a low level of interest in the minutiae of experience.

TOWARDS A SYNTHESIS OF RORSCHACH RESULTS IN THE SUBJECTS REJECTED FOR THE PROGRAMME.

As was the case with the synthesis of Rorschach results in the subjects accepted for the programme only those findings which affect a clear majority of the cases will be utilized. The following conclusions can be reached with regard to the specific dimensions studied :-

(1) 100% of the subjects produced less than 20 responses which strongly indicates underproductivity.

(2) Inner Resources and Impulse life.
In 50% of the subjects there was a disturbance in the M: FM ratio while no fewer than 62.5% of the sample showed FM + m greater than $1\frac{1}{2}$ M. There does therefore appear to be some disturbance in the subjects' inner resources and impulse life.

(3) Affectional Need.

While the undifferentiated/differentiated shading responses suggest no sign of poor affectional needs, in 62.5% of the subjects, FK + Fc was less than $\frac{1}{4}$ of F which intimates denial, repression or underdevelopment of the affectional need. Furthermore over 80% of the subjects produced achromatic : chromatic ratios outside the normal range which does suggest a disturbance in the need for affection in the rejected sample.

(4) Constrictive Control.

Fifty percent of the subjects showed optimal control functioning while only 37.5% of the subjects exhibited signs of constrictive control. The hypothesis of constrictive control was further nullified by the fact that 87.5% of the subjects produced FK + F + Fc percentages less than 75%. Thus no marked disturbance in control functioning could be assessed.

(5) Emotional Reactivity.

In 100% of the subjects the FC: CF + C ratio was outside the normal range. This indicates disturbance in control over impulse expression. Furthermore Sum C was less than 3 in 87.5% of the subjects which points to limited responsiveness to influences from the environment. There does appear to be a disturbance in the rejected subjects' emotional reactivity to the environment though this was not shown up in the percentage of responses to cards 8, 9 and 10, in which 62.5% of the subjects fell within the normal range.

(6) Intellectual Manner of Approach.

An overly high level of aspiration can be deduced as seen in :-

(i) the subjects' mean W% of 52.5%,

(ii) the fact that 87.5% of the subjects showed W% more than 30%, and

(iii) W responses were greater than 2M in one hundred percent of the subjects.

In 50% of the subjects the D percentage was less than 45% which points to an inability to differentiate between the obvious facts in the environment. A lack of interest in the minutiae of experience can be interpreted in 75% of the subjects since this percentage of subjects produced d percentages of less than 5%.

A COMPARISON OF RORSCHACH FINDINGS BETWEEN THE PATIENTS ACCEPTED AND REJECTED FOR THE PROGRAMME.

When attempting to compare the Rorschach proctocols of those patients accepted and rejected for the programme a twofold approach was used :- (1) a descriptive approach whereby common personality features found in the two groups was outlined, and (2) a statistical comparison of the two groups. For the statistical analysis the following approach was utilized. A weighting of one was given to each ratio outside the normal range for each subject. By simple addition a disturbance score for each subject was then calculated. T - tests were calculated so as to assess significant differences in disturbances of levels of functioning between the groups.

(1) COMMON PERSONALITY FEATURES IN THE ACCEPTED AND REJECTED GROUPS.

(a) Underproductivity as revealed in the low number of Rorschach responses in the two groups.

(b) Both samples showed disturbances in their inner resources and impulse life. In the accepted sample more than 70% of the subjects produced M: FM ratios outside the normal range while in the rejected sample 50% of the sample produced some malfunctioning in their M: FM ratio. Furthermore in the accepted sample 94% of the subjects and in the rejected sample more than 60% of the subjects produced M: FM + m ratios outside the normal range.

(c) There does appear to be malfunctioning in the need for affection in both groups. Although both groups produced undifferentiated/differentiated shading responses within the normal range, in 59% of the accepted sample and in over 60% of the rejected sample the F: FK + Fc ratio fell outside the normal range. Furthermore in more than 75% of the accepted subjects and in more than 80% of the rejected subjects was the achromatic : chromatic ratio outside the normal range.

(d) No gross malfunctioning in controlled adjustment could be detected in the two groups. In over 60% of the accepted sample and in 50% of the rejected sample, F% was within the normal range while in no less than 94% of the accepted sample and in 87.5% of the rejected sample was the FK + F + Fc percentage less than 75%.

(e) Another common feature found in the two groups concerns the fact that there was a clear disturbance of emotional reactivity to the environment in both of the groups. In the accepted sample over 70% of the subjects produced FC: CF + C ratios outside the normal range, while in the rejected sample no fewer than 100% of the subjects produced FC: CF + C ratios outside the normal range.
As far as sum C is concerned, over 75% of the accepted subjects produced Sum C less than three while over 85% of the rejected sample showed sum C less than 3. This is indicative of limited responsiveness to environmental influences.
However as far as the percentage of responses to cards 8, 9 and 10 is concerned over 60% of both groups produced this percentage within the normal range.

(f) In terms of the intellectual manner of approach three interesting common features emerged in both the groups :-

Firstly an overly high aspirational level with achievement potential slightly higher in the subjects accepted for the programme. This was reflected in the fact that over 90% of the accepted subjects and over 85% of the rejected subjects produced W percentages more than 30% while W was greater than 2M in 100% of both groups.
Secondly an inability to differentiate between obvious factors in the environment. This was revealed in the fact that in over 80% of the accepted cases the D percentage was less than 45% while in 50% of the rejected cases the D percentage was less than 45%.
Thirdly there were indications of a lack of interest in the minutiae of experience reflected in the fact that in over 80% of the accepted sample and in over 70% of the rejected sample the d percentage was less than 5%.

(2) DIFFERENTIATING PERSONALITY FEATURES IN THE ACCEPTED AND REJECTED GROUPS.

T-Tests were used in order to compare significant disturbances in levels of functioning between the groups.

Table 56. Means and Standard Deviations for Disturbances in Inner Resources and Impulse Life for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	17	1.17	.52	.67	NS
Rejected	8	1.0	.75		

Table 57. Means and Standard Deviations for Disturbances in Affectional Needs for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	17	1.52	.71	-.33	NS
Rejected	8	1.62	.51		

Table 58. Means and Standard Deviations for Disturbances in Constrictive Control for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	17	.35	.49	1.09	NS
Rejected	8	.62	.74		

Table 59. Means and Standard Deviations for Disturbances in Emotional Reactivity for the Two Groups.

Group	N	Mean	S D	t Value	p
Accepted	17	1.64	.60	6.65	NS
Rejected	8	1.62	1.06		

Table 60. Means and Standard Deviations for Disturbances in the Intellectual Manner of Approach for the Two Groups.

Group	N	Mean	S D	t Value	P
Accepted	17	2.94	.65	.73	NS
Rejected	8	2.75	.46		

As is evident from perusal of tables 56, 57, 58, 59 and 60 there was no significant personality disturbances between the accepted and and rejected groups on the Rorschach Inkblot Test. Thus subsidiary hypothesis 2 a, b, c, d and e, which states that those patients accepted for the programme will have more adequate:- (a) inner resources (b) control functioning (c) emotional reactivity to the environment (d) affectional needs and (e) intellectual manner of approach than the rejected sample, was not confirmed.

RESULTS OF PHASE II.

Table 61. Comparison of HDHQ (Total Hostility) Means and Standard Deviations with the Means and Standard Deviations of a Sample of Normal Subjects.

Variable	Predialysis		Short-term Dialysis	Long-term Dialysis	Trans-plant	Sample Normal Subjects
N	15	9	9	8	9	47
$\bar{X}$	18.4	16.33	15.78	19.88	15.11	13.00
SD	8.27	7.71	10.39	10.16	6.95	6.2

Table 62. Comparison of Agg Scale Means and Standard Deviations with the Means and Standard Deviations of a Sample of Normal Subjects.

Variable	Predialysis		Short-term Dialysis	Long-term Dialysis	Trans-plant	Sample Normal Subjects
N	14	8	8	8	8	2006
$\bar{X}$	43.64	39.88	42	43.38	42.88	50
SD	8.0	7.34	6.28	8.3	7.85	

Table 63. Comparison of Dom Scale Means and Standard Deviations with the Means and Standard Deviations of a Sample of Normal Subjects.

Variable	Predialysis		Short-term Dialysis	Long-term Dialysis	Trans-plant	Sample Normal Subjects
N	14	8	8	8	8	2006
$\bar{X}$	47.07	47.37	49.87	48.25	45.25	50
SD	8.08	7.15	6.51	7.99	12.33	

INITIAL DISCUSSION OF RESULTS OF PHASE II.

The Scheffé Multiple Comparisons Test was utilized in order to explore whether the general hostility means of the predialysis and short-term dialysis sample (as well as the long-term and transplant samples) deviated significantly from the mean of a normal sample (See Caine and Foulds 1967). No significant differences were found on the general hostility measure of the HDHQ ($F = .93$; $df = 3,29$) nor on the Agg scale ($F = 3.16$; $df = 3,27$) of the Adjective Check-list. The mean of the normal sample on the Dom scale of the Adjective Check-list was compared using Scheffé Multiple Comparisons with the lowest mean Dom scale of the four groups (i.e. the transplant sample mean score of 45.25). No significant difference was found between the mean of the normal sample and the lowest mean score of the four groups ($F = .37$; $df = 3,21$) and therefore all other three means can be regarded as insignificant. In short subsidiary hypothesis 3a (which states that whereas patients in the predialysis stage will be expected to exhibit general hostility levels outside the normal range, after a short term on dialysis, general hostility levels will move significantly towards the normal range) was not confirmed.

The means and standard deviations of the above-mentioned groups are presented in tables 61, 62 and 63.

Table 64. The HDHQ Direction of Hostility Means and Standard Deviations for the Predialysis and Short-term Dialysis Group.

Group	N	Mean	SD	t Value	p
Predialysis	9	-1.22	3.11	1.31	NS
Short-term Dialysis	9	-3.22	5.93		

Table 65. The Means and Standard Deviations of the Nur, Suc and Aba Scales of the Adjective Check-list for the Predialysis and Short-term Dialysis Group.

Variable	Predialysis N = 8	Short-term Dialysis N = 8	t Value	p
Nur				
Mean	56.5	55	.81	NS
SD	8.19	8.07		
Suc				
Mean	48	49.25	.5	NS
SD	7.21	6.31		
Aba				
Mean	52.25	51.75	.22	NS
SD	7.16	4.39		

Table 66. IPAT Anxiety Scale Means and Standard Deviations for the Predialysis and Short-term Dialysis Group.

Group	N	Mean	SD	t Value	p
Predialysis	8	5.37	1.68	1.42	NS
Short-term Dialysis	8	4.62	2.06		

Table 67. Adjective Check-list S-CN Scale
Means and Standard Deviations for the Predialysis and Short-term Dialysis Group.

Group	N.	Mean	SD	t Value	p
Predialysis	8	56.12	7.47	.19	NS
Short-term Dialysis	8	55.62	9.07		

Further Initial Discussion of Results of Phase II.

Reference to table 64 reveals that there is no significant change in the direction of hostility between the patients tested in the predialysis stage and after short-term dialysis experience supporting subsidiary hypothesis 3b.

None of the tests of dependency showed evidence to suggest a significant change in dependency from the predialysis to the short-term dialysis period. Table 65 reveals no significant difference between the patients tested during the predialysis period and the same patients tested after short-term dialysis experience on the following Adjective Check-list scales tapping dependency :- (a) Nurturance scale; (b) Succorance scale; (c) Abasement scale. This supports subsidiary hypothesis 3c which states that there is no significant difference in dependency between patients at the predialysis period and after short-term dialysis experience.

Although reference to Table 66 suggests a reduction in anxiety after dialysis experience, the IPAT Anxiety Scale results indicate no significant difference in anxiety between the predialysis and short-term dialysis periods. This does not support subsidiary hypothesis 3 d.

Insofar as the self-control measure is concerned, table 67 reveals no significant difference in the S- Cn scale of the Adjective Check-list between the predialysis and short-term dialysis periods. This does not support subsidiary hypothesis 3e.

RESULTS OF PHASES III AND IV.

1. Results of Measures of General Hostility.

Table 68. Summary of Analysis of Variance of the Dom Scale of the Adjective Check-list for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	36.78	2	18.39	.21
Within	2361.92	27	87.47	NS

Table 69. Summary of Analysis of Variance of the Dom Scale of the Adjective Check-list for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	88.08	2	44.04	.54
Within	1689.87	21	80.47	NS

Table 70. Summary of Analysis of Variance of the Agg Scale of the Adjective Check-list for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	3.00	2	1.5	2.32
Within	1749 .96	27	64.81	NS

Table 71. Summary of Analysis of Variance of the Agg Scale of the Adjective Check-list for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	7.75	2	3.87	6.82
Within	1192.75	21	56.79	NS

Table 72. Summary of Analysis of Variance of Total Hostility on the HDHQ for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	104.85	2	52.42	.73
Within	2067.36	29	71.28	NS

Table 73. Summary of Analysis of Variance of Total Hostility on the HDHQ for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	110.71	2	55.35	.64
Within	1973.32	23	85.79	NS

2. Results of Measures of Directional Hostility.

Table 74. Summary of Analysis of Variance of Directional Hostility on the HDHQ for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	120.58	2	60.29	3.18
Within	549.28	29	18.94	$p = < .06$

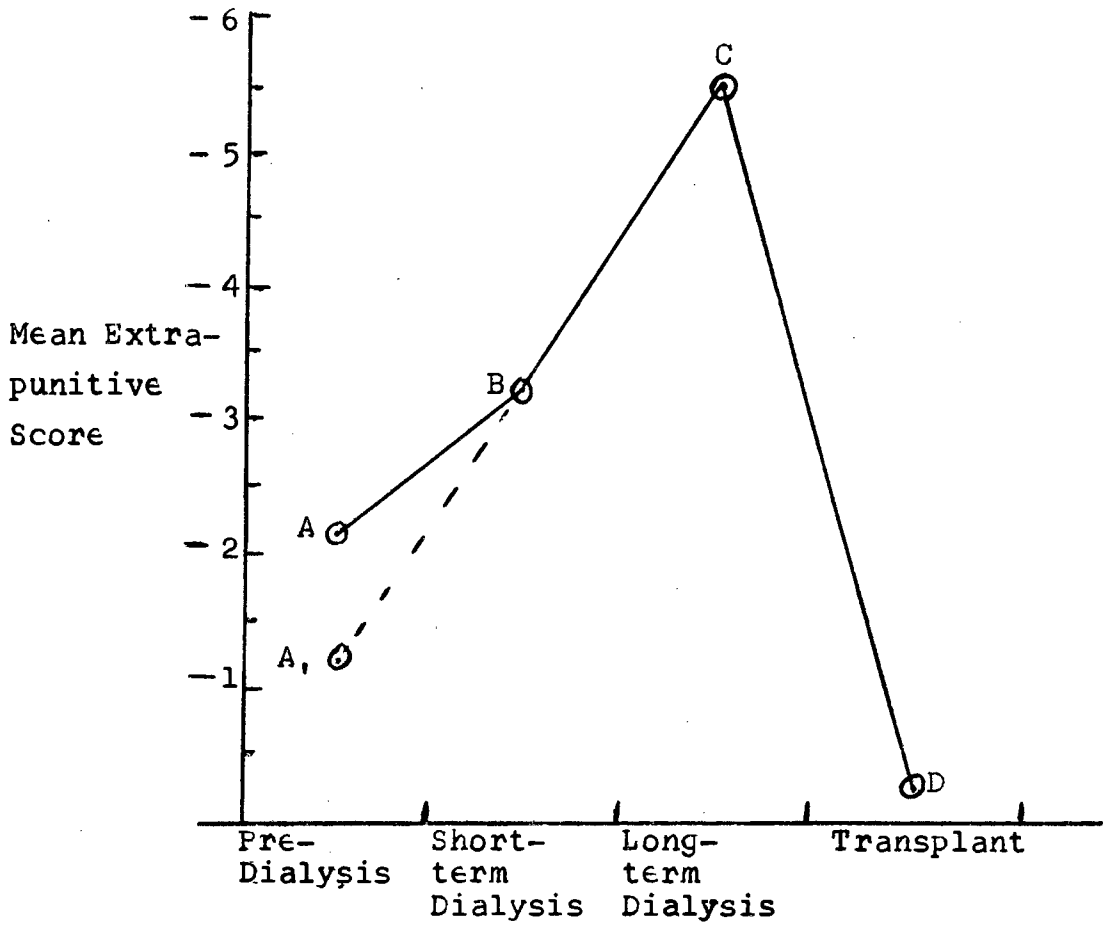
Table 75. Summary of Analysis of Variance of Directional Hostility on the HDHQ for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	119.54	2	59.77	2.39
Within	575.11	23	25.00	NS

Table 76. Means and Standard Deviations of Directional Hostility for the Predialysis, Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Variable	Predialysis		Short-term Dialysis	Long-term Dialysis	Transplant
N	15	9	9	8	9
$\bar{X}$	-2.13	-1.22	-3.22	-5.5	-.22
SD	4.27	3.11	5.93	3.38	5.16

Figure 1. Mean Changes in Extra-Punitiveness During the Various Adaptive Stages.



A = the total predialysis sample

A,= the nine patients selected from the total predialysis sample in order to investigate changes in extra-puntiveness from the predialysis to the short-term dialysis phases.

3. Results of Measures of Dependency.

Table 77. Summary of Analysis of Variance of the Nur Scale of the Adjective Check-list for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	28.92	2	14.46	.22
Within	1768.58	27	65.5	NS

Table 78. Summary of Analysis of Variance of the Nur Scale of the Adjective Check-list for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	22.75	2	11.37	.18
Within	1324.87	21	63.08	NS

Table 79. Summary of Analysis of Variance of the Suc scale of the Adjective Check-list for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	40.62	2	20.31	.32
Within	1671.67	27	61.91	NS

Table 80. Summary of Analysis of Variance of the Suc Scale of Adjective Check-list for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	3.08	2	1.54	2.77
Within	1166.25	21	55.53	NS

Table 81. Summary of Analysis of Variance of the Aba Scale of the Adjective Check-list for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	138.93	2	69.46	1.09
Within	1710.42	27	63.34	NS

Table 82. Summary of Analysis of Variance of the Aba Scale of the Adjective Check-list for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	91	2	45.5	.84
Within	1135.	21	54.04	NS

Table 83. Means and Standard Deviations of the I - E Scale for the Long-term Dialysis and Transplant Groups.

Group	N	Mean	SD	t Value	p
Long-term Dialysis	7	10.42	1.81	.59	NS
Transplant	8	9.75	2.49		

4. Results of Measures of Anxiety.

Table 84. Summary of Analysis of Variance of the IPAT Anxiety Scale for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	1.69	2	.84	.21
Within	111.72	28	3.99	NS

Table 85. Summary of Analysis of Variance of the IPAT Anxiety Scale for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	5.44	2	2.72	.65
Within	91.59	22	4.16	NS

5. Results of Measures of Self-Control.

Table 86. Summary of Analysis of Variance of the S-Cn Scale of the Adjective-list for the Predialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	64.68	2	32.34	.43
Within	2016.67	27	74.69	NS

Table 87. Summary of Analysis of Variance of the S - Cn Scale of the Adjective Check-list for the Short-term Dialysis, Long-term Dialysis and Transplant Groups.

Source	SS	DF	MS	F Ratio
A	85.32	2	42.66	.55
Within	1617.62	21	77.02	NS

6. Results of Measures of Intellectual Functioning.

Table 88. Summary of Analysis of Variance of Sten Scores for the Predialysis, Long-term Dialysis, Transplant and Rejected Groups.

Source	SS	DF	MS	F Ratio
A	173.23	3	57.74	14.00
Within	164.94	40	4.12	$p < .001$

Table 89. Summary of Scheffé Multiple Comparisons of Sten Scores for the Predialysis, Long-term Dialysis, Transplant and Rejected Groups.

	$\bar{X}$ 4	$\bar{X}$ 1	$\bar{X}$ 2	$\bar{X}$ 3
$\bar{X}$4	-	NS	.55	12.26 **
$\bar{X}$1			NS	9.45 **
$\bar{X}$2				6.38 ***
$\bar{X}$3				

$\bar{X}$ 1 = 2.93 (Predialysis); $\bar{X}$ 3 = 7.44 (Transplant);

$\bar{X}$ 2 = 3.12 (Long-term Dialysis); $\bar{X}$ 4 = 1.90 (Rejected).

** $p < .001$

*** $p < .01$

Table 90. Means and Standard Deviations of Sten Scores for the Predialysis, Long-term Dialysis, Transplant and Rejected Groups.

Variable	Predialysis	Long-term Dialysis	Transplant	Rejected
N	16	8	9	11
$\bar{X}$	2.93	3.12	7.44	1.90
SD	2.26	2.23	1.94	1.51

Table 91. Summary of Analysis of Variance of the Wechsler Belleuve Adult I.Q. Scale (Verbal) for the Predialysis, Long-term Dialysis and Rejected Groups.

Source	SS	DF	MS	F Ratio
A	2790.69	2	1395.34	3.64
Within	11880	31	383.22	$p < .05$

Table 92. Summary of Scheffé Multiple Comparisons of the Wechsler Bellevue Adult I.Q. Scale (Verbal) for the Predialysis, Long-term Dialysis and Rejected Groups.

	$\bar{X}$ 3	$\bar{X}$ 2	$\bar{X}$ 1
$\bar{X}$ 3		1.14	3.63 **
$\bar{X}$ 2			.36
$\bar{X}$ 1	-	-	

$\bar{X}1$ = 95.87 (Predialysis)
$\bar{X}2$ = 88.62 (Long-term Dialysis)
$\bar{X}3$ = 74.6 (Rejected).
** $p < .05$

Table 93. Means and Standard Deviations of W A I S (Verbal) for the Predialysis, Long-term Dialysis and Rejected. Groups.

Variable	Predialysis	Long-term Dialysis	Rejected.
N	16	8	10
$\bar{X}$	95.87	88.62	74.6
SD	19.89	13.88	22.59

Table 94. Summary of Analysis of Variance of the Standard Progressive Matrices for the Predialysis, Long-term Dialysis and Rejected Groups.

Source	SS	DF	MS	F Ratio
A	158.65	2	79.32	.58
Within	4355.5	32	136.10	NS

INITIAL DISCUSSION OF RESULTS OF PHASE III.

None of the measures of general hostility indicate significant differences between the predialysis sample and the sample of patients with long-term dialysis experience as revealed in tables 68, 70 and 72. Thus subsidiary hypothesis 4a, which states that the long-term dialysis sample will show significantly less general hostility than the predialysis sample is not supported.

No significant difference was found on any of the measures of general hostility between the short-term dialysis sample and the sample of patients on long-term dialysis as revealed in tables 69, 71 and 73. Subsidiary hypothesis 5b which states that there will be no significant difference in general hostility between the long-term dialysis patients and the patients on short-term dialysis, is supported.

Significant differences were found neither in the direction of hostility between the long-term dialysis and predialysis groups nor the long-term dialysis and short-term dialysis groups. However two features should be carefully noted :- (1) Table 74 reveals a significant difference in directional hostility between the long-term dialysis and the transplant groups. This will be discussed in more detail in the following section. (11) Table 76 shows a definite movement towards extra-punitiveness with the mean of 9 of the predialysis subjects being -1.22 and then increasing to -3.22 after a short period on dialysis. (The mean extra-punitive score of the total predialysis sample was-2.13).

The long-term dialysis mean is -5.5 which conveys a general movement towards extra-punitiveness. However, it should be made clear that this indicates a trend towards extra-punitiveness though there was no statistically significant difference either between the predialysis and short-term dialysis groups nor between the long-term dialysis and predialysis groups on the extra-punitive measure. Since the sample size in each of the groups was fairly small, significant levels may be reached in a study using a larger sample although this remains speculative. In sum, subsidiary hypotheses 4c and 5c which statesthat there will be no significant difference in the direction of hostility between the long-term dialysis patients, and the predialysis patients and the patients with short-term dialysis experience, was supported.

Reference to tables 77, 78, 79, 80, 81 and 82 reveal no significant difference between the long-term dialysis and the predialysis samples, and the long-term dialysis and the short-term dialysis samples on the various Adjective Check-list measures of dependency (Nurturance, Succorance and Abasement scales). Thus subsidiary hypothesis 4d which states that the long-term dialysis patients will show significantly less dependency than the predialysis patients was not supported. However, subsidiary hypothesis 5e which states that there will be no significant difference in dependency between the long-term dialysis patients and patients on short-term dialysis was supported. Subsidiary hypothesis 4f was not supported as revealed in Table 84, which indicates that there was no significant difference in anxiety (as measured by the IPAT Anxeity Scale) between the long-term dialysis and the predialysis samples. However subsidiary hypothesis 5g was supported as revealed in Table 85 which showed no significant difference in anxiety between the long-term dialysis and short-term dialysis samples.

Insofar as the self-control measure of the Adjective Check-list is concerned table 86 reveals no significant difference in the self-control (S -Cn) measure of the Adjective Check-list between the predialysis and long-term dialysis samples. Subsidiary hypothesis 4h which states that the long-term dialysis patients will show

significantly more self-control than the predialysis patients was therefore not confirmed. However the fact that there was no significant difference in the S - Cn measure between the long-term dialysis and the short-term dialysis samples does support subsidiary hypothesis 5 i (See table 87).

Turning to measures of intellectual functioning, in table 91 contrasting the predialysis, long-term dialysis and rejected groups on verbal W A I S results, the F Ratio of 3.64 ($df = 2, 31$: $p < .05$) shows that some significant difference does exist in the data. In order to investigate which groups differed from one another utilization was made of the Scheffé Multiple Comparisons Test. This test revealed a significant difference (refer to table 92) between the predialysis and rejected groups on the verbal W A I S. However no significant difference was found between the predialysis and long-term dialysis samples on the W A I S (verbal). Furthermore reference to Table 94, indicates no significant difference between the predialysis, long-term dialysis and rejected samples on the Standard Progressive Matrices Test.

Taking the results of both tests of intellectual functioning into account, there appears to be no significant difference between the long-term dialysis and the predialysis patients on levels of intellectual functioning. Subsidiary hypothesis 4j which states that the long-term dialysis patients will show a higher intellectual level of functioning than the predialysis patients was not supported.

INITIAL DISCUSSION OF RESULTS OF PHASE IV.

All measures of general hostility reveal no significant difference between the transplant sample and the sample of patients in the predialysis, short-term dialysis and long-term dialysis conditions. (see tables 68, 69, 70, 71, 72 and 73). Subsidiary hypothesis 6a which states that the transplant patients will show significantly less general hostility than the patients in the other three conditions, was therefore not supported.

Insofar as direction of hostility is concerned an interesting trend emerged with reference to the transplant and long-term dialysis groups. Although there was no significant difference in directional hostility between the predialysis, short-term dialysis and long-term dialysis groups, there was a significant difference in the direction of hostility between the transplant and the long-term dialysis samples (see table 74). It indicates that the long-term dialysis patients are significantly more extra-punitive than the transplant sample. Furthermore it appears that although there was no significant difference in the mean directional hostility between the predialysis, short-term dialysis and long-term dialysis groups nevertheless, there did appear to be a notable increase in extra-punitiveness from the predialysis stage through to the short-term dialysis and long-term dialysis phases. After transplantation it appears that extra-punitiveness significantly decreases as compared with the long-term dialysis phase (see figure 1). Subsidiary hypothesis 6b which states that there will be no significant difference in the direction of hostility between the transplant sample and the patients in the other three conditions is thus supported with regard to the comparison between transplant and the predialysis and short-term dialysis patients but the hypothesis is not supported with regard to the transplant and long-term dialysis patients.

Tables 77, 78, 79, 80, 81, 82 and 83 show no significant difference in measures of dependency (as revealed in the Adjective Check-list Nurturance, Succorance and Abasement scales and Rotter's I - E Scale) between the transplant sample and the patients in the other three conditions. Subsidiary hypothesis 6c which states that the transplant sample will exhibit significantly less dependency than the patients in the other three conditions, is thus not supported. Hypothesis 6d is not supported as reflected in the fact that there was no significant difference in anxiety measures between the transplant group and the other three groups (refer to tables 84 and 85)

No significant difference was found in self-control (as measured by the S - Cn Scale of the Adjective Check-list) between the transplant sample and the sample of patients in the other three conditions (see tables 86 and 87). Subsidiary hypothesis 6e which states that the transplant sample will show significantly more self-control than the patients in the other three conditions is thus not supported.

With reference to subsidiary hypotheses 7f (i) and 7f (ii) significant differences were found on measures of intellectual functioning between the transplant group and the sample of patients in the predialysis and long-term dialysis phases. When comparing sten scores between the transplant, predialysis, long-term dialysis (and rejected subjects), Standard Progressive Matrices percentile scores were converted in the latter three goups to sten scores, while the 16 PF Factor B sten score was utilized in the transplant sample. While table 88 reveals that a significant difference exists in the data, ($F = 14$; $df = 3,40$; $p < .001$.) the Scheffé Multiple Comparisons Test was used in order to pinpoint which groups significantly differed from one another. Table 89 shows that there was a significant difference ($F = 9.45$; $p < .001$), between the mean of the transplant and the predialysis groups while there was also a significant difference ($F = 6.38$; $p < .01$) between the mean of the transplant and the long-term dialysis samples. Furthermore a significant difference reflected in the Scheffé Multiple Comparisons Test was also found between the transplant mean and the mean of the rejected sample, ($F = 12.26$; $p < .001$) although this result has little instrinsic value in terms of the hypotheses.

In short subsidiary hypothesis 7f (i) which states that there will be no significant difference in the level of intellectual functioning between the transplant and the long-term dialysis samples was not supported. However subsidiary hypothesis 7f (ii) which states that the transplant sample will function at a significantly higher intellectual level than the patients in the predialysis stage was supported.

CHAPTER 5.

FURTHER DISCUSSION OF RESULTS.

1. Discussion of Results of Selection Procedures.

The most significant feature to emerge from the results of the present study concerns the method of selection of patients for the programme. It was hypothesized that those patients with whom the selecting team can more readily identify are more likely to be accepted for the programme. The results of the study found statistically significant differences between the groups of accepted and non-selected patients on measures of verbal intelligence, social class and educational levels, with the accepted sample showing significantly higher scores on all these variables than did the sample of non-selected patients. Furthermore when contrasting the Wechsler Bellevue Adult I.Q. Scale (verbal) in detail the accepted sample had significantly higher scores than the rejected sample on the following W A I S subtests :- (a) Information, (b) Comprehension, (c) Arithmetic Reasoning and (d) Similarities.

However no significant difference was found between the groups on the Digit Span sub-test, this probably suggesting that there was no significant difference in anxiety between the groups (See Rapaport, Gill and Schafer 1968). On measures of general intellectual ability as measured by the Standard Progressive Matrices Test (see Spearman 1939, 1946 ; Williams 1970) as well as on personality measures as measured by the Rorschach Inkblot Test, no significant differences between the groups were found.

The fact that patients who were selected for the programme had significantly higher scores than the non-selected patients on measures of verbal intellectual capacity, social class, and educational factors but did not significantly differ from the rejected sample on measures of general intellectual functioning nor on personality measures, suggests that selection for the programme was possibly based on easily apparent characteristics - factors

with which the selecting team could probably more readily identify.

A question which immediately emerges concerns the fact as to why should the selection team have based their selection for such a critically important programme on the superficial variables described above. One reason could be the lack of clear-cut predictive criteria for selection. Inadequate and insufficient research has been undertaken to investigate the psychological adaptive features involved in the ongoing dialysis and transplant programme. This had led to an over-reliance by researchers in the field on dubious, impressionistic, theoretical assumptions which have often lacked clear empirical substantiation (example Abram 1969). The emphasis on descriptive, impressionsitic observations of the patients' adaptations to the dialysis and transplant programme has very often led to conflicting and confusing reports about favourable adaptive criteria involved in the programme. This has made predictors of favourable adjustment to the programme extremely difficult to formulate - hence the possible reliance on superficial features involved in the selection process. Guion (1965) states in considering the selection process in general: "Social selection systems are built on scientific procedures involving careful development of criteria, tests of hypotheses about predictors, and appropriate models of prediction. Effective background research is not a simple mechanical application of easy rules; it calls for some skill and artistry in selecting variables and methods of validation"(p. 415).

In short, research in the field have suffered two serious drawbacks. Firstly, as has been mentioned, it has relied on broad theoretical expositions, often without the backing of empirical verification. A second limitation concerns the emphasis laid by researchers on their subjective view of what the stresses involved in the programme comprise. This has often led to sterile investigations which have not placed sufficient reliance on the views of the other members of the dialysis and transplant team (e.g. the Senior Sisters and Technicians), who play a significant role in the day-to-day management of the patients.

This aspect assumes greater prominence when it is considered that in the field of dialysis and transplantation there are usually difficult criterion problems because of the continual adaptation which the renal patient has to make to the various phases of the programme. Furthermore there are usually only a small number of subjects available. All these factors have made the development of meaningful predictors of favourable adjustment to the programme difficult to formulate and have consequently reduced selection for the programme to the mere measurement of superficial characteristics.

Before concluding this section it should be made clear that an alternative argument could be put forward with regard to why verbal intelligence, social class and education proved to be significant factors in the selection of patients for the programme. It could be argued that far from these factors being unfavourable predictors of adaptation, they may in fact be regarded as favourable predictors. Higher verbal intelligence and educational levels may mean easy communication with the staff, understanding of reasons for making decisions and changing opinions while higher socio-economic background may be associated with the norms of higher socio-economic background, that is, for example postponement of satisfaction and investment in the future instead of only in the present. All these factors may be regarded as favourable features in adaptation to the programme.

2. The Adpative Process.

(a) Discussion of Results of Intellectual Factors.

On looking at differences in intellectual functioning at the various stages in the ongoing dialysis and transplant programme the following results were obtained :- (1) no significant differences were found between the long-term dialysis and the predialysis samples on the Wechsler Bellevue Adult I.Q. Scale (verbal) nor on the Standard Progressive Matrices Test. (2) a significant difference was found in intellectual functioning between the transplant group,

and the predialysis and long-term dialysis samples, with the first having significantly higher scores than the latter two groups. It should be made clear that the sten scores of the 16 PF was used (Factor B) in the intellectual assessment of the transplant sample while in the predialysis and long-term dialysis samples, the Standard Progressive Matrices percentile scores were converted to sten scores.

Before attempting a detailed explanation of the above results certain general points should be noted. It should be made clear that the three groups under discussion may not be strictly comparable :- Firstly differences found between the groups may have been an artifact due to previous selection. Secondly although no significant differences were found between the three groups on age or sex variables, the transplant sample had a higher mean educational level (9.5) than the mean educational level of the predialysis (8.4) and long-term dialysis (7.0) groups. Thus although educational differences did not assume statistical significance, it may have contributed to the transplant sample performing significantly higher on the test of intellectual functioning than the other two groups. Furthermore, the fact that there was a lower verbal W A I S score in the long-term dialysis sample compared with the predialysis sample (although not reaching statistical significance) may have been a function of the long-term dialysis sample having had a lower mean educational level than the predialysis sample. A final general point to consider when looking at the intellectual results of the subjects concerns the fact that the results may have been affected by the small number of subjects found in each of the groups.

Various explanations can be provided for the lack of significant differences on the W A I S and Standard Progressive Matrices between the long-term dialysis and predialysis samples. One unsettled issue is the cerebral effect of toxic substances found in predialysis and long-term dialysis patients. Abram (1969) discusses the evidence for organic deterioration in the uremic stage (predialysis) while recent correspondence in the Lancet suggests the presence of dialysis dementia in long-term dialysis patients (Mahurkar et al 1973; Platts, Moorhead and Grech 1973; Greenblatt 1973; Lyle 1973; Blomfield 1973; Gunale 1973; Riley 1973).

Abram (1969) states, with reference to organic deterioration associated with uremia; "Psychological testing for brain damage (Bender, Graham-Kendall and W A I S) has invariably revealed some degree of organicity with difficulties with visual-motor co-ordination, non-verbal abstraction and attention concentration". However, it should be noted that he provides no data to substantiate these claims. Be this as it may, other investigators (example Tyler 1968) have accepted that there are neurological complications encountered in end-stage renal failure caused by uremia, electrolyte imbalance or hypertension.

Insofar as dementia associated with long-term dialysis is concerned, there has been much correspondence in the Lancet to suggest progressive dementia in patients maintained on haemodialysis for more than two years. Mahurkar et al (1973) report a "slowly progressive dementia with speech disturbances, involuntary movements, myoclonic jerks and multifocal seizures, arising in well dialysed patients who had no biochemical abnormalities of overt uremia". They found distinctive E.E.G. changes. Various etiological explanations have since been provided. While Platts et al (1973) suspect that a toxic substance present in untreated water which when used for long-term haemodialysis may be responsible for the dementia, Greenblatt (1973) attributes dialysis dementia to recurrent hypoglycaemia. Lyle (1973) and Blomfield (1973) emphasize the possibility of lead and other heavy metals in the dialysis apparatus as a possible cause of progressive dementia in long-term dialysis patients. Gunale (1973) believes that asparagine deficiency may be responsible for the neurological disturbance but Riley (1973) subsequently argues against such an explanation. In short research suggests that there might be organic deterioration associated with long-term dialysis.

Relating the forementioned research to the findings in the present study it is speculated that the lack of significant differences in the level of intellectual functioning between the predialysis and long-term dialysis groups can be explained as follows :- (1) to the presence of uremia in the predialysis sample possibly causing a lower than expected level of intellectual functioning (while the mean verbal W A I S score of the predialysis group was 95.87, the mean Standard Progressive Matrices score of the sample, a measure of general intellectual functioning - see Spearman 1939; 1946; Williams 1970 - was 87.7). (11) to the presence of dialysis dementia described earlier being in operation in the long-term dialysis sample which possibly causes a lower than expected level of intellectual functioning (while the mean verbal W A I S score of the long-term dialysis groups was 88.6 the mean Standard Progressive Matrices score of the sample was 85.8). Thus one possible explanation for the non-significant differences in intellectual factors between the groups may be explained in terms of a cancelling-out effect - the effects of uremia in the predialysis sample and of the effects of dialysis dementia in the long-term dialysis sample.

However it should be made clear that the above argument is speculative and one should be cautious interpreting these results in terms of the above explanation for the following two reasons :- Firstly although there was no statistically significant difference in educational levels between the predialysis and long-term dialysis samples, the long-term dialysis group had a lower mean educational score (7.0) than did the predialysis sample (8.4). Since the verbal sub-tests of the W A I S are generally acknowledged as being influenced by educational standing this factor may have accounted for the differences in the mean W A I S verbal intelligence scores between the predialysis sample (95.87) and the long-term dialysis sample (88.6). Secondly the groups were small in number which may have made them not necessarily comparable with each other.

Thus due to the fact that this research is not a longitudinal follow-up, the results must remain speculative. Only further research using a larger sample and being longitudinal in nature could establish whether the trends found in the present study are valid.

Insofar as the results of intellectual functioning between the transplant group and the other two groups are concerned, as mentioned earlier, the transplant sample showed a significantly higher mean sten score (measured by the 16 PF - Factor B) than did the other two groups (measured by Standard Progressive Matrices scores being converted to sten scores). The higher intellectual capacity in the transplant sample can be accounted for in a variety of ways :- Firstly in physical terms (uremia and dialysis dementia). It could be argued that with transplantation the influence of uremia and dialysis dementia may diminish and there may be an increase in the level of intellectual functioning. Furthermore the fact that there may be significantly higher intellectual functioning after transplantation could suggest that dialysis dementia described earlier may be a reversible process. However since this was an essentially cross-sectional study this speculation can only be finally answered through a future longitudinal study. Secondly it could be explained psychogenically in terms of the transplant patients' increased will to live. It has been well documented in the literature (example Humphreys 1971; Wechsler 1971) that motivation and drive improve the performance of intellectual tasks; therefore the transplant sample's significantly higher level of intellectual functioning may be explained in terms of this theory. Thirdly although there was no statistically significant difference in educational level between the groups, the transplant sample had a higher mean educational level than the other groups. This might well have accounted for their higher scores on measures of intellectual functioning.

A final explanation is related to the study by Schupak et al (1967) who found some correlation between survival and intelligence as measured by the W A I S. In his study of 25 patients the mean IQ for patients who survived was 95.0 as compared with a mean value of 84.4 in those who died. It can be argued that in the present study the fact that the transplant sample had survived was a function of their higher level of intellectual functioning. This explanation assumes particular relevance when it is noted that half the sample of long-term dialysis patients had previously received a transplant but had since rejected their new organ.

(b) Discussion of Results of Defence Mechanisms Used.

Much research has been undertaken looking at the defence mechanisms utilized by dialysis patients in coming to terms with the demands of the programme, with much emphasis having been laid on the defence mechanism of denial. (De Nour et al 1969; Short, Wilson and Durham 1969; Gentry and Davis 1972). In the present study no significant differences were found on measures of dependency, total hostility, anxiety or self-control between the patients in the predialysis phase and after short-term dialysis experience, nor between the predialysis, short-term dialysis, long-term dialysis and transplant samples. It could be argued that had the denial mechanism been operating to different degrees of intensity during the dialysis programme (see Short, Wilson and Durham 1969) it should probably have significantly decreased after transplantation. Thus it could be speculated that the mechanism of denial was absent since there were no significant differences in the forementioned variables between the transplant sample and the sample of patients in the other three conditions.

Alternatively it could be argued that since the dialysis patients throughout the dialysis programme and also post-operatively exhibited measures not significantly deviant from the normal range (and not significantly different from one another) they attempted to present a "healthy" front in order to minimize (and deny) the seriousness of their illness. It could furthermore be argued that denial was carried over post-operatively. This argument, it should be pointed out, is highly speculative although it has often been used in the literature (Wilson et al 1968; Glassman and Siegel 1970). The latter researchers state in interpreting their CPI results, which differed markedly from their clinical impressions: "We speculate the test data represents the patient's fantasy i.e. how he would like to feel and the clinical observation, a statement of how he is". (Glassman and Siegel 1970 pgs 573 - 574).

One could also account for the largely insignificant findings on the personality variables between the groups on the ongoing dialysis programme by speculating as to whether renal patients psychologically adapt to their situation even before the predialysis stage. Before reaching the predialysis (terminal) stage many of the patients have been subjected to long periods of medical tests and treatment often with periods of prolonged hospitalization. Thus the question which must be considered is whether the patients have already psychologically adapted themselves to their illness even before the predialysis stage, after which they learn to make minor psychological adjustments when put onto the dialysis and transplant programme. It can be further argued that renal patients put up their defences throughout the programme with the body's rejection of the kidney a constant threat.

Another interesting feature to emerge from the results of the present study concerns the significant difference between the transplant sample and the long-term dialysis sample on the extra-punitive variable. The long-term dialysis sample was significantly more extra-punitive than the transplant sample though there was no significant difference in general hostility between the groups. This suggests that the manner in which hostility is directed possibly changes after transplantation. The possible reduction in extra-punitiveness after transplantation could be explained in terms of the transplant patients having more control over their destiny and thus no longer needing to use the primitive defence mechanism of projection. This would support Goldstein and Reznikoff's (1971) finding that long-term haemodialysis patients have a significantly greater degree of external locus of control than do patients with minor medical problems. However, it should be made clear that in the present study no significant differences were found between the transplant and long-term dialysis groups on the I - E Scale (Rotter 1966). Further analysis of direction of hostility between the predialysis, short-term dialysis and long-term dialysis groups reveals a gradual but definite increase in extra-punitiveness through the various stages. Although the differences between the latter groups did not attain statistically significant levels, a clear pattern seems to have emerged (see figure 1). A larger sample may reveal statistically significant differences on the extra-punitive measure between the groups although until this is found, the above explanation must be considered speculative.

The significant difference on the extra-punitive measure between the transplant and long-term dialysis groups besides possibly indicating that the transplant patients have more control over their destiny could be explained in terms of Erikson's (1950) theory of infantile sexuality.

Erikson postulates that the anal-urethral sphincters are the anatomic models for the retentive and eliminative modes which in turn can lead to a variety of behaviour manifestations particularly related to control and aggression. In his description of a four year old girl who was alternating between holding-on (retention) and letting-go (elimination) he notes that while she closed up most of the time, when she opened up this was done in an outwardly aggressive manner. Relating Erikson's findings to the present study it could be speculated as to whether the kidney patient at the various phases of the renal programme is faced with a similar retention/elimination dilemma which he may act-out through projection of his hostility.

In summary these findings serve to highlight the importance of the defence mechanism of projection (see Kaplan De Nour et al 1968) in the patients' adaptation to the dialysis programme.

CHAPTER 6.

CONCLUSIONS.

1. The present research study indicates that selection for the ongoing dialysis and transplant programme is based on those characteristics (verbal intelligence, social class, educational level) with which the selecting team could probably readily identify. The fact that these criteria were used for selection can be explained in terms of the serious lack of understanding of the fundemental variables involved in adaptation. This factor coupled with the poor research design in the field and the blind adherence to broad theoretical assumptions which often lack empirical substantiation has led to a dearth of valid predictors of favourable dialysis and transplant adjustment.

2. The transplant sample showed a significantly higher level of intellectual functioning (measured by the 16 PF - Factor B) than did the predialysis and long-term dialysis samples (measured by the Standard Progressive Matrices percentile scores being converted to sten scores). Although clear-cut reasons for this finding are not clear, explanations for this include the following :-
(1) it can be argued that with transplantation the absence of uremia (as in the predialysis sample) and dialysis dementia (as in the long-term dialysis sample) may reflect a higher level of intellectual functioning; (2) it can be explained in terms of the increase of drive and motivation (after transplantation) on the performance of intellectual tasks; (3) it can also be speculated that the apparently high level of intellectual functioning in the transplant sample reflects the higher mean educational level of this group. However the fact that the groups were small in number and were cross-sectional in nature may have been limiting factors.

3. A clear pattern seemed to have emerged on the extra-punitive dimension (HDHQ Caine and Foulds 1967) with a definite (although not statistically significant) increase in extra-punitiveness in the predialysis, short-term dialysis and long-term dialysis stages. A statistically significant difference was found on this dimension between the transplant and long-term dialysis samples, with the latter having a significantly higher extra-punitive score than the former. These results suggest the increasing use of the defence mechanism of projection as a function of time spent on dialysis. This finding is possibly important for the day-to-day management and handling of the patient for it serves to stress that, as the patient remains longer and longer on the dialysis programme, he increasingly projects his hostility outwards.

4. Finally there was no evidence from the present research to indicate statistically significant changes in general hostility, anxiety, self-control or dependency during the various phases involved in the ongoing dialysis and transplant programme. This may suggest that the patients use the mechanism of denial (De Nour et al 1968; Short, Wilson and Durham 1969; Gentry and Davis 1971) in order to present a "healthy" front, or it may indicate that they build up defences in order to cope with their situations even before consideration for the programme.

IMPLICATIONS FOR FUTURE RESEARCH.

The experimental design as well as the specific results of the present study have important implications for future research in the field. The methodological approach of the study was based on the belief that the renal programme is a dynamic, ongoing process, with the patients having to make continual psychological adaptations in order to cope with the demands of the programme. This departs from the approach of many previous researchers in the field who have tended to focus attention on restricted (possibly arbitary) phases within the programme. It is hoped that future studies in the field will adopt the present methodological stance so that far more meaningful predictors of favourable dialysis adjustment can be developed.

When looking at the results of the present study in detail the findings that selection for the programme is possibly based on easily apparent (superficial) variables with which members of the selecting team can more readily identify, may have far-reaching implications for future research in the field. Future follow-up studies at other centres could investigate whether this is an isolated finding merely applicable to the renal unit studied, or whether it has wider implications. Should the latter be upheld it could serve to highlight the fact that investigations in the field are generally limited and that more comprehensive research is required in order to investigate more crucial predictive criteria of favourable dialysis and transplant adjustment.

Another area for future research is related to the findings of increasing projection of hostility as a function of involvement in the programme and the subsequent significantly lower projection of hostility after transplantation. While a possible link between extra-punitiveness in the kidney patient and the Eriksonian

theory of anal-urethral sphincters would be a particularly fascinating area of study, another explanation for these findings may also necessitate closer follow-up investigation. Just as Schupak et al (1967) found a correlation between higher intelligence and survival, it could be speculated that the fact that the transplant sample showed a significantly lower extra-punitive score than the long-term dialysis sample intimates that there may be some correlation between lower projection of hostility, and successful transplantation.

The fact that the transplant sample showed a significantly higher level of intellectual functioning than the predialysis and long-term dialysis samples is another area which requires closer follow-up research. While it could be argued that with transplantation the influence of toxic substances may diminish and there may be an increase in the level of intellectual functioning, it may also serve to support the finding of Schupak (1967) et al described earlier. However only future longitudinal studies could confirm these suppositions.

Finally that the present study failed to support Abram's (1969) clinical findings of changes in the psychological state of the patient from the uremic stage through to the phase after a few months on dialysis, serves to highlight the necessity for more empirical follow-up research in the field.

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APPENDIX I.

ADJECTIVE CHECK-LIST (GOUGH AND HEILBRUN 1965).

-: _____

I: _____

-actions: A number of words which may be used to describe people are listed below. d them over quickly and put a check-mark in front of each one you would consider -describe you. Do not worry about duplications or other words you may have checked. k quickly and do not spend too much time on any one word. Try to be frank, and ck those words which describe you as you really are, not as you would like to be.

ent-minded	complaining	effeminate	humorous
:ive	conceited	egoistical	hurried
-ptable	confident	emotional	idealistic
venturous	confused	energetic	imaginative
fected	conscientious	enterprising	immature
fectionate	conservative	enthusiastic	impatient
gressive	considerate	evasive	initiative
-art	contented	excitable	independant
oof	conventional	fair-minded	indifferent
-bitious	cool	fearful	individualistic
xious	co-operative	feminine	industrious
athetic	courageous	foolish	infantile
preciative	cowardly	foresighted	informal
gumentative	cruel	forceful	ingenious
rrogant	curious	forgetful	inhibited
rtistic	cynical	forgiving	intelligent
ssertive	daring	formal	interests-wide
utocratic	defensive	frank	interests-narrow
wkward	deliberate	friendly	intolerant
itter	demanding	frivolous	inventive
lustery	dependent	fussy	irresponsible
oastful	dependable	generous	irritable
ossy	despondent	gentle	jolly
alm	determined	gloomy	kind
apable	dignified	good-natured	lazy
areless	discreet	greedy	leisurely
utious	disorderly	hard-headed	logical
angeable	dissatisfied	hard-hearted	loud
heerful	distrustful	hasty	loya-
ivilized	distractible	headstrong	mannerly
lear-thinking	dominant	helpful	masculine
lever	dreamy	highstrung	mature
arse	dull	honest	meek
ld	easy going	hostile	mild
mmonplace	efficient	humorless	mischievous

APPENDIX II.

HDHQ (CAINE AND FOULDS, 1967).

PERSONALITY QUESTIONNAIRE.

(HDHQ)

By T.M. Caine

and G.A. Foulds

Surname

Christian Names

Age

Sex

Occupation

Marital Status

Date

Instructions:-

Please fill in this form by putting a circle round the "True" or the "False" after each of the statements overleaf. If you find it difficult to decide, ask yourself whether you think the statement is on the whole true or false, and put a circle round the appropriate word.

1. Most people make friends because friends are likely to be useful to them. True False

2. I do not blame a person for taking advantage of someone who lays himself open to it. True False

3. I usually expect to succeed in things I do True False

4. I have no enemies who really wish to harm me True False

5. I wish I could get over worrying about things I have said that may have injured other people's feelings. True Flase

6. I think nearly anyone would tell a lie to keep out of trouble. True False

7. I don't blame anyone for trying to grab everything he can get in this world. True False

8. My hardest battles are with myself. True False

9. I know who, apart from myself, is responsible for most of my troubles. True False

10. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right. True False

11. Some of my family have habits that bother and annoy me very much True False

12. I believe my sins are unpardonable. True False

13. I have very few quarrels with members of my family. True False

14. I have often lost out on things because I couldn't make up my mind soon enough. True False

15. I can easily make other people afraid of me, and sometimes do for the fun of it. True False

16. I believe I am a condemned person. True False

17. In school I was sometimes sent to the principal for misbehaving. True False

18. I have at times stood in the way of people who were trying to do something, not because it amounted to much but because of the principle of the thing. True False

19. Most people are honest chiefly through fear of being caught. True False

20. Sometimes I enjoy hurting persons I love. True False

21. I have not lived the right kind of life. True False

22. Sometimes I feel as if I must injure either myself or someone else. True False

23. I seem to be about as capable and clever as most others around me True False

24. I sometimes tease animals True False

25. I get angry sometimes. Frue False

26. I am entirely self-confident True False

27. Often I can't understand why I have been so cross and grouchy. True False

28. I shrink from facing a crisis or difficulty True False

29. I think most people would lie to get ahead True False

30. I have sometimes felt that difficulties were piling up so high that I could not overcome them. True False

31 If people had not had it in for me I would have been much more successful. True False

32. I have often found people jealous of my good ideas just because they had not thought of them first. True False

33. Much of the time I feel as if I have done something wrong or evil. True False

34. I have several times given up doing a thing because I thought too little of my ability. True False

35. Someone has it in for me. True False

36. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing. True False

37. I am sure I get a raw deal from life. True False

38. I believe I am being followed. True False

39. At times I have a strong urge to do something harmful or shocking. True False

40. I am easily downed in an argument. True False

41.	It is safer to trust nobody	True	False
42.	I easily become impatient with people	True	False
43.	At times I think I am no good at all	True	False
44.	I commonly wonder what hidden reason another person may have for doing something nice for me	True	False
45.	I get angry easily and then get over it soon.	True	False
46.	At times I feel smashing things.	True	False
47.	I believe I am being plotted against	True	False
48.	I certainly feel useless at times	True	False
49.	At times I feel like picking a fist fight with someone.	True	False
50.	Someone has been trying to rob me.	True	False
51.	I am certainly lacking in self-confidence	True	False

Please check to see that you have given answers for every statement.

APPENDIX III

IPAT ANXIETY SCALE.

(SELF -ANALYSIS FORM).

SELF ANALYSIS FORM

NAME _____ TODAY'S DATE _____
First Middle Last

_____ AGE _____ OTHER FACTS _____
(Write M or F) (Nearest Year) (Address, Occupation, etc., as instructed)

CONFIDENTIAL

Inside this booklet you will find forty questions, dealing with difficulties that most people experience at one time or another. It will help a lot in self-understanding if you check Yes, No, etc., to each, frankly and truthfully, to describe any problems you may have.

Start with the two simple examples just below, for practice. As you see, each inquiry is actually put in the form of a sentence. By putting a cross, X, in *one* of the three boxes on the right you show how it applies to you. Make your marks now.

1. I enjoy walking..... Yes ☐ Occasionally ☐ No ☐

A middle box is provided for when you cannot definitely say Yes or No. But use it as little as possible.

2. I would rather spend an evening:

(A) talking to people, (B) at a movie..... A ☐ In between ☐ B ☐

About half the items inside end in A and B choices like this. B is always on the right. Remember, use the "In between" or "Uncertain" box only if you cannot possibly decide on A or B.

Now:

1. Make sure you have put your name, and whatever else the examiner asks, in the place at the top of this page.
2. Never pass over an item but give some answer to every single one. Your answers will be entirely confidential.
3. Do not spend time pondering. Answer each immediately, the way you want to at this moment (not last week, or usually). You may have answered questions like this before; but answer them as you feel *now*.

Most people finish in five minutes; some, in ten. Hand in this form as soon as you are through with it, unless told to do otherwise. As soon as the examiner signals or tells you to, turn the page and begin.

STOP HERE—WAIT FOR SIGNAL

An-tb-7AA

1957-63 EDITION

B

Do not write in this column

-rough getting tense I use up more energy than most people in ting things done	True	Uncertain	False	
-ake a point of not being absent-minded or forgetful of details	True	Uncertain	False	
wever difficult and unpleasant the obstacles, I always stick to original intentions	Yes	In between	No	$Q_3(-)$
-end to get over-excited and "rattled" in upsetting situations	Yes	In between	No	
-ccasionally have vivid dreams that disturb my sleep	Yes	In between	No	
lways have enough energy when faced with difficulties	Yes	In between	No	C(−)
-ometimes feel compelled to count things for no particular purpose	True	Uncertain	False	
-st people are a little queer mentally, though they do not like to -mit it	True	Uncertain	False	
I make an awkward social mistake I can soon forget it	Yes	In between	No	L
-eel grouchy and just do not want to see people:) occasionally, (B) rather often	A	In between	B	
-m brought almost to tears by having things go wrong	Never	Very rarely	Some-times	
the midst of social groups I am nevertheless sometimes over-ne by feelings of loneliness and worthlessness	Yes	In between	No	O
-vake in the night and, through worry, have some difficulty in -eping again	Often	Sometimes	Never	
-y spirits generally stay high no matter how many troubles I meet	Yes	In between	No	
-ometimes get feelings of guilt or remorse over quite small matters	Yes	In between	No	
-y nerves get on edge so that certain sounds, e.g., a screechy hinge, e unbearable and give me the shivers	Often	Sometimes	Never	
something badly upsets me I generally calm down again quite ickly	True	Uncertain	False	
end to tremble or perspire when I think of a difficult task ahead	Yes	In between	No	Q_4
-sually fall asleep quickly, in a few minutes, when I go to bed	Yes	In between	No	
-ometimes get in a state of tension or turmoil as I think over my cent concerns and interests	True	Uncertain	False	

TOP HERE. BE SURE YOU HAVE ANSWERED EVERY QUESTION. B Score

APPENDIX IV

I - E SCALE (ROTTER 1966).

(1)

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned, and indicate your choice by putting a cross (X) in the spaces provided next to the two alternatives. Be sure to select the one you actually believe to be more true, rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

In some instances you may discover that you believe both statements or neither one. In such cases be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

11.a. Becoming a success is a matter of hard work, luck has little or nothing to do with it. ____

b. Getting a good job depends mainly on being in the right place at the right time. ____

12.a. The average citizen can have an influence in government decisions. ____

b. This world is run by the few people in power, and there is not much the little guy can do about it. ____

13.a. When I make plans, I am almost certain that I can make them work. ____

b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow. ____

14.a. There are certain people who are just no good. ____

b. There is some good in everybody. ____

15.a. In my case getting what I want has little or nothing to do with luck. ____

b. Many times we might just as well decide what to do by flipping a coin. ____

16.a. Who gets to be the boss often depends on who was lucky enough to be in the right place first. ____

b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it. ____

17.a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control. ____

b. By taking an active part in political and social affairs the people can control world events. ____

18.a. Most people don't realize the extent to which their lives are controlled by accidental happenings. ____

b. There really is no such thing as "luck". ____

19.a. One should always be willing to admit mistakes. ____

b. It is usually best to cover up one's mistakes. ____

APPENDIX V

ADDITIONAL MEANS AND STANDARD DEVIATIONS.

ADDITIONAL MEANS AND STANDARD DEVIATIONS.

Scale	Sample	Means	Standard Deviations.
Dom	Predialysis	47.07	8.08
	Short-term dialysis	49.87	6.51
	Long-term dialysis	48.25	7.99
	Transplant	45.25	12.33
Agg	Predialysis	43.64	8.00
	Short-term dialysis	42	6.27
	Long-term dialysis	43.37	8.33
	Transplant	42.87	7.84
Nur	Predialysis	52.85	8.31
	Short-term dialysis	55	8.07
	Long-term dialysis	55.12	7.86
	Transplant	53	7.89
Suc	Predialysis	50.92	7.77
	Short-term dialysis	49.25	6.31
	Long-term dialysis	48.37	7.85
	Transplant	48.87	8.06
Aba	Predialysis	53.92	7.39
	Short-term dialysis	51.75	4.39
	Long-term dialysis	53.75	8.84
	Transplant	49	8.03
S-Cn	Predialysis	53.92	8.10
	Short-term dialysis	55.62	9.07
	Long-term dialysis	51.62	8.65
	Transplant	55.62	8.60
HDHQ (Total Hostility)	Predialysis	18.4	8.27
	Short-term dialysis	15.77	10.38
	Long-term dialysis	19.87	10.16
	Transplant	15.11	6.95

Scale	Sample	Means	Standard Deviations.
Anxiety (IPAT)	Predialysis	6	2.03
	Short-term dialysis	4.62	2.06
	Long-term dialysis	5.75	2.12
	Transplant	5.44	1.81
Standard Progressive Matrices	Predialysis	87.75	11.85
	Long -term dialysis	85.87	14.23
	Rejected	82.81	9.09
Age	Predialysis	35	11.28
	Short-term dialysis	35.6	12.22
	Long-term dialysis	34.62	10.80
	Transplant	33.66	14.27
	Rejected	39.72	8.23
Educational Level	Predialysis	8.41	3.02
	Short-term dialysis	9.4	3.2
	Long-term dialysis	7.0	1.06
	Transplant	9.55	2.18
	Rejected	5	3.3

E R R A T A

Page 50

Table 2: F ratio should read .05

Table 3: F ratio should read .03

Page 115

Table 59: t value should read .06

Page 122

Table 70: F ratio should read .02

Table 71: F ratio should read .06

Page 125

Table 80: F ratio should read .02