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**PREDICTORS OF OUTCOME IN A SHORT-TERM PSYCHIATRIC DAY
HOSPITAL PROGRAM**

by

Monique Potvin Kent ©

**A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the Master of Arts**

**Department of Psychology
Carleton University
Ottawa, Ontario
May 25, 1998**

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and Research acceptance of the thesis
submitted by
Monique Potvin Kent
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ABSTRACT

In order to contribute to the relatively small literature which has examined predictor variables in short-term day hospital settings, the present study assessed which selected patient demographic and diagnostic variables predicted outcome in a three-week psychiatric day hospital program. In particular, chronicity variables (age, number of prior psychiatric hospitalizations, duration of psychiatric difficulties, and presence of a personality disorder), social support variables (living arrangement, marital status, employment status, and the Family Problems scale of the MMPI-2), and personality variables (MMPI/MMPI-2 Psychopathic Deviate, Paranoia, Social Introversion, Social Discomfort, and Negative Treatment Indicator scales) were evaluated as potential predictors.

Two-hundred and twenty-four subjects participated in this study. Measured outcome variables included pre- and post-treatment scores on the Beck Depression Inventory, State Trait Anxiety Inventory, and Symptom Checklist-90-R. Due to multicollinearity among these measures, the average standardized residual change score was used as the outcome measure.

Results revealed that, combined, chronicity variables were predictive of outcome. Specifically, those patients hospitalized more than once and those with a personality disorder had more symptoms after treatment. Social support and personality variables did not significantly predict outcome. However, those who scored higher on the Social Introversion scale (MMPI) were more symptomatic at discharge.

Although these results possess marginal clinical utility in terms of accounting for variation in symptom change, this study was able to overcome some of the methodological flaws seen in the long-term day hospital literature. Future research on predictor variables should consider using a prospective approach including random assignment to treatments, more comprehensive and diverse outcome measures, and an exploration of specific diagnostic groups.

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Predictors of Outcome in a Short-Term Psychiatric Day Hospital Program

Partial hospitalization is the generic term applied to programs where patients typically suffering from mental illness spend a substantial part of their time in a treatment setting while still maintaining their ties to the community, their social network and their environment (Rosie, 1987). Partial hospitalization encompasses a wide variety of programs serving a diversity of functions. Luber (1979) has identified three functions that these programs can serve. These include: (1) an alternative to inpatient hospitalization, (2) a transitional facility for re-entry into the community after inpatient hospitalization and, (3) a rehabilitation facility for those patients suffering from chronic psychiatric illness.

Partial hospitalization includes such programs as day hospitals, day care and day treatment programs. Precise definition of these forms of partial hospitalization has been hampered by the fact that various authors have defined these terms differently in relation to the function, treatment locale, and the population served (Luber, 1979). Rosie (1987) distinguishes between these three different types of programs in terms of their function and the population treated. More specifically, he defines day hospitals as those programs which treat acutely ill patients who would otherwise be treated on an inpatient basis. Maxey (1979) adds that day hospitals are generally viewed as programs which provide a complementary range of psychiatric services by a multidisciplinary team which includes medical supervision.

Day treatment programs are described as a more intensive alternative to outpatient care and also as transitional care for psychiatric patients who have recently been discharged from inpatient treatment, but are not yet ready to be fully reintegrated into the

community. The focus of day treatment programs is on patients who are in some degree of remission from acute mental illness. It is also stressed that day treatment programs are often highly specialized with regards to the population they treat (Rosie, 1987).

Rosie (1987) also describes day care programs, another form of partial hospitalization. He states that these programs aim to support and rehabilitate chronic psychiatric patients. Maxey (1979) characterizes day care programs as providing socially and occupationally oriented services which include limited medical supervision. It has also been stressed that day care programs have tended to service the mentally and physically challenged and the elderly more so than the mentally ill (Vaughan, 1985).

The first day hospital for psychiatric patients was opened by Dzhagarov in 1933, in Moscow, Russia, as a response to a shortage of psychiatric hospital beds. The first day hospital in North America was opened in 1946 at the Allen Memorial Institute in Montreal and it was the founder of this program, Dr. D. Ewen Cameron, who first coined the term "day hospital" (Luber, 1979). This program was viewed as an adjunct to inpatient psychiatric treatment, not as a replacement. In the late 1940's day hospitals began to slowly emerge in the United States and in Britain. The North American day hospitals generally followed the lead of the Montreal day hospital and aimed to help ease the transition between inpatient hospitalization and the community (Luber, 1979). The British day hospitals, on the other hand, aimed to replace inpatient hospitalization as advocated by the original Russian model. The proliferation of day hospitals began in earnest in the late 1960's (Luber, 1979). According to Whitelaw and Perez (1987), this growth was attributable to the development of psychopharmaceutical agents that enabled the stabilization of psychiatric patients, to the documentation of the detrimental effects of

institutionalization of psychiatric patients, and to the demonstrated efficacy of day hospital treatment programs and their potential for cost savings. In addition, the flexibility in treatment programming and the fact that individuals received treatment and simultaneously remained in contact with the community and their social network were seen as advantageous (Luber, 1979). Lastly, government legislation led to the growth of partial hospitalization programs since many governments required the provision of such programs under their respective mental health acts (Whitelaw & Perez, 1987).

The need for increasing partial hospitalization programs was first recognized in Canada by the Royal Commission of Health Services of 1962 (Goldman & Arvanitakis, 1981). Presently, in Ontario, all services designated as psychiatric facilities are mandated to include partial hospitalization programs according to the Mental Health Act of Ontario (Government of Ontario, 1996).

Numerous studies have pointed to the effectiveness of psychiatric day hospital treatment (e.g. Howes, Haworth, Reynolds, & Kavanaugh, 1997; Piper, Rosie, Azim, & Joyce, 1993). Multiple studies have also shown that psychiatric day hospital programs are equally as effective as inpatient treatment (e.g. Russell, Mai, Busby, Attwood, Davis, & Brown, 1996; Schene, van Wijngaarden, Poelijoe, & Gersons, 1993; Washburn, Vannicelli, Longabaugh, & Scheff, 1976). This conclusion is particularly salient in the current era of health care cost-cutting since, per patient, day hospital programs are considered more cost-effective than inpatient care.

Once it was established in the literature that day hospital programs were an effective means of treating psychiatric populations, some researchers turned their focus to determining who benefited most from this treatment modality. The majority of the

research on predictors of outcome has focused on (1) long-term day hospital programs, programs which patients attend for a minimum of three months and a maximum of one year, and on (2) programs which treat heterogeneous psychiatric populations including patients diagnosed with psychotic disorders. The research which examines predictor variables for short-term (less than three months) psychiatric day hospitals is virtually non-existent and the research which explores these variables in day hospital settings which cater exclusively to affective disordered and personality disordered patients is extremely scarce. It is for this reason that this study examined potential predictor variables of outcome in a short-term day hospital setting which treats primarily affective disordered and personality disordered patients.

In reviewing the literature in this area, predictor variables of outcome in long-term day hospital programs which accept a heterogeneous patient population will first be explored. A thorough exploration of the research which has examined predictor variables in programs which exclude psychotic patients will then follow.

1.1 Predictors of Outcome in Day Hospital Programs with a Heterogeneous Population

In order to establish which patients improve most while in day hospital programs that serve a mixed diagnostic population, researchers have examined demographic variables, psychiatric diagnosis, and treatment history. With regard to demographic variables, most studies with heterogeneous populations have supported the idea that older subjects have more positive outcomes than younger subjects (Dunn, Staley & Sexton, 1982; Ferber, Oswald, Rubin, Ungemack, & Schane, 1985; Vidalis & Baker, 1986). Although fewer studies have examined marital status as a predictor of outcome, the studies which have looked at this variable have confirmed its significance as a predictor of

outcome (Carney, Ferguson & Sheffield, 1970; Dunn, Staley & Sexton, 1982). Being married appears to predispose one to a more favourable outcome in a day hospital setting. The variables of sex, living arrangement, and employment status have not been examined sufficiently to specify any trends or lack thereof.

In terms of diagnosis, there is little evidence to suggest that outcome is influenced by diagnostic group membership in day hospital programs that serve a heterogeneous population since research results in this area have been equivocal. Most strikingly, psychotics have been described as having more positive outcomes in such day hospital programs (Turner, McGovern, Donneson, Sandrock, & Burnstein, 1982), while in other settings, they have been described as faring more poorly (Azim, Weiden, Ratcliffe, Nutter, Dyck, & Howarth, 1978; Dunn, Staley, & Sexton, 1982). Some studies have concluded that psychiatric diagnosis is not predictive of outcome at all (Beigel & Feder, 1970; Case, 1991; Ferber, Oswald, Rubin, Ungemack, & Schane, 1985).

A history of prior psychiatric hospitalization has generally been shown to be a significant predictor of poorer outcome in day hospital programs that treat a mixed population (Carney, Ferguson, & Sheffield, 1970; Dunn, Staley, & Sexton, 1982). Not all research has supported this finding however. In particular, Azim, Weiden, Ratcliffe, Nutter, Dyck, and Howarth (1978) concluded that the number of previous hospitalizations was unrelated to outcome, and Ferber, Oswald, Rubin, Ungemack and Schane (1985) revealed that those patients who were hospitalized for greater than two years had a greater likelihood of completing their day hospital program.

As is evident from this brief summary, very few consistent demographic or diagnostic predictors have been revealed in the day hospital literature which focuses on

mixed patient populations. According to Piper et al. (1994), this lack of consistency may be attributable to the variability among these day hospital programs. The aforementioned studies have examined day hospital programs that vary in terms of length, psychological treatment orientation (i.e. psychodynamic, emotionally focused etc.), and diagnostic mix. Although all the studies described above used heterogeneous populations, the actual makeup of the day hospital populations was quite disparate since they included different proportions of patients suffering from psychotic disorders, affective disorders, and personality disorders. For instance, 30% of the sample used by Vidalis and Baker (1986) was diagnosed with schizophrenia whereas, 90% of Ferber, Oswald, Rubin, Ungemack and Schane's sample (1985) was diagnosed with this disorder. Although both of these studies used mixed populations, such varying sample makeup could readily account for incongruent results.

Methodologically, it has also been argued that the lack of consistency in predictors of outcome is due to the fact that many researchers have focused on isolated variables. These variables often do not have predictive utility on their own according to Piper et al. (1994). The use of multiple predictor variables would allow for the analysis of interactions among these variables, however, few studies employ these methods.

Inconsistencies in this literature are also purported to arise since a number of the studies previously described examine multiple predictors and their results indicate that only a few of the predictors were statistically meaningful. Results obtained under these conditions could have occurred by chance according to Piper et al. (1994).

Lastly and most importantly, few trends in predictor variables have been revealed in this day hospital literature since very diverse outcome measures have been employed.

Outcome variables range from measures of regular attendance (e.g. Vidalis & Baker, 1986) to those of improved symptomatology (e.g. Azim et al., 1978). Most commonly, however, studies that have examined predictor variables with mixed populations have employed the criteria of remaining in the program as the measure of positive outcome (e.g. Beigel & Feder, 1970; Case, 1991; Ferber et al., 1985). It can most easily be argued that remaining in a program is not a therapeutically-relevant outcome measure, nor is it necessarily a sign of positive outcome.

1.2 Predictors of Outcome in Long-term Day Hospital Programs with an Affective and Personality Disordered Population

The literature that has examined predictors of outcome in long-term day hospital settings which exclusively treat patients suffering from affective disorders and personality disorders has, generally, overcome the methodological weaknesses plagued by the previous literature. More precisely, multivariate statistical techniques have been used more commonly and the outcome measures chosen have, more often than not, reflected multiple aspects of treatment outcome including symptomatology change and interpersonal functioning of patients.

1.2.1 Demographic Variables as Predictors of Outcome

Within the context of long-term day hospital programs which service patients diagnosed with affective disorders and personality disorders, a small proportion of research has examined demographic, treatment history and personality variables. In terms of demographic variables, Piper, Joyce, Rosie, and Azim (1994) examined the predictive utility of age and marital status in their multidisciplinary day hospital setting using 99 subjects. Their day hospital treated, within a psychodynamic framework, primarily chronic

psychiatric patients suffering from affective disorders and personality disorders. Patients attended the program five days per week for 18 weeks. Seventeen outcome variables were used in their study including measures of symptomatology, interpersonal functioning, self-esteem, life satisfaction, defensive functioning, and personalized target objectives. These outcome variables were reduced by a principal components analysis with orthogonal rotation to four outcome factors which included: general symptomatology and target objectives, social maladjustment and dissatisfaction, pathological dependency and positive interpersonal functioning. The general symptomatology and target objectives outcome measure included target objective severity as rated by an assessor, and measures of depression, self-esteem, symptomatic distress and maladaptive defensive style. The social maladjustment and dissatisfaction outcome measure included measures of sexual interpersonal functioning, family interpersonal functioning, social interpersonal functioning and life dissatisfaction. The pathological dependency outcome measure included measures of pathological attachment and emotional reliance, and the positive interpersonal functioning outcome measure included measures of present interpersonal behaviour and number of friends. The results of their univariate and multivariate analyses revealed that age and marital status were not significantly related to any of the outcome factors. When outcome was defined as those who remained in the program (versus those who dropped out), remaining was significantly related to age ($r = .23, p < .003$) and to marriage ($r = .23, p < .003$). Subjects who were older and subjects who were married tended to complete day hospital treatment.

1.2.2 Diagnosis and Treatment History as Predictors of Outcome

In another study undertaken in the same setting, Piper, Joyce, Azim and Rosie

(1994) examined the role of a diagnosis of personality disorder on outcome. Surprisingly, this diagnosis was not significantly related to any of their outcome variables including general symptomatology and target objectives, social maladjustment and dissatisfaction, pathological dependency and positive interpersonal functioning. The authors stress that this negative finding is limited by the fact that the diagnosis of a personality disorder was obtained in an unstructured manner. For this reason, they question the validity of this Axis II diagnosis. In this study, the authors also revealed that subjects' initial severity of disturbance, as measured by the SCL-90, was not related to their four outcome variables.

Karterud, Vaglum, Friis, Irion, Johns and Vaglum (1992) for their part examined the outcome of 97 patients in their long-term psychiatric day hospital program. Treatment was prescribed for between four to eight months and the orientation was psychodynamic. Outcome was defined as each subject's score on the General Symptom Index, the mean symptom score of the SCL-90, and as the overall level of pathology at admission and discharge on the Health Sickness Rating Scale that was completed independently by two psychiatrists. Their results revealed that those patients who were diagnosed solely with a DSM-III-R Axis I disorder had the most positive outcomes on the SCL-90 at discharge, followed by those diagnosed with borderline personality disorder and "other personality disorders" (defined as those patients diagnosed with avoidant, dependent, passive-aggressive, schizoid, narcissistic, and mixed personality disorders). Patients suffering from schizotypal personality disorder fared the most poorly. According to the Health Sickness Rating Scale, the greatest improvement from admission to post-treatment was seen in those patients either with no personality disorders or with "other personality disorders". Patients diagnosed with borderline personality disorder exhibited only modest change and

patients diagnosed with schizotypal personality disorder did not change. The authors also stated that patients without a personality disorder improved significantly more ($p < .05$) than both the schizotypal and the borderline patients. The “other personality disorder” patients improved significantly more ($p < .05$) than the schizotypal patients.

Within the same day hospital setting, Vaglum, Friis, Irion, Johns, Karterud, Larsen and Vaglum (1990) compared 97 long-term psychiatric day hospital patients by grouping them into three categories including: severe personality disorder ($n = 52$), other non-severe personality disorder ($n = 23$) and no personality disorder (Axis I disorder only; $n = 22$). As noted in the previous study, their measures of outcome included the General Symptom Index of the SCL-90 and the Health Sickness Rating Scale. By examining the General Symptom Index scores, it was concluded that the presence of a personality disorder was significantly associated with poorer outcome. More precisely, it was stated that, at discharge, there was a significant difference between the no personality disorder group and the other non-severe personality disorder group ($p < .01$). It was also reported that positive change in the Health Sickness Rating Scale, the measure of overall psychopathology, was significantly greater for the group of patients without a personality disorder than for the group with severe personality disorders. The other non-severe personality disorder group did not differ significantly from the other two groups.

Only Piper et al. (1994a) examined treatment history in a day hospital setting serving affective disordered and personality disordered patients. One-hundred-and-sixty-five patients attended the program 7 hours per day, 5 days per week for an 18-week period. Of the four outcome factors, which included: general symptomatology and target objectives, social maladjustment and dissatisfaction, pathological dependency and positive

interpersonal functioning, previous hospitalization was significantly related to positive interpersonal functioning ($r = .23$, $p < .05$).

1.2.3 Personality Variables as Predictors of Outcome

The main thrust of Piper et al.'s (1994b) work included the examination of personality variables as predictors of success in their multidisciplinary day hospital setting. More precisely, they examined the degree of psychological mindedness, work in therapy and their interaction in predicting positive outcome of 99 psychiatric patients in a psychiatric day hospital. The assessment of work in therapy was derived by asking each patient and each therapist to rate the work undertaken by each patient on a 7-point Likert-type scale ranging from "very little" to "very much". Four work variables were thus derived: patient's self-rating, other patients' ratings, therapist rating and the patient's average rating of the other patients. Psychological mindedness, the ability to identify intrapsychic elements, was assessed by having subjects watch a video with a simulated interaction between a patient and a therapist. Subjects were then prompted to address what was troubling the patient in the video. As previously described, their outcome variables included: general symptomatology and target objectives, social maladjustment and dissatisfaction, pathological dependency and positive interpersonal functioning. The results indicated that patients' self-rating of work during therapy was significantly related to general symptomatology and target objectives ($r = -.25$, $p < .05$) and social maladjustment and dissatisfaction ($r = -.23$, $p < .05$). Other patients' rating of work was also significantly related to general symptomatology and target objectives ($r = -.28$, $p < .01$). Using the more stringent Bonferroni statistical correction criteria, none of these correlations remained significant. Their univariate analysis results also indicated that

psychological mindedness was significantly correlated with favorable outcomes on the general symptomatology and target objectives factor ($r = .32, p < .001$), the social maladjustment and dissatisfaction factor ($r = .28, p < .006$) and the pathological dependency factor ($r = .25, p < .03$). Using the Bonferroni adjusted correction criteria, only the first two outcome variables remained significant. Multivariate analyses showed that psychological mindedness and work had significant independent relationships with positive outcome and that in combination, they accounted for up to 25% of the outcome variability.

Piper et al. (1994a) also looked at the construct of quality of object relations and the construct of psychological mindedness which was described above. Quality of object relations was defined as an individual's lifelong pattern of establishing various types of relationships, ranging from primitive to mature. These two personality constructs were chosen for their theoretical link to the psychodynamic orientation of the program. Their results indicated that psychological mindedness ($r = .32, p < .001$) and quality of object relations ($r = .26, p < .009$) were significantly related to the outcome variable of general symptomatology and target objectives. However, when the Bonferroni adjusted criterion was used only psychological mindedness remained significant. High levels of psychological mindedness were thus directly related to positive general symptomatology and success in meeting target objectives. Results also revealed that psychological mindedness, quality of object relations and the interaction between quality of object relations and presence of a personality disorder made significant independent contributions to the outcome variable of general symptomatology and target objectives ($p < .0001$). Psychological mindedness ($r = .28, p < .006$) and quality of object relations ($r = .21, p < .04$) were also significantly

related to favourable outcome on social maladjustment and dissatisfaction. However, after using the Bonferroni adjusted criterion only psychological mindedness remained significant. The results of a multiple regression analysis that examined psychological mindedness, quality of object relations and their interaction revealed that each made significant independent contributions ($p < .001$) to social maladjustment and dissatisfaction. Psychological mindedness was also related to the outcome variable of pathological dependency ($r = .25, p < .03$). Quality of object relations and psychological mindedness were not significantly related to the outcome variable of positive interpersonal functioning.

The results of this study also revealed significant interactions between quality of object relations and other variables. Marriage compensated for low quality of object relation scores and facilitated remaining in the day treatment program. The presence of a personality disorder detracted from high object relation scores in terms of favorable outcome for general symptomatology and target objectives. Quality of object relations also interacted with psychological mindedness in that high psychological mindedness scores made up for low quality of object relation scores in terms of social maladjustment and dissatisfaction.

Quite obviously, there is a scarcity of literature on predictors of outcome in long-term programs which treat patients diagnosed with affective disorders and personality disorders. In particular, demographic variables and treatment history variables have not been extensively examined as potential predictors. Despite this fact, when one considers this literature it becomes evident that there is a trend indicating that those suffering from personality disorders have poorer outcomes. In addition, there is initial evidence that some

personality variables may be predictive of outcome. More precisely, the studies conducted by Piper et al. (1994a; 1994b) have consistently shown the predictive utility of work during therapy, quality of object relations and psychological mindedness.

Although the literature sheds light on selected variables which influence success in long-term day hospital settings, the generalizability of these results is questionable since all of this research has been undertaken within programs that have a psychodynamic orientation. One can thus question whether the results found within such settings are applicable to settings with other psychological orientations. One might also question whether these results are applicable to short-term day hospital programs which service the same population.

Although these trends might not be generalizable to programs with different psychological orientations or lengths, two methodological strengths of this research need to be noted. Firstly, the authors of this research used more therapeutically-relevant outcome measures such as symptom change rather than focusing on program completion. In addition, these researchers employed multiple outcome variables rather than using one such measure. The advantage to focusing on multiple outcome variables is that the researchers can capture multiple aspects of outcome e.g. interpersonal functioning, emotional features and symptomatology. Secondly, the Piper et al. studies in particular are more statistically sophisticated since they used multivariate techniques in addition to univariate techniques to help us understand the relationship or interaction among various predictor variables.

1.3 Predictors of Outcome in Short-term Day Hospital Programs with an Affective and Personality Disordered Population

The research which has been undertaken to determine which variables predict outcome in short-term psychiatric day hospital programs which treat affective disorder and personality disorder patients is extremely scant. In fact, only one such study has been completed. Despite this paucity of literature, the research that has been completed in this area has replicated the previously described methodological strengths of the long-term literature.

Recently, Johnston and Busby (1997) attempted to predict success of 47 patients suffering from affective disorders in a three-week short-term day hospital setting. They examined marital status, length of illness, Beck Depression Inventory (BDI) intake scores, MMPI depression sub-scale scores (MMPI-D) at intake and DSM III-R Axis IV ratings of psychosocial stressors as potential predictors. Outcome in the short-term program was determined by residual change scores derived from pre- and post-treatment General Severity Index scores on the Symptom Checklist-90-Revised (SCL-90-R). Their results indicated that length of illness ($r = 0.41$, $p < .005$), pre-BDI ($r = 0.61$, $p < .005$), and MMPI-D ($r = .61$, $p < .005$) scores were significantly related to meaningful changes in SCL-90-R scores, while marital status and Axis IV ratings of psychosocial stressors were not. Further analyses using multiple regression indicated that a significant linear combination of the five predictor variables accounted for 46.4% of the variance in the SCL-90-R residual change scores.

The methodological strengths of this study include the use of a more therapeutically-relevant outcome measure and the use of multiple predictor variables. The

results of this study, however, are quite specific since they focus uniquely on those patients suffering from an affective disorder to the exclusion of those diagnosed with a personality disorder. Quite obviously, further research is needed in this area to help determine valid predictors of outcome in short-term psychiatric day hospital settings with an affective disordered and personality disordered population. The present study will thus examine this issue.

1.4 The MMPI as A Predictor of Outcome

One area that remains virtually unexplored in the day hospital literature is whether the Minnesota Multiphasic Personality Inventory (MMPI) can be used to predict outcome. The MMPI, which was used in the present study as a predictor, has been used previously as a predictor of outcome in general psychiatric settings. More precisely, it has been shown to predict outcome on the Health Sickness Scale and the Psychiatric Evaluation Form with 26 non-schizophrenic patients who completed long-term (3 to 4 months) inpatient hospitalization (Young, Gould, Glick & Hargreaves, 1994). They showed that the Hypochondriasis, Paranoia, Psychasthenia, and Schizophrenia clinical scales were negatively correlated with positive treatment outcome. (Although specific correlational data were not given, it was stated that these correlations all attained significance levels beyond $p < .05$.) The MMPI has also been used to differentiate between highly suicidal and non-suicidal psychiatric inpatients (Leonard, 1977) and to predict the length of stay of inpatient veterans in a domiciliary (Aaronson, Dent & Kline, 1996).

Aaronson et al. (1996) used a large ($N = 335$) heterogeneous population of veterans suffering from medical and/or psychiatric problems to examine the predictive utility of the MMPI-2. They demonstrated that the Psychopathic Deviate clinical scale was

negatively correlated with length of stay ($r = -.175$, $p = .001$). The Lie (L) scale, Infrequently Endorsed Items (F) scale, Defensiveness (K) scale, Hypomania (Ma) scale and Negative Treatment Indicator (TRT) were also examined as potential predictors; however, none of these variables were significantly correlated with the outcome measures.

As noted in the previous study, the MMPI has not always been shown to be a valid predictor of outcome. Lowe (1967) determined that the MMPI was not a valid predictor of vocational success after an inpatient admission. A multivariate analysis conducted by Stoddard, Tsushima and Heiby (1988) revealed that the MMPI was not predictive of outpatient medical visits in 194 patients who were presumed to be suffering from a psychological problem. Research conducted by Hilsenroth, Handler, Toman and Padawer (1995) indicated that the MMPI-2 clinical scales did not distinguish between premature terminators ($n = 97$) and completers ($n = 81$) of 24 psychodynamically-oriented individual psychotherapy sessions.

It has been suggested that one of the reasons that the MMPI/MMPI-2 has received mixed reviews with regards to its predictive utility might be that sufficient power for the conducted analyses was not achieved (Butcher, Graham & Ben-Porath, 1995). Researchers often examine the predictive utility of all MMPI clinical scales plus other MMPI scales. When so many statistical analyses are undertaken it is necessary to correct for the family-wise error by setting the alpha at a more conservative level. This correction reduces the power of the analysis. According to Butcher, Graham and Ben-Porath (1995), to achieve optimum power, a very large sample size (300+) is required if one chooses to look at all the MMPI clinical scales.

The MMPI has been used far less extensively as a predictor of outcome in day

hospital settings. Dunn, Staley and Sexton (1982) examined 42 disturbed psychiatric patients diagnosed with affective disorders and psychotic disorder who completed a minimum of three-weeks in a process-oriented psychiatric day hospital. Outcome was determined by looking at the difference between pre-treatment and follow-up scores on five variables which included the Brief Form MMPI (Mini-Mult) scale scores. After thoroughly describing their population, the authors described the general profile of the “good responder” and the “poor responder”. (Unfortunately, no definitions were provided for these terms.) They concluded that having four MMPI sub-scales at levels above 80 was indicative of poor outcome and an increased likelihood of future hospitalizations. The MMPI sub-scales that recurred at levels above 80 generally included the Depression, Paranoia, Psychasthenia, Schizophrenia and Social Introversion clinical scales. Elevated scores on the Hypomania sub-scale was also negatively correlated with poor attendance in the day hospital program. Unfortunately, statistical data were not provided in this study and thus it is impossible to determine the magnitude of the findings.

As previously described, Johnston and Busby (1997) attempted to predict the outcome of 47 patients suffering from affective disorders after three-weeks of day hospitalization by examining the intake scores of the Depression sub-scale of the MMPI. Their results indicated that Depression sub-scale scores were significantly related to outcome as measured by the residual change score derived from the pre- and post-General Severity Index of the SCL-90-R ($r = .61$, $p = .00$). When this variable was combined with duration of current illness and pre-treatment Beck Depression Inventory scores, 47% of the variance in the outcome measure was explained. Unfortunately, information regarding the unique contribution of the Depression sub-scale of the MMPI

was not provided.

In summary, there is initial evidence that the MMPI shows promise as a valid predictor in day hospital settings. More specifically, the study conducted by Dunn et al. (1982) affirms that the MMPI is useful as a predictor in their long-term day hospital setting, however, this study is methodologically flawed since precise outcome definitions are lacking and statistical information is not provided. The study conducted by Johnston and Busby (1997) is more methodologically sound, but only examines the predictive utility of one MMPI scale. Further research is needed to establish whether or not the MMPI is a valid predictor in day hospital settings.

1.5 Purpose of Study

In order to contribute to the relatively small literature which has examined short-term day hospitals, this study aimed to (1) describe the population of a short-term day hospital program aimed at treating primarily affective disordered and personality disordered patients, and (2) to assess which selected patient demographic and diagnostic variables predicted outcome in this three-week day hospital program. In particular, age, number of prior psychiatric hospitalizations, duration of psychiatric difficulties, presence of a personality disorder, living arrangement, marital status, and employment status were assessed as potential predictors. The third purpose of this study was to determine whether the MMPI/MMPI-2 was a valid predictor of outcome in a short-term psychiatric day hospital setting. More precisely, the utility of the Psychopathic Deviate, Paranoia, Social Introversion, Family Problems, Social Discomfort, and Negative Treatment Indicator scales in predicting symptom reduction were assessed.

In addition to the previous goals, this study aimed to improve upon the

methodological problems that were frequently cited in the long-term day hospital literature which focused on mixed populations. For this reason, the outcome measure of symptom change was used in this study. In addition, multiple predictor variables were employed so that the combined effects of these variables and the interactions among them could be assessed.

CHAPTER 2: Hypotheses

The following variables were chosen and assessed as potential predictors of outcome: patient's age, number of prior psychiatric hospitalizations, duration of psychiatric difficulties, presence of a personality disorder, living arrangement, marital status, employment status, and Psychopathic Deviate, Paranoia, Social Introversion, Family Problems, Social Discomfort, and Negative Treatment Indicator intake scores on the MMPI/MMPI-2. Hypotheses relating to these variables were elaborated by organizing these variables into three categories: (1) chronicity, (2) social support, and (3) personality variables.

2.1 Hypothesis Relating to Chronicity

The literature on predictor variables has pointed to the predictive utility of age on outcome in long-term psychiatric day hospital programs with mixed populations that include a large percentage of psychotics and with personality and affective disordered populations. This trend was re-analyzed within the context of a short-term day hospital program which treats affective disordered and personality disordered patients. It was expected that, in contrast to the findings in the long-term psychiatric day hospital literature, younger patients would have greater symptom reduction, as measured by the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979), the State-Trait

Anxiety Inventory – Form Y (STAI; Spielberger, 1983) and Symptom Checklist 90-Revised (SCL-90-R; Derogatis, 1983), than older patients. This was predicted since it was believed that younger patients would have a shorter psychiatric history and thus would benefit more from a short-term day hospital program than older, more chronic patients.

In order to fill gaps in the day hospital literature, the predictive utility of history of prior hospitalization and duration of the present disorder were examined. It was predicted that those with no prior history of hospitalization would have greater symptom reduction, as measured by the BDI, STAI and SCL-90-R, than those with a history of prior hospitalization since, presumably, those patients with a history of hospitalization were sicker and could not be as easily treated in a three-week program. It was also predicted that those with a longer duration of psychiatric difficulties would have less symptom reduction than those patients with a shorter history. It was estimated that such a short-term program would not greatly improve the symptomatology of those patients with a longer history of difficulties compared to those patients with a shorter history.

With regard to diagnostic predictors, the predictive utility of the presence of a personality disorder was assessed since, as described in the literature review, personality-disordered patients have generally had less positive outcomes in psychiatric day hospital programs. Since this has only been shown in long-term psychiatric day hospitals, it needed to be re-affirmed in a short-term day hospital program. It was thus hypothesized that the presence of a co-morbid personality disorder would be predictive of less symptom reduction, as measured by the BDI, STAI and SCL-90-R, than those patients who were not suffering from a co-morbid personality disorder.

2.2 Hypotheses Relating to Social Support

The variables of living arrangement, marital status, the Family Problems content scale of the MMPI-2 and employment status were analyzed within the framework of a social support model. Intuitively, it made sense to argue that increased social support while in a short-term day hospital treatment program would result in greater symptom reduction. Presumably, those with higher levels of social support would be encouraged to attend the program and make constructive changes in their lives. It was thus hypothesized that those patients who live with others would have greater symptom reduction, as measured by the BDI, STAI and SCL-90-R, than those patients living alone since they would arguably receive more social support than those living alone. Being married or living in a common-law relationship was also hypothesized to be predictive of positive outcome since presumably these patients would receive more social support than those patients who were single, separated, divorced or widowed.

Those who scored higher on the Family Problems (FAM) content scale of the MMPI-2 at admission were hypothesized to have less symptom reduction, as measured by the BDI, STAI and SCL-90-R, upon completion of the three-week psychiatric day hospital compared to those who scored lower on this scale. This was postulated since those individuals scoring high on this content scale describe their families as being quarrelsome, unpleasant and lacking in love and affection (Butcher, 1990). Patients who described their families as such are presumably receiving less support from their families and are thus less likely to succeed in day hospital treatment.

With regard to employment status, it was hypothesized that those patients who had jobs to return to after the completion of the short-term day hospital treatment would have

greater symptom reduction than those patients who were unemployed. In other words, it was predicted that employment would be predictive of positive outcome. This was hypothesized since those who had jobs to return to presumably had a larger social network, involving interactions with colleagues, than those who were unemployed. Also, those that were employed might work harder in the program since they had something to return to once the program was completed. It could also be argued that those who were employed prior to entering the program had higher initial levels of functioning than those who were unemployed.

2.3 Hypotheses Relating to Personality Variables

Lastly, the ability of various MMPI/MMPI-2 sub-scale scores at admission to predict outcome in a short-term psychiatric day hospital was examined. More precisely, Psychopathic Deviate (Pd), Paranoia (Pa) and Social Introversion (Si) scales were assessed. It was predicted that elevated scores on Pd would be predictive of poorer outcome since individuals with high Pd elevations are generally uninterested in seeking treatment and often seek treatment in response to the demands of others. They are not interested in changing their behaviour particularly because they feel little anxiety with regard to their current problems. They often terminate therapy early, before having achieved any therapeutic gains and when they do remain in therapy, they often engage in behaviours that are therapeutically destructive i.e. being manipulative, deceptive and self-oriented and acting out aggressively (Butcher, 1990; Butcher & Williams, 1992).

Patients with high elevations on Paranoia (Pa) were also seen as having a poorer prognosis for therapy. These individuals are often argumentative, hostile and resentful. They have difficulty establishing a rapport with the therapist particularly since they are

aloof and defensive and tend to be guarded and suspicious. Therapeutic gains are also difficult to achieve since those with high elevations on this scale are rigid and tend to blame others for their problems. Success in group therapy is unlikely since these individuals are highly sensitive to the reactions of others (Butcher, 1990; Butcher & Williams, 1992). For these reasons, it was hypothesized that those patients with higher Pa elevations would have less symptom reduction than those patients with lower Pa elevations after three weeks of psychiatric day hospital treatment.

Individuals with high elevations on Social Introversion (Si) have been described as socially introverted and sensitive to the reactions of others. In addition, they have difficulty expressing their feelings, forming personal relationships and are very slow at trusting the therapist. Also, these individuals are overcontrolled and have difficulty making changes outside of the therapeutic setting (Butcher, 1990; Butcher & Williams, 1992). For these reasons, it was hypothesized that those with higher Si elevations would have poorer outcomes after short-term day hospital treatment since they would be unable to benefit as much from the group therapy situation which requires self-revelation, the formation of personal relationships and mutual support.

In terms of the MMPI-2 content scales, the Social Discomfort scale (SOD) and the Negative Treatment Indicator scale (TRT) were examined as predictors of outcome. Those who score high on the Social Discomfort scale prefer to be alone and dislike group situations. When in a group situation, they are unlikely to join in with the group, preferring instead to sit apart (Butcher, 1990). It was hypothesized that individuals who score higher on SOD, as opposed to those who score lower, would have less symptom reduction, as measured by the BDI, STAI and SCL-90-R, after short-term day hospital treatment, since

this treatment was, for the most part, completed in group format.

Individuals who score high on the Negative Treatment Indicator (TRT) have negative attitudes toward mental health practitioners and treatment. They do not believe that anyone can help them, they often do not want to make any changes in their lives and they often do not believe that change is possible. In addition, they lack insight and are often unwilling to discuss their problems (Butcher, 1990). It was hypothesized that those individuals with higher TRT scores would have poorer outcomes in psychiatric day hospital treatment.

CHAPTER 3: Method

3.1 Subjects

Between October of 1993 and June of 1997, the Acute Day Hospital (ADH) at the Ottawa General Hospital admitted 341 patients. To be accepted into this program, prospective patients were screened by the multidisciplinary ADH team according to specific inclusion and exclusion criteria set out by the ADH staff. These criteria were based on the Day Treatment Appropriateness Scale designed by Lefkowitz (1982). The inclusion criteria included (1) a level of impairment severe enough to warrant hospitalization, (2) evidence of recent stressors that led to the impairment or (3) underlying character pathology and/or lack of an adequate support system that necessitated intensive intervention, (4) an adequate pre-morbid level of functioning such that substantial improvement could be expected in a three-week intensive program and (5) the patient was motivated to attend the program and was a voluntary patient.

Exclusion criteria included (1) the presence of an organic brain syndrome or a developmental handicap that would impede the patient's ability to benefit from the

program, (2) the presence of disruptive or aggressive behavior, (3) active drug or alcohol abuse, and/or (4) active suicidal behavior. Patients suffering from a mental illness that required hospitalization and patients who could be better managed in a less intensive setting were also excluded.

Of the 341 patients that were accepted into the program, 224 patients had mostly complete data sets and were included in the main analyses. The 117 patients for whom intake data, discharge data and/or diagnostic data was missing were excluded from the main analyses. However, the demographic and diagnostic characteristics of this group were examined to ensure their comparability with the patients with complete data sets.

3.2 The Program

This partial hospitalization program is a short-term treatment program designed for acute psychiatric patients who would otherwise require inpatient hospitalization. Its aim is to restore individuals to their pre-morbid level of functioning. To accomplish this end, the program aims to stabilize presenting symptoms, to mobilize supports and to adequately resolve stressors that initially led to the development of symptoms. A maximum of eight patients participate in the program at a given time although the program can accommodate a ninth person in emergencies. Admission to the ADH is revolving in that patients are replaced immediately when they terminate the program. Individual patients thus do not complete the entire program with the same group of individuals. The program runs from 9:30AM to 2:30PM Monday to Friday and participants are expected to attend all sessions. Some individual sessions are scheduled outside of these hours. Lunch and snacks are provided by the hospital.

The ADH program is a time limited program in that patients can only remain in the

program for three-weeks or 15 working days, at which time they are discharged. In consultation with the ADH team, patients may choose to leave the program before the three-weeks have elapsed if they have met the goals they established for themselves at admission. Other criteria for discharge include: the patient's condition has deteriorated to the point where alternate treatment is necessary, the patient is dangerous to themselves or to others, the patient is not committed to the program or the patient refuses to participate or is disruptive to the group despite efforts of the staff.

Assessments of potential patients for the ADH were conducted by the members of the multidisciplinary ADH team. This assessment team includes one of five psychiatrists, a social worker and one of two nurses that are involved with the ADH program. During this one hour assessment, a psychiatric case history is taken by the psychiatrist. In order to determine the patient's suitability for the ADH program, the team also assesses the patient's perspective of their problem, their overall goal for the program and their motivation to attend the program. Practical considerations such as the patient's ability to get to the hospital daily, their level of tolerance for group work and a social support network which encourages treatment compliance are also determined. Once this one hour interview is completed, the ADH team gives the potential patient literature on the ADH program and asks them to leave the room for a short period so that they can make their decision.

Once a decision had been reached by the ADH team regarding the potential patient's suitability to the program, the individual is asked to re-enter the room. If the potential patient is deemed inappropriate for the program, specific reasons are given to the individual for this decision and referrals to alternate programs in the hospital or in the

community are made. For patients who are deemed appropriate for the program, a program start-date is set. This date is always within one week of the date of the multidisciplinary team assessment.

Before beginning the program, the patient completes an orientation of the ADH with one of the two nurses involved with the program. During this 30-minute orientation, a tour of the psychiatric ward is given and the content of the program is described. The staff's expectations of each participant are outlined and program goals are discussed. Patients are required to specify precise goals that they wish to meet during their three-week session at the ADH. Once this goal is determined, patients are required to sign a commitment contract which binds them to their goal and shows their understanding of the admission conditions of the ADH. These conditions include such things as regular and punctual attendance and a willingness to work on achieving one's goals. Once the orientation is completed, the patient begins the ADH program.

Most treatment at the ADH is in group format. The content of the groups is psychoeducational, psychotherapeutic and expressive in nature. Emphasis is placed on goal achievement, discharge planning and achieving pre-morbid levels of functioning. Patients participate in a variety of 50-minute groups including: community group, goal setting group, stress management group, coping skills group, weekend planning group, family support group, symptom/medication management group, variety group, and occupational therapy workshop. Each group is led by two ADH team members.

The community group, which meets every morning, is led by a social worker and a nurse although the social worker assumes the greater leadership role. In this group, each patient shares how they spent their time since the last meeting of the group. Patients are

encouraged to share their experiences, feelings and knowledge with other members of the group so that a spirit of respect, understanding and support develops within the group. This group also aims to help its participants gain confidence in expressing their feelings. Group leaders aid this process by providing positive reinforcement.

The goal setting group, co-led by the occupational therapist and a nurse, meets at the beginning of each week. For those that are new to the group, one of the leaders first explains the importance of goals and goal setting. These patients are given written information on ranking goals, goal setting techniques and potential roadblocks to achieving one's goals. Next, all patients work individually on specifying their general treatment goals (if this has not been accomplished already in the orientation), their weekly treatment goal and their weekly objectives. Weekly objectives are the specific steps which enable patients to attain their weekly goal. Patients who are in their second or third week of the program also individually assess their progress towards the preceding week's objectives. They assess whether they met, almost met, half met, somewhat met or did not meet their past objectives. Patients in their final week of the program also work individually on their discharge goals and objectives during this time. Once this individual work had been completed, group members share with the group their general treatment goal, their past week's objectives and whether they met them and the current week's main goal and objectives. Those in their final week of the program also share their discharge goals and objectives. It is important to note that all goals and objectives are written in pencil so that they can be revised throughout the program if deemed necessary by the patient.

The stress management group meets weekly and is led by two nurses. In this

group, patients aim to identify their stressors, to identify the sources of these stressors, and they are taught strategies to cope with their stressors. To meet this latter end, various therapeutic strategies are used including deep breathing exercises and imaging. Generally, the first part of the session is psychoeducational. Next, the patients work individually on various worksheets which lead each patient to discover their stressors and their source. Lastly, patients share what they have learned about themselves with other group members.

The coping skills group meets bi-weekly and is led by the two ADH nurses. Its objectives include teaching participants to recognize their ability to cope with day to day living and teaching coping skills. By increasing their sense of self-efficacy, this group aims to improve patients' self-esteem. Depending on the needs of the various group members, topics such as anger management, feelings, assertiveness, self-esteem, loss, guilt, anxiety, loneliness and problem solving are covered. As with the goal setting and coping skills group, the first part of the group is psychoeducational, the second part involves individual work, and the final part involves sharing.

The weekend planning group meets weekly and is co-led by a nurse and the occupational therapist who assumes the primary role of group leader. The main goal of this group is planning weekend activities and teaching patients the importance of planning. At the beginning of the session, each member is given a few minutes to reflect on the upcoming weekend. Next, each patient shares with the group what they have planned for the weekend. Patients are encouraged by the co-therapists and by other group members to engage in activities that they deem risky because of their unknown outcome and to become involved in the community.

The family support group meets weekly and is led by a nurse and the social worker

although the social worker assumes the primary role. Patients are invited to ask their family members, significant others and friends to attend this group and participate in the therapeutic process. Generally, families learn about the ADH and about how they can support their family member through discussion. In addition, this group aims to explore family relationships and to identify problem areas within the family. These goals are achieved by asking each patient to explain why they decided to invite this particular family member or friend. Patients who have not invited any guests are asked to explain why they refrained from doing so. This group is followed by a 15 minute checking out time where patients and family members describe how they feel about what was revealed during the session.

The symptom/medication management group is led by a nurse and an invited guest. These potential guests include nurses, dieticians, pharmacists or psychiatrists. The format of this group includes didactic presentations, question and answer periods, group discussions and video presentations. Topics include symptoms, psychoactive medications and their side effects, and healthy lifestyles. Patients are also given the opportunity to discuss the management of their treatment and to learn how to negotiate with their doctor/therapist if they disagree with the management of their treatment.

The variety group is co-led by the two ADH nurses every Friday afternoon. Since this is the final weekly session, emotionally intense issues are avoided and an attempt is made to keep the atmosphere "light". The variety group is aptly named since one week the group may rent a video or play a board game and the next week, they may engage in a projective-type exercise designed to help them gain awareness of their thoughts and feelings.

The occupational therapy workshop is a non-structured group that is co-led by the occupational therapist and a nurse. During the first weekly meeting of this group, patients work individually on a craft or project of their choosing. This project may be one that they have brought from home or it may be one suggested by the occupational therapist or nurse. These suggested projects include: decorating a flower pot, working with clay, drawing, painting, or leather craft. During the second weekly meeting of this group, patients work individually on their project for 50 minutes and then they spend 10 minutes filling out an inventory that helps them discover something about themselves such as their concentration, their ability to judge their own work, their organization, their response to frustration etc. The final part of the group is spent discussing what they have learned about themselves by engaging in this activity. Another goal of this group includes the development of a hobby or interest

A 20-minute wrap-up is conducted by an ADH nurse at the end of each day. The purpose of this exercise is to determine how each patient is feeling so that anyone in crisis can be quickly identified. The wrap-up is also designed to give patients a feeling of closure and to remind them to refrain from continuing to discuss issues that were brought up during the day.

In addition to the group treatment in the ADH, patients also participate in individual sessions with a nurse and a psychiatrist. When patients are accepted into the ADH, they are assigned to a nurse and to a psychiatrist. Once a week, each patient meets individually with their nurse to talk about their goals and their progress in the program. Additional sessions can be set up with the nurses, if patients feel the need. In addition to these individual sessions with their nurse, patients meet weekly with their assigned

psychiatrist in order that the psychiatrist may follow their progress. Each patient's assigned nurse also attends these half-hour sessions so that they may provide feedback on the patient's progress as well.

Before they are discharged, each patient has an additional session with their nurse so that follow-up treatment options may be discussed.

Once a week, the ADH team which is comprised of one of five psychiatrists, two nurses, a social worker and an occupational therapist meet to discuss each patient's clinical status in team rounds. The focus of the discussion is on discharge planning. The ADH team members are not available to the patients after hours. ADH patients in distress may contact the Emergency Department in the evenings, on weekends and during holidays.

3.3 Predictor Measures

As previously described, the predictor variables that were examined in this study included age, number of prior psychiatric hospitalizations, duration of psychiatric difficulties in months, the presence of a personality disorder, marital status, employment status, and Psychopathic Deviate, Paranoia, Social Introversion, Family Problems, Social Discomfort, and Negative Treatment Indicator intake scores on the MMPI/MMPI-2.

The variables of age, living arrangement, marital status, and employment status were determined at admission to the day hospital program. History of prior psychiatric hospitalization was the number of times the subject had been previously hospitalized for psychiatric difficulties. Duration of psychiatric difficulties was based on the number of months that the subjects reported suffering from their current psychiatric difficulties. Presence of a personality disorder was divided into: (1) presence of a personality disorder and (2) absence of a diagnosed personality disorder.

The Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1967), a multidimensional 550-item questionnaire designed to provide an assessment of personality traits, was also used as an outcome predictor in this study. It was completed by 125 subjects in this study. Patients whose first language was French completed the approved French translation of the MMPI, l'Inventaire multiphasique de personnalité du Minnesota (édition de l'Institut de recherches psychologiques, inc., 1983).

In the MMPI, subjects are required to respond either true, false or cannot say to the various items. The MMPI includes ten standard scales which were named for the abnormal behaviour on which they were based. These include: Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Psychopathic deviate (Pd), Masculinity-femininity (Mf), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma) and Social introversion (Si). The MMPI also includes scales which help determine the validity of the subject's responses. These include: the cannot say score (Q scale), the lie scale (L scale), the infrequency scale (F scale) and the defensive responding scale (K scale).

The MMPI has been shown to be psychometrically sound. It possesses short-term temporal stability (Graham, 1993; Parker, Hanson & Hunsley, 1988), internal consistency (although the standard scales were not developed to be unidimensional measures), reliability (Parker, Hanson & Hunsley, 1988), and convergent and divergent validity. The MMPI has achieved success in differentiating among patient groups, including between neurotic and psychotic patients, between psychiatric patients and control groups and between those suffering from anxiety and depression (Graham, 1993).

Ninety-six subjects in this study completed the MMPI-2 (Hathaway & McKinley, 1989), an updated revision of the MMPI rather than the original MMPI, since this revision

became available part way through the data collection process. The new version has 567-items and includes the modernization of some items, a re-standardization of norms, a more representative normative sample and different T-score transformation procedures. More precisely, uniform T-scores (rather than linear T-scores as in the MMPI) were developed for the MMPI-2 so that all the clinical scales would be distributed similarly. In addition, a redefined clinical elevation of a T-score of 65 or greater was established (the clinical elevation of the MMPI is a T-score of 70 or greater).

The development of the MMPI-2 also derived new content scales. These homogeneous content scales were developed since the content of the standard scales contains heterogeneous items. These content scales include Anxiety, Fears, Obsessiveness, Depression, Health Concerns, Bizarre Mentation, Anger, Cynicism, Anti-Social Practices, Type A, Low Self-Esteem, Social Discomfort, Family Problems, Negative Work Attitude and Negative Treatment Indicator.

Research comparing the MMPI and MMPI-2 has revealed their equivalency. More precisely, correlations between raw scores on the original MMPI standard scales and the standard scales of the MMPI-2 are all above .98. In addition, over 90% of 5-point profile codes were equivalent using the MMPI and MMPI-2 (Butcher & Williams, 1992). It has also been shown that the validity and standard scales of the MMPI are relatively intact in the MMPI-2 (Butcher & Williams, 1992) and that mean T-scores, score rankings and measures of score distributions are equivalent in the MMPI and MMPI-2 (Harrell et al., 1992).

Although MMPI and MMPI-2 raw scores are generally equivalent, typically, the MMPI-2 raw scores are slightly elevated. As a result the T-scores for the MMPI-2 tend to

be lower than on the MMPI (Graham, 1993; Harrell, Honaker & Parnell, 1992). For this reason, those who completed the MMPI and those that completed the MMPI-2 were examined separately.

In addition to the comparisons between the MMPI and the MMPI-2, the MMPI-2 has been evaluated independently, and has been shown to be psychometrically robust. More specifically, the MMPI-2 has been shown to possess convergent and discriminant validity (Ben-Porath, McCully, & Moshe, 1993; Graham, 1988), short-term temporal stability (Graham, 1993) and internal consistency (Butcher, Dahlstrom, Graham, Tellegen & Kaemmer, 1989), although standard scales were not designed to be unidimensional.

The specific MMPI/MMPI-2 clinical scales that were examined as potential predictors of outcome in this study included the Psychopathic Deviate scale (Pd), the Paranoia scale (Pa), and the Social Introversion scale (Si). The Pd scale is a measure of traits typically exhibited by those diagnosed with anti-social and psychotic personality disorders. More precisely, this scale measures general social maladjustment, difficulties with sources of authority, superficiality in relationships and uncontrolled and impulsive behaviour. The Pa scale is a measure of suspicious and mistrusting beliefs and behaviours and the Si scale is a measure of an individual's level of comfort in a social situation (Butcher, 1990).

The specific MMPI-2 content scales that were assessed as predictors of outcome included the Social Discomfort scale (SOD; a measure of comfort in social situations), the Family Problems scale (FAM; a measure of family discord), and the Negative Treatment Indicator scale (TRT; a measure of willingness to receive treatment and benefit from it) (Butcher, 1990).

3.4 Outcome Measures

The Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) is a 21-item questionnaire which was designed to assess the severity of depression in psychiatric patients. Subjects respond to each item by indicating the severity of their response on a 4-point scale ranging from 0 to 3. This questionnaire assesses the following constructs related to depressions: sadness, pessimism, sense of failure, dissatisfaction, guilt, punishment, self-dislike, self-accusations, suicidal ideas, crying, irritability, social withdrawal, indecisiveness, body image change, work difficulty, insomnia, tiredness, loss of appetite, weight loss, somatic preoccupation, and loss of libido (Beck & Steer, 1987).

Psychometrically, the BDI has been shown to be quite robust as an outcome measure. It has been shown to have good convergent and discriminant validity (Beck, Steer, & Garbin, 1988; Clark, Cavanaugh, & Gibbons, 1983; Prud'homme & Baron, 1993), high internal consistency (Beck et al., 1988) with psychiatric and non-psychiatric samples and good test-retest reliability (Beck et al., 1988). As an outcome measure, Taylor and Klein (1989) concluded that the BDI was a moderately good predictor of recovery. As such, they recommended the use of the BDI in outcome studies.

The State-Trait Anxiety Inventory - Form Y (STAI; Spielberger, 1983) is composed of two 20-item scales which measure state and trait aspects of anxiety. In the "state" scale, subjects are asked to respond as to how they feel at this moment with regard to the items. In the "trait" scale, subjects are asked how they feel generally with regard to the various items. In both sub-scales, subjects respond using a 4-point scale that varies from "not at all" to "very much so".

The STAI has been shown to be psychometrically strong. It has good construct

validity (Okun, Stein, Bauman, & Silver, 1996; Spielberger, 1983) and is internally consistent and reliable (Spielberger, 1983). Stability, measured by test-retest coefficients, is strong for the “trait” STAI and weak for the “state” STAI as one would presume (Spielberger, 1983). Good convergent and discriminant validity has also been demonstrated with other psychometric instruments (Spielberger, 1983).

In the current study, the French version of the STAI was completed by subjects whose first language was French. This instrument has been shown to be accurately translated, and its reliability and construct validity have been demonstrated to be equivalent to the original English version (Gauthier & Bouchard, 1993).

The Symptom Checklist 90 - Revised (SCL-90-R; Derogatis, 1983) is a 90-item self-report questionnaire which assesses psychopathology in terms of nine symptom sub-scales and three global indices of distress. The nine symptom sub-scales include Somatization, Obsessive Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation and Psychoticism. The three general indices include the Positive Symptom Total (PST) which is the sum of all positive symptoms, the General Severity Index (GSI) which is an index combining information regarding the number of positive symptoms and the severity of distress, and the Positive Symptom Distress Index (PSDI) which is a measure of intensity of distress adjusted for the numbers of symptoms present. Subjects respond to the items of the SCL-90-R by selecting from a Likert scale which ranges from “not at all” to “extremely”.

The multidimensionality of the SCL-90-R was initially shown by Derogatis and Cleary (1977) and by Lipman, Covi and Shapiro (1979). However, further studies (i.e. Cyr, McKenna-Foley, & Peacock, 1985; Hafkenscheid, 1993) have shown that the nine

scales are not independent of one another and that a sizable proportion of items load on more than one factor. Strauman and Wetzler (1992) have postulated the presence of a single factor of distress. They conclude that it is unlikely that the SCL-90-R could reliably differentiate subjects suffering from different psychiatric disorders and that the SCL-90-R should only be used as a general index of overall severity of psychopathology. For this reason, the current study focused only on the GSI.

3.5 Procedure

Once a referral was initiated, the patient was administered the MMPI or MMPI-2 by the psychometrist. Next, the nurse had the patient complete a series of psychometric questionnaires which included the BDI, the SCL-90-R and the STAI. It is important to note that some subjects in this study completed the French version of the STAI instead of the original English version.

At discharge, the BDI, STAI and SCL-90-R were once again administered by a nurse. The assigned psychiatrist also completed a discharge summary which included a five axes DSM-III-R or DSM-IV discharge diagnosis.

Patients' scores on the previously listed psychometric instruments were compiled in SPSS 7.5 for Windows (SPSS Inc., 1997). In order to complete this database, demographic and clinical data were extracted from patients' hospital charts. Demographic data that was extracted included: age, sex, education, marital status, language, living situation (where and with whom?), employment situation and means of support. Clinical data included DSM-III-R or DSM-IV Axis I, II, III, IV and V discharge diagnoses, number of previous hospitalizations, previous psychiatric contact, duration of presenting psychiatric illness, previous and current (within the last month) drug and alcohol abuse,

length of stay in the ADH, current and past medications, referral source and reason for referral. Note that discharge diagnoses, rather than admission diagnoses, were included in this database since the former were viewed as more accurate due to the psychiatrist's increasing knowledge of the patient.

3.6 Data Analyses

Data analyses were conducted with SPSS 7.5 for Windows (SPSS Inc., 1997). More precisely, (1) descriptive statistics were used to characterize the sample; (2) simple correlations were used to explore the relationships among the various predictor variables and the outcome measure; and (3) multiple regression was conducted to assess the combined effects of the predictor variables on the outcome measure.

CHAPTER 4: Results

Three hundred and forty one patients participated in the ADH between October 1993 and June 1997. A total of 224 subjects had mostly complete data sets, while 117 patients had grossly incomplete data sets primarily due to a lack of discharge data. This sub-sample will be described and compared to the main sample after the main analyses have been reported. Please note that since some data were incomplete in the main sample, descriptive statistics are reported as valid percentages based on the available data.

4.1 Sample Demography

As is typical in day hospital programs, the sex of the participants in this study was unevenly distributed. More precisely, 72.8% of the subject pool ($N = 224$) was female, while only 27.2% was male. The average age of subjects ($N = 224$) was 38.51 ($SD = 9.95$). In addition, 45.5% of the subjects were married. Table 1 contains a breakdown of marital status.

Table 1Marital Status

Marital status	Frequency	Valid %
Single	69	30.8
Married/common-law	102	45.5
Separated	28	12.5
Divorced	21	9.4
Widowed	4	1.8
Total	224	100.0

In terms of education, 55.9% of the sample ($N = 222$) had some college or university as elaborated in Table 2.

Table 2Education Level

Education	Frequency	Valid %
Some elementary school	4	1.8
Some high school/CEGEP	80	36.0
Some college/university	124	55.9
Post-graduate training	14	6.3
Total	222	100.0

Of 217 subjects, the largest number lived with their spouse and children (27.2%), followed by those living alone and by those living with their spouse or common-law partner, as described in Table 3.

Before being admitted to the ADH, 48.2% of the subjects ($N = 224$) were employed, 47.3% were unemployed, 3.1% were students and 1.3% were retired. Patients' sources of income are summarized in Table 4. Lastly, 81.2% of the sample ($N = 223$)

selected English as their primary language while the remainder chose French.

Table 3

Current Living Arrangement

Living arrangement	Frequency	Valid %
Alone	47	21.7
With spouse/partner	40	17.4
With spouse and children	59	27.2
With children	13	6.0
With parents/family	37	17.1
With roommate	18	8.3
With other	3	1.4
Total	217	100.0

Table 4

Means of Support

Means of support	Frequency	Valid %
Unemployment insurance	20	9.4
Long-term disability	27	12.7
Short-term disability	53	24.9
Family benefits	8	3.8
Welfare	26	12.2
Workmen's compensation	2	0.9
Retirement pension	6	2.8
Savings	5	2.3
Other	66	31.0
Total	213	100.0

Sample Clinical Diagnostic Profile

At discharge, 96% of the sample ($N = 224$) were diagnosed with a DSM Axis I disorder. (Table 5 contains the breakdown of diagnostic categories.) The majority (65.6%) were diagnosed with a mood-related disorder. In addition, 31.2% of those diagnosed with

one Axis I disorder had a second co-morbid Axis I disorder. "Other diagnoses" included diagnoses such as pathological gambling, somatoform pain disorder, organic personality syndrome, and impulse control disorder.

Table 5

DSM Diagnosis - Axis I

Diagnosis	Frequency	%
Axis I		
Mood disorder	108	48.2
with Mood disorder	8	3.6
with Anxiety disorder	9	4.0
with Adjustment disorder	1	0.5
with Substance disorder	9	4.0
with Psychotic disorder	1	0.5
with Eating disorder	6	2.7
with Other disorders	4	1.8
Anxiety disorder	17	7.6
with Other disorders	4	1.8
Adjustment disorder	23	10.3
With Mood disorder	1	0.5
with Eating disorder	1	0.5
with Other disorders	2	0.9
Substance-related disorder	8	3.6
with Other disorders	3	1.3
Psychotic disorder	5	2.2
Eating disorder	3	1.3
Other disorders	2	0.9
Absence of Axis I disorder	9	4.0
Total	224	100.0

At discharge, 25.7 % ($N = 222$) were diagnosed as having a personality disorder,

and 74.3 % were assessed as not having a personality disorder. Only two subjects (0.9%) in the sample possessed a co-morbid Axis II diagnosis. The most frequently occurring personality disorders ($n = 57$) were borderline personality disorder (28.8%), and dependent personality disorder (28.8%), followed by personality disorder not otherwise specified (22.0%), obsessive-compulsive personality disorder (8.5%) and narcissistic personality disorder (5.1%).

In total, 47.3% of the sample ($N = 222$) were diagnosed with a concurrent medical problem on Axis III (e.g. diabetes, asthma), while 52.7% did not receive such a diagnosis.

Ratings on Axis IV were conducted in two different ways in this study since, in late 1994, the diagnostic system changed to the DSM-IV (American Psychiatric Association, 1994). In the DSM-III-R (American Psychiatric Association, 1987), the Axis IV rating system consisted of a rating on a scale from 1 (lowest level) to 6 (highest level) which was assigned to individuals as an indication of their level of psychosocial stressors. Ninety eight subjects (43.8% of the sample) were solely given such a rating. In the updated DSM-IV, the Axis IV rating system includes categories of psychosocial stressors based on qualitative descriptions which are listed for each patient. Thirty-two subjects (14.3% of the sample) solely received a categorical description of psychosocial stressors based on Axis IV of the DSM-IV. Note should be made that 69 subjects (30.1%) were given a rating on Axis IV using both the DSM-III-R and DSM-IV and that 11.8% of the sample was not given a rating on this Axis. Within the sub-sample that received a DSM-IV Axis IV diagnosis, 77.2% reported difficulties with their primary support group (e.g. marital difficulties, death of a family member), 50.5 % reported occupational problems (e.g. unemployment, threat of job loss), 29.7% reported problems related to the social

environment (e.g. death or loss of friend, inadequate social support), 12.9% reported other psychosocial environmental problems (e.g. exposure to disasters, discord with non-family caregivers such as counsellors or physicians), 7.9% reported economic problems (e.g. extreme poverty, inadequate finances), 4% reported educational problems (e.g. illiteracy, academic problems), 1% reported housing problems (e.g. homelessness, unsafe neighbourhood), 1% reported problems related to access to health care (e.g. transportation to health care facilities unavailable), and 1% reported legal problems (e.g. being a victim of crime). Note that percentages add up to more than 100% since some individuals reported problems in many different areas. For those 167 subjects who received an Axis IV rating on the DSM-III-R, the mean score on the 6-point scale was 3.19 (SD = 0.90).

Lastly, the average Global Assessment of Functioning score (Axis V; range 0 - 100) during the last year (before admission) was 70.05 (SD = 11.19; N = 202), on admission was 51.46 (SD = 11.51; N = 206), and on discharge was 64.5 (SD = 8.81; N = 201).

Eighteen subjects (8.3%; N = 216) had abused alcohol and/or drugs within the month prior to entering treatment in the ADH and 60 subjects (27.8%; N = 216) confirmed that they had abused alcohol and/or drugs in the past.

Psychoactive medication use at admission and discharge is described in Table 6. The validity of this data may be questionable due to (1) inconsistencies in patient-reported and physician-documented prescribed medication usage, (2) lack of clarity as to whether prescribed medications were actually being taken, and (3) medication adjustments which may have been made on the recommendation of the treating psychiatrist during the course

of stay in the ADH program. In terms of medications relating to a physical ailment, at admission, 88 subjects (39.6%; $N = 222$) were on such medications, while at discharge 45 subjects (26.5%; $N = 170$) were taking such medications.

Table 6

Psychoactive Medication Use at Admission and Discharge

Medication type	Admission Frequency (valid %)	Discharge Frequency (valid %)
Anti-depressants	164 (74.5)	137 (80.1)
Anxiolytics	66 (30)	38 (22.4)
Neuroleptics	33 (15)	19 (11.1)
Mood Stabilizers	12 (5.5)	9 (5.3)
Stimulants	2 (0.9)	4 (2.3)
Other	15 (6.8)	2 (1.2)

In terms of past treatment, 198 subjects (89.6%, $N = 221$) had previous psychiatric treatment before being admitted to the ADH. Eleven subjects (5.0%, $N = 219$) had previously participated in psychiatric day hospitals, five of which were repeat patients of the ADH. A total of 122 subjects (55.5%, $N = 220$) had previously been hospitalized for psychiatric difficulties. On average, subjects ($N = 209$) were previously hospitalized for psychiatric difficulties 1.23 times ($SD = 1.89$), although the total range of previous hospitalizations extended from 0 to 18 times. Within the last year, 93.3% of the sample had consulted with their family physician, 65.7% were treated by a psychiatrist, 15.2% were treated by a psychologist, 12.9% consulted with a social worker, and 11.4% worked with a counsellor.

Subjects' length of stay in the ADH program ranged from 4 to 18 days. On average, patients ($N = 220$) remained for 13.6 days ($SD = 2.45$) and 65% of the sample

remained in the program between 14 and 16 days. All those who left the program earlier appear to have left with the staff's consent as collaborated by medical chart progress notes. In other words, no patients in this sample were discharged from the ADH against medical advice.

Patients ($N = 218$) were referred to the ADH from a variety of sources. The most frequent referrals came from the inpatient unit (44%), followed by the community (28.9%), the hospital outpatient department (18.3%) and the hospital emergency room (8.7%).

4.3 Re-coded Predictor Variables

To enable the statistical testing of the hypotheses previously elaborated, the number of hospitalizations, marital status, duration of psychiatric difficulties in months, and living arrangement variables were re-coded.

In order to eliminate outliers and positive skew ($\text{skew} = 4.81$), the number of previous hospitalizations predictor variable ($N = 209$) was re-coded to reflect three roughly equal categories: no previous hospitalization (35%), one previous hospitalization (39.7%) and more than one previous hospitalization (24.9%). It was desirable to have three roughly equal categories since this configuration increased our options for statistical analyses. More precisely, this configuration permitted regression analysis and ANOVA.

In order to use marital status within a social support framework, this variable was re-coded into two mutually exclusive categories: (1) married or living common-law , and (2) other (single, separated, divorced, or widowed). Of the total subjects ($N = 224$), 45.5% were married or living common-law, and 54.5% were not married or living common-law.

The duration of psychiatric illness variable, which measures the length of present psychiatric difficulties in months, was re-coded into three categories ($N = 224$): less than 12 months (34.4%), 12 to 36 months (28.1%) and greater than 36 months (37.5%). It was necessary to re-code this variable since 30% of the subjects' medical charts simply noted that the patient had experienced very long-standing chronic psychiatric difficulties, but did not specify the number of months of suffering. These latter patients who were described as such were coded as having experienced difficulties for more than 36 months.

The living arrangement variable was re-coded into three categories ($N = 217$): living alone (21.7%), living with a spouse or common-law partner (45.6%) and living with others (32.7%). "Other" constituted anyone other than subjects' spouse or common-law partner such as children or friends.

4.4 Outcome

In terms of the change in symptomatology that occurred during the three-week period of partial hospitalization, the Beck Depression Inventory (BDI), General Severity Index of the SCL-90-R (GSI), the State Trait Anxiety Inventory-State (STAI-S) and the State Trait Anxiety Inventory-Trait (STAI-T) scores all significantly ($p < .001$) decreased at discharge relative to admission as assessed by correlated t-tests (see Table 7). These changes indicate that subjects were less symptomatic at discharge than at admission.

Table 7Change in Symptomatology

Measure	Admission Mean (SD)	Discharge Mean (SD)	t
BDI	28.51 (10.98)	17.69 (11.14)	14.97*
GSI (raw score)	1.76 (0.69)	1.19 (0.70)	14.15*
(T-score)	74.26 (7.59)	66.96 (9.75)	13.18*
STAIS	57.64 (12.38)	48.64 (13.84)	8.72*
STAIT	59.51 (9.64)	52.54 (11.24)	9.32*

* $p < .001$ (one-tailed)

In order to assess change in symptomatology, the standardized residual change scores of the BDI, GSI, STAIS, and STAIT were computed, as recommended by Hauser-Cram and Krauss (1991). The standardized residual change score is the difference between the subject's actual z score and predicted z score. It is computed by regressing the discharge z scores on the admission z scores for a given test. Its advantage over the simple change score is that it takes subjects' initial status and overall level of change into account. Positive standardized residual change scores indicated that subjects were more symptomatic at discharge than predicted, while negative standardized residual change scores indicated that subjects were less symptomatic at discharge than predicted. Since the BDI, GSI, STAIS and STAIT standardized residual change scores were so highly correlated (see Table 8), it was determined that these four measures exhibited multicollinearity. When these four measures were taken together as a scale, internal consistency was high as indicated by the reliability coefficient (Cronbach's $\alpha = .898$). For these reasons, an average standardized residual change score was computed by adding each subject's standardized residual change scores and dividing by the number of

standardized residual change scores. It was possible to calculate such an average since standardized residual change scores which assured equal variances across the measures, were used. The average standardized residual change score became the criterion variable for further analyses.

Table 8

Correlations Among Outcome Variables

Measures	BDI	GSI	STAIS	STAIT
BDI		.736*	.597*	.670*
GSI			.629*	.693*
STAIS				.809*

* $p < .001$

4.5 Test of the Hypotheses Related to Chronicity Variables

In order to determine whether the concept of chronicity of a psychiatric disorder reflected in the variables of age, number of hospitalizations, duration of psychiatric difficulties and presence of a personality disorder predicted outcome on the average standardized residual change score, a multiple regression analysis was conducted. Results revealed that a linear combination of age, number of hospitalizations, duration of psychiatric difficulties and presence of a personality disorder shared a small, but significant proportion of the variability in the average standardized residual change score ($R^2 = .054$, $R^2_{adj} = .036$; $F(4, 203) = 2.91$, $p = .02$). An examination of the regression weights for each variable revealed that, despite significant zero-order correlations between the number of hospitalizations ($r = .161$, $p = .02$) and the presence of a personality disorder ($r = .148$, $p = .032$) with the criterion variable (see Table 9), neither of these variables uniquely

contributed to the criterion variable at $p < .05$. It is important to note, however, that the regression weights for the number of hospitalizations ($B = .131$, $p = .061$) and the presence of a personality disorder ($B = .135$, $p = .053$) almost reached significance.

Table 9

Results of Regressing the Average Standardized Residual Change Score on Chronicity Variables

Predictor	r	B	Semi-partial correlation
Age	.085	.090	.089
Duration	.088	.063	.063
No. of Hosp.	.161*	.131	.129
P.D.	.148*	.135	.133

* $p < .05$

Table 10 summarizes the average standardized residual change scores for subjects according to their number of hospitalizations and personality disorder diagnosis. As shown, average standardized residual change scores are greater (indicating more symptoms at discharge than predicted) with greater previous hospitalizations and the presence of a personality disorder.

Table 11 summarizes the correlations among the chronicity predictor variables. As shown, none of these variables are correlated with one another.

Table 10Average Outcome According to Number of Hospitalizations and Personality Disorder Diagnosis

Predictor Variable	<u>M</u>	<u>SD</u>
No. of Hosp.		
Never	-.17	.76
Once	-.04	.90
More than once	.19	.88
P.D.		
Presence	.20	.91
Absence	-.07	.89

Table 11Correlations Among Chronicity Variables and the Average Standardized Residual Change Score

Variables	Duration	No. of Hosp.	P.D.	Ave. Stand. Res. Change Score
Age	.010	.055	-.098	.085
Duration		.117	.064	.088
No. of Hosp.			.135	.161*
P.D.				.148*

*p < .05

4.6 Test of the Hypotheses Related to Social Support Variables

In order to determine whether marital status, employment status, living arrangement, and the FAM (MMPI-2), in combination, were predictive of symptom change in the ADH, a multiple regression analysis was conducted. Combined, marital status, employment status, living arrangement and the FAM did not share a significant proportion of the variability of the average standardized residual change score ($R^2 = .033$,

$R^2_{adj} = -.01$; $F(4, 90) = .77$, ns) (see Table 12).

Table 12

Results of Regressing the Average Standardized Residual Change Score on Social Support Variables

Predictor	<u>r</u>	<u>B</u>	Semi-partial correlation
Marital Status	.037	.034	.032
Living Arrangement	.011	.053	.051
Employment	.118	.137	.133
FAM (MMPI-2)	.107	.141	.136

A further multiple regression analysis was then performed to examine whether marital status, employment status, and living arrangement were predictive of change. (The FAM was removed from the equation because it significantly reduced the power of the regression, since only 96 subjects had scores on this measure.) Combined, these three predictors did not share a significant proportion of the variability of the average standardized residual change score ($R^2 = .012$, $R^2_{adj} = -.002$; $F(3, 213) = .833$, ns).

The bivariate correlations among the social support variables and the outcome measure were then explored (see Table 13). As indicated, none of the predictors were significantly correlated with the outcome measure and, therefore, taken individually, these variables were not predictive of symptom change.

Table 13Correlations Among Social Support Predictor Variables and the Average Standardized Residual Change Score

Variables	Employment Status	Living Arrangement	FAM (MMPI-2)	Ave. Stand. Res. Change Score
Marital Status	.205*	-.177	-.109	.037
Living Arrangement		-.083	-.175	.011
Employment Status			-.156	.118
FAM				.107

* $p < .05$ 4.7 Test of the Hypotheses Related to Personality Variables

To examine the extent to which the Psychopathic Deviate, Paranoia and Social Introversion clinical MMPI scales predicted the average standardized residual change score, a multiple regression was conducted ($N = 125$). Combined, these sub-scales did not share a significant proportion of the variability of the average standardized residual change score ($R^2 = .053$, $R^2_{adj} = .03$; $F(3, 121) = 2.26$, ns) (see Table 14).

Table 14Results of Regressing the Average Standardized Residual Change Score on MMPI Variables

Predictor	r	B	Semi-partial correlation
Pd	.002	-.060	-.056
Pa	.128	.094	.084
Si	.213*	.193*	.184

* $p < .05$

In order to determine whether specific personality variables were predictive of

symptom change in the ADH, the Psychopathic Deviate (Pd), Paranoia (Pa) and Social Introversion (Si) sub-scales of the MMPI were examined. Bivariate correlations among these predictor variables and the outcome measure are presented in Table 15.

Table 15

Correlations Among MMPI Predictor Variables and the Average Standardized Residual Change Score

Variables	Pa	Si	Ave. Stand. Res. Change Score
Pd	.386**	.133	.002
Pa		.297**	.128
Si			.213*

* $p < .05$, ** $p < .01$

The Si sub-scale was significantly correlated to the average standardized residual change score ($r = .213$, $p = .018$) indicating that as Si scores increased (indicating more introversion), the outcome measure also increased indicating that subjects were more symptomatic at discharge than predicted.

Selected variables of the MMPI-2 were also examined as potential predictors since 96 subjects completed this instrument. To examine the extent to which the Psychopathic Deviate (Pd), Paranoia (Pa), Social Introversion (Si), Social Discomfort (SOD) and Negative Treatment Indicator (TRT) scales of the MMPI-2 predicted the average standardized residual change score, a multiple regression was conducted ($N = 96$). Combined, these sub-scales did not share a significant proportion of the variability of the average standardized residual change score ($R^2 = .063$, $R_{adj}^2 = .011$; $F(5, 90) = 1.21$, ns) (see Table 16).

Table 16Results of Regressing the Average Standardized Residual Change Score on MMPI-2 Variables

Predictor	<u>r</u>	<u>B</u>	Semi-partial correlation
Pd	.163	.085	.071
Pa	.173	.101	.083
Si	-.007	.201	.087
SOD	-.088	-.316	-.149
TRT	.083	.066	.047

Further multiple regression analyses that incorporated varying combinations of the previous variables were not undertaken since the Pa, Pd, Si, SOD, and TRT were not significantly correlated with the outcome measure as presented in Table 17.

Table 17Correlations Among MMPI-2 Predictor Variables and the Average Standardized Residual Change Score

Variables	Pa	Si	SOD	TRT	Ave. Stand. Res. Change Score
Pd	.515**	.076	.029	.305**	.163
Pa		.212*	.123	.367**	.173
Si			.880**	.646**	-.007
SOD				.555**	-.088
TRT					.083

* $p < .05$, ** $p < .01$

Since Social Introversion (Si) was a significant predictor for those subjects who completed the MMPI but was not a significant predictor for those that completed the MMPI-2, and since those that completed the MMPI were patients who generally entered the program earlier than those who completed the MMPI-2, differences between these

two groups were examined via chi-squares and t-tests. T-tests revealed that no significant differences were found between those who completed the MMPI and those that completed the MMPI-2 in terms of age and length of stay in the program. A t-test did reveal a trend, however, which indicated that those who completed the MMPI had higher average residual change scores (more symptoms; $M = .06$, $SD = .85$) than predicted compared to those that completed the MMPI-2 ($M = -.13$, $SD = .91$) ($t(219) = 1.67$, $p = .09$). Chi-square analyses revealed that there were no differences in marital status, employment status, living arrangement, DSM Axis I diagnoses, Axis II diagnoses, and duration of psychiatric difficulties. However, it was revealed by a chi-square test of independent samples that those who completed the MMPI had higher rates of previous hospitalizations than those who completed the MMPI-2 as shown in Table 18 ($\chi^2(2, N = 206) = 25.97$, $p < .001$). Further analyses which compared each category of hospitalization with the total of the other two categories revealed that a greater number of patients than expected who completed the MMPI-2 were never hospitalized and that a greater number of subjects than expected who completed the MMPI were hospitalized more than once (see Table 18).

Table 18

MMPI and MMPI-2 Differences on Frequencies for Number of Previous Hospitalizations
(Percents for each category of hospitalization are provided in parentheses)

Number of Hospitalizations	MMPI Sample observed frequencies ($n = 117$)	MMPI-2 Sample observed frequencies ($n = 89$)	χ^2
No previous hospitalizations	25 (21.4)	48 (53.9)	22.03*
One previous hospitalization	53 (45.3)	30 (33.7)	2.36
More than one previous hospitalization	39 (33.3)	11 (12.4)	10.98*

* $p < .001$

4.8 Missing Data Sample

As previously mentioned, 117 patients were not included in the main analyses because significant amounts of information were missing from their medical charts. Specifically, subjects were excluded from the main sample when they were missing data from more than one outcome measure at either admission or discharge (i.e. they had not completed more than one of the STAIS, STAIT, BDI or SCL-90-R measures). The group of subjects with missing data was analyzed separately in order to ensure their similarity with those 224 subjects who had more complete data sets. Of the 117 patients with missing data, only 114 were analyzed since three patients had medical charts that were devoid of information. Demographics from this sample are presented in Tables 19 and 20 along with a summary of the results from the main sample.

The Axis I DSM diagnostic profile of this sub-sample with missing data is provided in Table 21. As noted in the main sample of subjects, mood disorders were the most frequently diagnosed. Only 16.7% were diagnosed with a personality disorder ($N = 102$). The most frequently occurring personality disorder was borderline personality disorder ($n = 8$), followed by dependent personality disorder ($n = 5$).

Those subjects with missing data were very similar to those subjects with complete data sets. Oneway ANOVA's and chi square analyses revealed that sex, education, employment, language, marital status, number of hospitalizations, DSM Axis I and II diagnoses, and duration of psychiatric difficulties were not significantly different between those subjects with complete and incomplete data sets. Small but statistically significant differences were found between these two groups in age and length of stay. More precisely, those in the missing data set were significantly younger ($M = 35.09$, $SD = 8.78$)

than the subjects with complete data sets ($\underline{M} = 38.51$, $\underline{SD} = 9.95$; $F(1,335) = 9.61$, $p = .002$). In terms of length of stay, those subjects in the missing data group had significantly shorter lengths of stay ($\underline{M} = 12.08$, $\underline{SD} = 4.33$) than those with complete data sets ($\underline{M} = 13.63$, $\underline{SD} = 2.45$; $F(1, 311) = 16.16$, $p = .001$). In addition, a sizable portion of subjects ($n = 21$, 22.6%) with missing data attended the program for 8-days or less.

Table 19

Sample Comparison of Categorical Demographic Variables

Variable	Main Sample Frequency (valid %)	Missing Data Sample Frequency (valid %)
Sex		
male	61 (27.2)	24 (21.1)
female	163 (72.8)	90 (78.9)
Language		
English	181 (81.2)	89 (82.4)
French	42 (18.8)	19 (17.6)
Marital status		
single	69 (30.8)	33 (29.7)
married	102 (45.5)	46 (41.4)
separated	28 (12.5)	14 (12.6)
divorced	21 (9.4)	16 (14.4)
widowed	4 (1.8)	1 (0.9)
Education		
some elementary school	4 (1.8)	4 (3.8)
some high school/CEGEP	80 (36.0)	30 (28.6)
some college/university	124 (55.9)	65 (61.9)
post-graduate training	14 (6.3)	6 (5.7)
Employment		
employed	108 (48.2)	48 (47.1)
unemployed	106 (47.3)	46 (45.1)
student	7 (3.1)	7 (6.9)
retired	3 (1.3)	1 (1.0)
Duration of psychiatric difficulties		
less than 12 months	77 (34.4)	35 (33.7)
12 - 36 months	63 (28.1)	22 (21.2)
more than 36 months	84 (37.5)	47 (45.2)

Table 20Sample Comparison of Continuous Demographic Variables

Variable	Main Sample <u>M (SD)</u>	Missing Data Sample <u>M (SD)</u>
Age	38.51 (9.95) <u>N</u> = 224	35.09 (8.78) <u>N</u> = 113
Number of previous hospitalizations	1.23 (1.89) <u>N</u> = 209	1.12 (1.52) <u>N</u> = 103
Length of stay	13.63 (2.45) <u>N</u> = 220	12.08 (4.33) <u>N</u> = 93

Table 21DSM Diagnosis for Study Sample and Missing Data Sample

Diagnosis	Main Sample Frequency (Valid %)	Missing Data Sample Frequency (Valid %)
Axis I		
Mood disorder	108 (48.2)	51(48.1)
with Mood disorder	8 (3.6)	6 (5.8)
with Anxiety disorder	9 (4.0)	0 (0.0)
with Adjustment disorder	1 (0.5)	0 (0.0)
with Substance disorder	9 (4.0)	6 (5.8)
with Psychotic disorder	1 (0.5)	0 (0.0)
with Eating disorder	6 (2.7)	0 (0.0)
with Other disorders	4 (1.8)	1 (1.0)
Anxiety disorder	17 (7.6)	11(10.4)
with Mood disorder	0 (0.0)	2 (1.9)
with Substance disorder	0 (0.0)	2 (1.9)
with Other disorders	4 (1.8)	0 (0.0)
Adjustment disorder	23 (10.3)	7 (6.7)
with Mood disorder	1 (0.5)	2 (1.9)
with Substance disorder	0 (0.0)	1 (1.0)
with Eating disorder	1 (0.5)	0 (0.0)
with Other disorders	2 (0.9)	0 (0.0)
Substance-related disorder	8 (3.6)	6 (5.7)
with Anxiety disorder	0 (0.0)	1 (1.0)
with Adjustment disorder	0 (0.0)	1 (1.0)
with Other disorders	3 (1.3)	0 (0.0)
Psychotic disorder	5 (2.2)	1 (0.9)
with Anxiety disorder	0 (0.0)	1 (1.0)
Eating disorder	3 (1.3)	1 (0.9)
with Adjustment disorder	0 (0.0)	1 (1.0)
with Substance disorder	0 (0.0)	1 (1.0)
Other disorders	2 (0.9)	0 (0.0)
with Psychotic disorder	0 (0.0)	1 (1.0)
Absence of Axis I disorder	9 (4.0)	1 (0.9)
Total	224 (100.0)	104 (98.9)*
Axis II - Personality disorders		
Presence	57 (25.7)	17 (16.7)
Absence	165 (74.3)	85 (83.3)
Total	222 (100.0)	102 (100.0)

*note. percentages do not add up to N = 106 and 100% since information regarding co-morbidity was missing for two subjects.

CHAPTER 5: Discussion

5.1 Sample Representativeness

In terms of demography, the subject sample in this study differed markedly from the samples described by the majority of long-term day hospital programs in North America and Europe which cater to a chronic, heterogeneous population with a large percentage of patients suffering from psychotic illnesses. In comparison to the previous literature, the present study describes fewer numbers of males (Comstock, Kamilar, Thornby, Ramirez, & Kaplan, 1985), a higher education level (Azim et al., 1978; Ferber et al., 1985), an older average age (Azim et al., 1978), a higher rate of marriage (Ferber et al., 1985), and a lower number of subjects living alone (Vidalis & Baker, 1986). Compared to prior research, there was a lower proportion of subjects suffering from psychotic disorders (Azim et al., 1978; Vidalis & Baker, 1986) in the current study and patients had fewer previous psychiatric hospitalizations (Ferber et al., 1985). These differences are not surprising in lieu of the fact that these long-term programs described in the literature aim to service a different clientele than in the current study.

Despite these differences, the study sample does resemble those of long-term programs which service patients who suffer primarily from affective and personality disorders. The subject sample is comparable to that of Piper et al. (1994a) in terms of sex, age, marital status, and previous psychiatric treatment. However, compared to the sample described by Piper et al. (1994a) and Karterud et al. (1992), a larger proportion of the current sample had been previously hospitalized. In terms of diagnosis, the study sample compared favorably to Piper et al. (1994a) on Axis I of the DSM and on the high prevalence of mood related disorders. The present sample, however, had a much smaller

proportion (25.7%) of patients suffering from co-morbid personality disorders than was described by Piper et al. (1994a; 65%) and Karterud et al. (1992; 76%). This difference serves to highlight the fact that, individuals suffering from concurrent personality disorders were specifically targeted through the previous authors' program admission criteria.

Demographic descriptions of subjects who completed short-term psychiatric day hospitalization for affective and personality disordered individuals have been undertaken by Howes, Haworth, Reynolds, and Kavanaugh (1997), Johnston and Busby (1997), and Russell et al. (1996). Valid comparisons cannot be made with the latter two studies since both were completed within the same day hospital setting as the current study, and the subjects from these two studies represent subsets of the subjects in the current study. Compared to Howes et al. (1997), however, the current sample was slightly more educated, and had a greater percentage of patients who were employed and married. In addition, the diagnostic makeup of the two samples differed in that, in the current study, there were fewer patients lacking an Axis I diagnosis and fewer were diagnosed with a co-morbid personality disorder.

As summarized previously, the patients in the ADH did change significantly between admission and discharge as measured by the BDI, GSI, STAIS, and STAIT. This result replicates those of Piper et al. (1993) and Azim et al. (1978) who, in controlled studies, described symptom improvement in long-term programs with affective disordered and personality disordered patients, and with mixed diagnostic populations respectively. Symptom improvement has also been shown in a 6-week day hospital program for patients suffering primarily from affective and adjustment disorders (Howes et al., 1997). The present study suggests that subjects did improve in the ADH but since no control group

was used it cannot be concluded that this improvement was due solely to treatment program effects.

5.2 Chronicity Variables as Predictors of Outcome

The general question that this study originally posed was whether multiple variables taken individually or in combination could predict symptom reduction after short-term day hospitalization. More precisely, it was hypothesized that variables which measured chronicity, social support and personality variables could predict symptom change. In summary, it was revealed that, in combination, the chronicity variables of number of previous psychiatric hospitalizations, presence of a personality disorder, age, and duration of current psychiatric difficulties in months were predictive of symptom reduction. Most significantly, in accordance with the results reported by Karterud et al. (1992) and Vaglum et al. (1990), having a co-morbid personality disorder was independently indicative of less symptom reduction than predicted at discharge. In addition, the current study revealed that, independently, a greater number of past psychiatric hospitalizations was associated with less symptom reduction than predicted after three-weeks of day hospitalization. This finding is in contrast to that of Piper et al. (1994a) in their 18-week day hospital program who found that previous hospitalization was only significantly related to positive interpersonal functioning at discharge but was not related to the outcome variables of general symptomatology and target objectives, social maladjustment and dissatisfaction, or pathological dependency. Such differences may not be remarkable considering that the Piper et al. (1994a) study was conducted in a setting with a different program length (18 weeks), program orientation (psychodynamic) and population (a greater percentage of subjects suffered from personality disorders) than in

the current study. It is feasible that the same variables might not predict outcome when there are such great program and population differences.

In the current study, duration of psychiatric difficulties was not found to be predictive of symptom change at discharge. This finding is particularly unexpected given that, within the same setting, Johnston and Busby (1997) concluded that there was a relationship between SCL-90-R symptom change scores at discharge and length of illness. This disparity can perhaps be accounted for by the fact that Johnston and Busby solely examined the outcomes of patients suffering from affective disorders while in the current study, a more heterogeneous population was examined. It can be argued that perhaps different variables may be predictive of outcome with different patient populations.

5.3 Social Support Variables as Predictors of Outcome

The social support variables of marital status, employment status, living arrangement and the FAM sub-scale of the MMPI-2 were not predictive of symptom reduction, independently or in combination, in the current study.

Marital status has been examined independently as a predictor of outcome in the long-term day hospital literature which focuses on individuals suffering from affective and personality disorders. As in the current study, marital status has not been found to be predictive of symptom change by Piper et al.(1994b) and by Johnston and Busby (1997). These findings are in contrast to the studies which have examined this variable in long-term day hospitals with a mixed diagnostic population. In these settings, marriage has been shown to predispose one to a more favourable outcome (Carney et al., 1970, Dunn et al., 1982). A trend can thus be said to be emerging whereby marital status is not predictive of symptom change in day hospitals with affective disorder and personality disordered

patients but may be predictive of change in settings with mixed diagnostic groups. It can be hypothesized that marital status is not predictive of symptom change with individuals suffering from affective and personality disorders because marital status is not, independently, a strong enough supportive factor. As such, it could be argued that an individual's whole social support network (i.e. family, friends, colleagues at work) is important, rather than simply whether one is married or not. In addition, as in the current study, marital status is typically conceptualized as a dichotomous variable and, as such, the quality of the marital relationship is not assessed. The quality of an individual's marital relationship is important since, if the relationship is poor, being married might be contributing to problems and as such, may have a negative or moderating effect on treatment outcome. In order to assess whether marital status contributes to outcome in future studies, it is recommended that a qualitative evaluation of the marriage be a consideration.

The variables of employment status and living arrangement have not been examined as potential predictors of outcome in any studies with affective disordered and personality disordered subjects. As such, no relevant comparisons can be made. These two variables have been examined in the long-term literature with mixed diagnostic populations although no clear trends have developed. For instance, Vidalis and Baker (1986) concluded that employment status and living arrangement was not related to regularity and duration of attendance, transfer to inpatient facilities and return to employment in a long-term day hospital setting with a mixed diagnostic population. Ferber, Oswald, Rubin, Ungemack, and Schane (1985), with a population in which 78% were diagnosed with schizophrenia, concluded that patients living with their families were more likely to

complete long-term hospitalization. Valid comparisons between these studies and the current study cannot be made since the current study was conducted in a short-term setting, with a less pathological population, and with an outcome measure that focused on symptom change.

The Family Problems scale (FAM; MMPI-2) was included as a social support variable since individuals scoring high on this scale describe their families as being quarrelsome, unpleasant, and lacking in love and affection (Butcher, 1990). As such, patients scoring high on this scale perceivably are lacking familial social support. However, the FAM was not found to be predictive of the outcome measure in the current study. Comparisons to other studies cannot be made since this variable has not been examined in other day hospital settings. Obviously, more research is needed to determine the relevance of the previous variables as predictors of outcome in short-term day hospital settings.

One can speculate that perhaps the reason that social support variables do not appear to be predictive of symptom change in this study is because social support outside of the program is not as important. Although no objective evidence supports this finding in our study, it can be speculated that perhaps internal program social support is the key to symptom change. In other words, perhaps it is the fact that individuals feel supported within the program that is important regardless of whether they feel supported outside of the program. An empirical examination of perceived social support within the day hospital framework might clarify this point. Another possibility for the negative results regarding social support is that there may be a selection bias favouring those who have a certain level of support in the ADH. In fact, the program acceptance criteria states that

participants must possess a relatively intact social support system. Since patients are selected on this basis, there is arguably not much room for variability on this measure.

5.4 Personality Variables as Predictors of Outcome

The MMPI Psychopathic Deviate (Pd), Paranoia (Pa), and Social Introversion (Si) scales, in combination, were not predictive of symptom reduction. The MMPI-2 Pd, Pa, Si, Social Discomfort (SOD), and Negative Treatment Indicator (TRT) scales were also not, in combination, predictive of symptom change at discharge from the program. When MMPI and MMPI-2 variables were examined independently, only the Si scale from the MMPI was predictive of symptom change. More precisely, for the MMPI, higher scores on the Si scale, indicating higher levels of social introversion, predicted more symptoms at discharge. This finding suggests that those patients who experience discomfort in group settings, and thus may not participate as actively in the group therapy process, may not benefit as greatly from day hospitalization. Hoge and McLoughlin (1991) present a model for successful acute group psychotherapy which includes catharsis (the venting of one's emotions) and altruism (a recognition that one can make a valuable contribution to those around them) as necessary components. They suggest that for catharsis to occur, patients must discuss their own problems, while for altruism to be experienced, patients must support, encourage and offer support to other patients. This model is consistent with the results of the current study which suggest that those who do not participate as actively in the group therapy process may not benefit as greatly from day hospitalization. It can be argued that those who are socially introverted in the group therapy situation are neither experiencing catharsis nor altruism to a degree that may benefit them therapeutically. Yet we do not have any objective evidence of the degree of participation. It is being

presupposed that there is a direct link between social introversion and putative lower levels of participation in group processes.

It is important to note that, in contrast to the MMPI results, the Si scale of the MMPI-2 was not predictive of symptom reduction. This discrepancy is particularly noteworthy given that the Si scale in the MMPI and MMPI-2 are virtually identical (only one item was deleted and six others were revised grammatically or modernized in the MMPI-2; Hathaway & McKinley, 1989). In view of the number of statistical analyses that were conducted in the current study, this result might be the result of a Type I error. Alternatively, assuming this difference does not reflect a statistical error, this discrepancy could be the result of a significant shift in the psychopathological profile of the patients in the ADH. Because those that completed the MMPI and those that completed the MMPI-2 roughly represented ordered temporal groups, with those completing the MMPI entering the program before those that completed the MMPI-2, comparisons between these two groups were made. As previously noted, these results revealed that those who completed the MMPI were more symptomatic at discharge than predicted and had significantly higher rates of previous psychiatric hospitalization than those who completed the MMPI-2. These findings suggest that those patients who were referred to the program in the latter part of its existence exhibited less pathology than those who were referred to the program in its initiation. This shift may have resulted because, as time evolved, referring clinicians were more familiar with the program and thus, referred their psychiatric patients more quickly (i.e. upon presentation of initial psychiatric distress). Another possible explanation is that those in the latter part of the program might have been less symptomatic on discharge than predicted since there may have been a subtle shift within the program (i.e. program

evolution might have occurred). A shift may also have occurred in the ADH team's assessment procedure. Perhaps, in the former half of the program's existence, acceptance into the program was more variable, such that a greater range of pathology was accepted into the program near its initial inception. As the program continued, acceptance criteria was presumably tightened as the ability to recognize those referrals that would likely benefit from the program was improved.

It is important to note that, with the exception of the Si scale in the MMPI and the Pa scale in the MMPI-2, none of the MMPI or MMPI-2 scales examined were significantly correlated with the symptom reduction outcome measure. Such negative results have been seen in other psychiatric settings. For instance, Aaronson et al. (1996) demonstrated that the TRT scale was not correlated with discharge type [defined as regular (treatment goals have been reached) or irregular (discharge against medical advice)] or length of stay with a heterogeneous population of veterans suffering from medical and/or psychiatric difficulties, and Munley and Busby (1994) demonstrated that the TRT was not predictive of regular or irregular discharge with psychiatric inpatients. Hilsenroth, Handler, Toman and Padawer (1995) concluded that MMPI-2 scores on the Pd, Pa, Si and TRT scales, among others, could not significantly distinguish between completers and non-completers of 24 sessions of individual psychodynamically-oriented psychotherapy. Chisolm et al. (1997), for their part, summarized multiple studies which indicated that the MMPI's Pd, Pa, and Si sub-scales, among others, were not predictive of premature termination in community mental health clinics, private practice, or in veteran's hospitals. Although no studies have reviewed the predictive utility of the Pd, Pa, SOD, and TRT in a day hospital setting, the previous literature and the results of the current study

lead one to question whether the Pa, Pd, SOD, and TRT scales are valuable predictors of outcome. It is particularly noteworthy that the TRT, which purports to measure negative treatment attitudes toward mental health practitioners and treatment, is not correlated with symptom reduction since one would intuitively expect such a correlation. Again, selection bias in favour of choosing patients who would likely benefit and comply with ADH treatment, makes it unlikely that patients on the extreme end of the TRT scale would be accepted in the first place.

Although further research that examines the use of all of the MMPI-2 sub-scales as predictors of outcome in day hospital settings is needed in order to help determine whether personality variables, as measured by the MMPI/MMPI-2, are worthwhile predictors in this milieu, it might be more fruitful to explore other personality variables such as psychological mindedness (the ability to identify intrapsychic elements), and quality of object relations (an individual's lifelong pattern of establishing various types of relationships). This pursuit might be more valuable since these personality variables have been shown to be useful predictors by Piper et al. (1994a; 1994b) in long-term day hospital settings with patients suffering from affective disorders and personality disorders.

5.5 Strengths and Limitations

This study has attempted to overcome some of the methodological flaws seen in the long-term day hospital literature with mixed diagnostic populations such as the use of therapeutically-relevant outcome measures and the reliance on simple regression techniques. As such, symptom change was used as the outcome measure rather than the measure of program completion which is commonly used in the long-term literature. In addition, multiple predictor variables were employed so that the combined effects of these

variables could be assessed. Other strengths of this study included the large number of subjects who participated and the extensive amount of demographic and diagnostic information that was available on this sample and that could be used in future research as potential predictors of outcome.

Despite these strengths, it is important to note that in the current study subjects were not randomly assigned to the ADH (i.e. there was no control group). As a result, the general decrease in symptoms that occurred over the program cannot be attributed exclusively to the program. The best way to determine if the program is effective would be to compare change in the program group with a randomly assigned wait-list control group. Although ethically this type of selection presents challenges in a general hospital setting, random assignment would allow for the evaluation of specific program treatment effects and improve the generalizability of results to other short-term day hospital settings.

Lastly, 34.3% ($n = 117$) of the total sample of 341 had large amounts of missing information and thus could not be included in the main analyses. As described, those subjects with missing data were generally similar to those with complete data sets. However, those with missing data were significantly younger than those with complete data sets and their length of stay in the ADH was significantly shorter. This latter difference can perhaps be explained by the fact that a sizable portion of subjects ($n = 21$, 22.6%) with missing data attended the program for 8-days or less. Since these subjects had incomplete medical charts it was often difficult to determine whether these patients left the program against medical advice (and can thus be considered dropouts) or left the program with the staff's approval. One can probably assume that a proportion of these subjects were dropouts from the program. This assumption has important implications for

the findings of this study since there were no dropouts in the main subject pool of 224-subjects. The main findings of this study must thus be viewed as extending only to those subjects that completed the ADH program. Nevertheless, it is interesting to note that the number of dropouts from the ADH represents a much smaller percentage of unusable data compared to the high dropout rates (close to 50%) typically reported in the long-term partial hospitalization programs (Ferber et al., 1985; Vidalis & Baker, 1986). There may in fact be a bias in favour of a lower dropout rate in the ADH program since this program is only 15 days in duration.

One final limitation of this study was its reliance on archival data. The data used in this study was collected by the staff of the ADH who did not always have the time to ensure its completeness for research purposes. As such, there was an increased potential for omissions: incomplete and/or inaccurate record keeping. Also, the data was originally collected for clinical purposes and thus did not always possess the detail or specificity required for research purposes. As a result, some interpretative decision-making was required in the data collection process.

5.6 Conclusion

In conclusion, this study represents an attempt to clarify patient variables which, in combination or individually, predict symptom change in a short-term day hospital setting with patients suffering from affective disorders and personality disorders. Although this study demonstrated that chronicity variables were significantly predictive of symptom change, this result possesses marginal utility since only 5% of the variability in symptom change at discharge could be accounted for. As such, chronicity factors may not be as utilitarian as other factors in patient selection criteria of short-term day hospital programs.

Arguably, predictor variables might be more easily identified if specific diagnostic groups were examined (Dazord, Gerin, Seulin, Duclos, & Amar, 1997). Johnston and Busby (1997) took this approach by solely examining affective disordered patients and were able to account for 46.4% of the variability in symptom change by looking at marital status, length of illness, BDI intake scores, MMPI depression scores, and Axis IV ratings.

Predictor variables might also be more easily identified in this setting if more encompassing outcome measures were used. Although symptom change is a more valuable outcome measure than program completion, as has been more commonly used in the day hospital literature, symptom change only taps one aspect of patient functioning. As such, perhaps the results of the current study would have been more impressive, had multiple outcome measures been used which examined various aspects of the patients' outcome. Piper et al. (1994a, 1994b) have set the standard in this area by examining such diverse outcomes as target objectives, social maladjustment, social dissatisfaction, and interpersonal functioning. Quality of life measures and individualized assessment of patients' therapeutic goal achievement (from the patient and therapist perspectives) might also be a valuable addition to such an evaluation of outcome.

Although the results of the current study have marginal clinical implications, the continued exploration of significant predictor variables in the short-term day hospital setting remains a valuable pursuit. The ability to identify those patients who succeed and those who do not do as well in these programs has implications for program change and for the development of new programs which will benefit those who are not currently being served in the present system.

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IMAGE EVALUATION TEST TARGET (QA-3)

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