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# Exploratory Analyses Of A Developmental Conceptualization of Insight And Treatment Outcomes Of Individuals With Serious Mental Illness in Psychiatric Rehabilitation

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# EXPLORATORY ANALYSES OF A DEVELOPMENTAL CONCEPTUALIZATION OF INSIGHT AND TREATMENT OUTCOMES OF INDIVIDUALS WITH SERIOUS MENTAL ILLNESS IN PSYCHIATRIC REHABILITATION

by

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# EXPLORATORY ANALYSES OF A DEVELOPMENTAL CONCEPTUALIZATION OF INSIGHT AND TREATMENT OUTCOMES OF INDIVIDUALS WITH SERIOUS MENTAL ILLNESS IN PSYCHIATRIC REHABILITATION

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The purpose of the present study was to further examine the relationship between adolescent psychiatric pathology and SMI by assessing the relationship between prior mental health services before the age of 18 and time of assessment on peopleôs insight into their illnesses. A secondary relationship between adolescent psychiatric pathology and functioning in a variety of domains before, during, and after treatment was assessed. Overall, there was an inconsistent pattern of results and partial support of hypotheses. The current study was a retrospective longitudinal study in which assessments were given to 308 participants in an inpatient psychiatric rehabilitation unit every 6 months. Results indicated that those with service use during adolescence were younger at admission to CTP, have slightly lower levels of education, had an earlier age of onset, and significantly more previous hospitalizations. A relationship between Axis I and II diagnoses and service use was also identified. Improvements in neurocognitive, sociocognitive, insight, and behavioral functioning measures are evident over the course of treatment, however are not consistent for all groups and all measures used within this

study. Contrary to the hypothesis, those adults with service usage in adolescence did not endorse differing overall insight or ability to relabel symptoms scores over the course of treatment. However, as hypothesized, there were no differences between those with and without service usage in adolescence on any measure of insight after one year of psychiatric rehabilitation. In general, the CTP participants endorsed lower insight into need for treatment scores across treatment. Also, analyses revealed no significant relationship between whether or not someone used services in adolescence or APP severity level and rate of rehospitalization or discharge location restrictiveness.

In summary, this study was exploratory in nature and inconsistent results and mixed support of hypotheses was found. This field of research has numerous implications for increasing insight and bettering outcomes for persons with SMI.

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# Dedication

*For my family, then and now.*

*All it took was a bushel and a peck.*

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# CHAPTER 1 ï INTRODUCTION AND LITERATURE REVIEW

## Exploratory Analyses of a Developmental Conceptualization of Insight and Treatment outcomes of Individuals with Serious Mental Illness in Psychiatric Rehabilitation

Individuals with Serious Mental Illnesses (SMI) are commonly observed to have an extreme lack of awareness of their condition, the consequences of their mental illness, and their need for treatment. Freud (1940) perceived that those with a diagnosis in the schizophrenia spectrum were acutely unaware of their own affect and cognitions. The WHO International Pilot Study of Schizophrenia validated earlier observations by finding that poor insight is one of 12 symptoms or signs selected to identify Schizophrenia and was found to be a statistically significant discriminator (Carpenter, Strauss, & Bartko, 1973). Since these early findings, there has been resurgence in recent years of research studying the concept of insight and its impact on recovery in the SMI population (Carpenter, Strauss, & Bartko, 1973; Ghaemi & Pope, 1994; Lysaker, Bell, Milstein, Bryson, & Beam-Goulet, 1994; Schwartz, 1998; Smith et al, 1999).

### *Definitions of Insight*

The concept and definition of insight has changed over time. Jaspers (1963) was one of the first researchers to differentiate awareness of illness from insight, with awareness of illness being defined as the feeling of being ñill and changed.ò Insight was differentiated by Jaspers (1963) as an ñobjectively correct estimate of the severity of the illness (and) an objectively correct judgment of its particular typeò (p. 419). Jaspers

thought that only when all of these features are present could the patient be considered to have insight (Jaspers, 1963; cited in Rusch & Corrigan, 2002).

Recent studies suggest that insight is not dichotomous, but multidimensional (Amador, Strauss, Yale, & Gorman, 1991; David, 1990; David & Kemp, 1997). David (1990) proposed that three dimensions comprise the construct of insight: recognition that one has a mental illness, the ability to re-label unusual mental events as pathological, and the belief that one needs treatment and actual adherence to treatment. These dimensions are not concrete but instead are overlapping, dynamic trends that account for diverse variations along the course of the illness. The model proposed by David (1990) has face validity and thus is commonly used in research studying insight (McGorry & McConville, 1999; Schwartz, 1998).

Amador et al. (1991) proposed another multidimensional model that differentiates between unawareness of illness and incorrect attribution of deficit or consequence of illness, and treats insight as a complex phenomenon with separate but interrelated mechanisms. Amador et al. (1993) concluded that the best way to define poor insight is as a construct consisting of multiple components much like the symptoms associated with SMI.

Insight can also be thought of as the ability to relate to professionalsô views and the ability to meaningfully converse about the subject (Rusch & Corrigan, 2002). Markova and Berrios (1995) conceptualized insight, as assessed in clinical interviews and observations, as a combination of the personôs perception of his or her own condition, the clinicianôs perception of the individualôs condition, and the clinicianôs own conceptual understanding of the construct of insight. Consequently, evaluating a

personôs insight can be affected by the person and clinicianôs attitudes and beliefs, therapeutic alliance, sociocultural differences and backgrounds, and the clinicianôs working definition of insight.

Many differing techniques have been used to operationally define and measure insight. Objectively measuring and identifying symptoms and the degree of insight is important for reliably using valid results to inform diagnosis and treatment decisions throughout the course of illness. Although most current researchers agree that insight needs to be defined and measured as a multidimensional construct, some researchers continue to treat it as a dichotomous construct Amador et al. (1991) try to measure the multidimensional nature insight throughout the course of illness by designing tools like the Scale to Assess Unawareness of Mental Disorders (SUMD), a delineated 5-point scoring method that rates responses to controlled stimuli during a semi-structured interview. The SUMD assesses current and past insight as well as the individualôs insight into the future course of their disorder and treatment. The SUMD includes a systematic assessment of historical records and other sources to determine what symptoms have actually been present. Although this may seem a prerequisite to assessing insight, such systematic accounting is not always included, and the SUMD has an advantage over other instruments in this regard. Also, Amador and colleagues (1993) proposed an additional dimension of insight, as assessed by the SUMD, that is capable of measuring the time and memory dimensions of insight, with full insight including the past, present, and possible future course (need for future treatment, risk of relapse, etc.) of the disorder. Thus, for example, an individual may understand that current hallucinations are illusory while fully believing the validity of past hallucinations.

Recently, researchers such as Frith (1992) and Lysaker et al. (2005) have begun to examine metacognition, the ability to think about thinking, and its relationship with the common signs and symptoms of schizophrenia. Some researchers regard metacognition as a component of insight, with the assumption that when a personôs ability for metacognition is poor their degree of insight is lower. Examining metacognition often involves theory of mind tasks. Theory of mind is defined as the ability to form a representation of the consciousness of others and be able to draw conclusions about their motives and make inferences as to othersô internal feelings (Lysaker et al., 2005). Research examining theory of mind tasks have shown that greater impairment is linked with deficits in visual and verbal memory and poorer flexibility for abstract thought (Greig et al., 2004). In a study by Lysaker et al. (2005), 61 men with schizophrenia were interviewed to examine the relationship between their scores on the metacognition assessment scale and quality of life, neurocognition, and insight. When age and gender were controlled, it was concluded that higher levels of metacognition, as defined as purposeful problem solving, were associated with less emotional withdrawal and paranoia and better social functioning, verbal memory, and insight (Lysaker et al., 2005). Therefore, when an individual with SMI is able to use purposeful problem solving and metacognition he or she is able to better conceptualize his or her illness. However, it is still unclear whether deficits in oneôs own awareness are a separate property from third person metacognition.

*Etiology of Impaired Insight*

If insight is a multidimensional construct, a single etiology is unlikely. Several causes are suspected to interact in complex ways and are expressed in different ways in the heterogeneous SMI population. It has been proposed that lack of insight in those that have schizophrenia is analogous to the neurocognitive deficits in the traumatic brain injury (TBI) population. Several researchers have observed and measured the unawareness of deficits in those with TBI, and have linked this lack of awareness to defects in the right hemisphere (Amador et al., 1991; McGlynn & Schacter, 1989; Prigatano & Schacter, 1991 as cited in Rusch and Corrigan, 2002); yet, some researchers studying schizophrenia did not find a relationship between defects in the right hemisphere and lack of insight (David et al., 1995; Kemp & David, 1996; McEvoy et al., 1996). Researchers studying the schizophrenia spectrum have found that the left hemisphere is affected more than the right in the SMI population. There is one finding of a correlation between poor insight and increased ventricle-to-brain ratios (Takai et al., 1992), and poor insight into oneôs disorder has been associated with lesions in the parietal lobe (McEvoy et al., 1996) and smaller brain size (Flashman, et al. 2000). Using MRI, Flashman et al. (2000) found that patients with poorer insight had smaller brain size and intracranial volumes than patients with higher levels of insight or the comparison subjects.

Researchers are currently divided as to whether or not unawareness of illness in the SMI population is best understood as the consequence of cognitive deficits that complicate the personôs ability to understand confusing aspects of their mental illness and everyday life. Lysaker et al. (1994) and McEvoy et al. (1996) found that poor insight is related to frontal lobe deficits as measured by poorer performance on tests of

neurocognition and executive functioning, but others have failed to find a relationship (Cuestra et al., 1995; Freudenreich et al., 2004).

A different view of the etiology of impaired insight, not necessarily incompatible with neuropsychological views, is that it is a coping mechanism. McGlashan et al. (1975) showed that there are two distinct recovery styles for those that are experiencing psychosis. The first group, the ñintegrators,ò incorporates their mental illness into their everyday lives and has a high sense of awareness of the course that their illness has taken. The second group, or those that ñseal over,ò refuse to discuss or even think about their mental illness and thus are inclined to have lower levels of awareness of their deficits, course of illness, and consequences of illness. These differences could be understood to reflect different coping style preferences. In a follow-up study of 30 ñrecoveredò patients, McGlashan and Carpenter (1981) found that the absence of a negative attitude towards illness and symptoms was critical to achieving a positive outcome.

Due to the heterogeneous SMI population and the multifaceted nature of insight, insight as a coping mechanism may be more useful for some individuals, as well as more helpful in coping with some symptoms than others. Using the SUMD to measure symptoms, Mohammed et al. (1999) concluded that poor insight into negative symptoms (e.g. alogia, affective flattening, avolition) is associated with poor executive functioning while poor insight into positive symptoms (e.g. delusions, hallucinations, disorganized speech or thinking, grossly disorganized behavior, catatonic behaviors) is not associated with poor executive functioning. Therefore, it can be theorized that unawareness of negative symptoms may be due to neurocognitive deficits related to the frontal lobe and

executive functioning, while unawareness of positive symptoms may mainly act as a coping mechanism.

Poor insight as a coping method may also serve a protective role for individuals grappling with trying to understand their disorder who are experiencing higher levels of depression (Lysaker et al., 2005). Coping by having poor insight can allow the individual to avoid reality and as a result improve self-esteem and circumvent depression. Greater use of a form of coping, labeled accommodation or adaptation, was also a significant predictor of adjustment, providing support for the role of coping as a protective factor for people with schizophrenia (Lecomte & Mercier, 2005).

*Insight and Suicide Risk*

The role of poor insight as a coping method also suggests that good insight may paradoxically be a risk factor for depression and suicide. Individuals with a disorder in the schizophrenia spectrum have a 20 percent higher chance of attempting suicide than the general population and have a lifetime suicide attempt rate of 20 to 40% (Meltzer, Anad, & Alphs, 2000). In the SMI population, suicidal ideation and behavior have been linked to depression (Amador et al., 1994; Caldwell & Gottesman, 1990). Research has indicated that higher levels of insight lead to lower self-esteem and greater depression, thus increasing risk of suicide attempts (Amador et al., 1994; Caldwell & Gottesman, 1990; Evren & Evren, 2004; Pompili et al., 2004). Baechler (1979; restated in Pompili et al., 2004) stated that ñschizophrenics do not kill themselves insofar as they are schizophrenic but insofar as they are persons who know they are schizophrenic or are threatened with becoming so and who wish to avoid this fated outcome.ò Amador et al.

(1996) reported that in their study of 218 patients with schizophrenia, 169 individuals did not have suicidal behavior whereas 49 had suicidal behaviors or ideologies. Amador and colleagues (1996) found in their study that patients who have more awareness of their delusions, blunted affect, and anhedonia were more likely to commit suicide. In a study by Evren and Evren (2004), sixty individuals with schizophrenia were interviewed and their clinical case summaries were reviewed. About half of the sample, 45%, had experienced suicidal ideation, had made one or more suicide attempts, had lower negative symptom scores, and had been diagnosed as depressed at one point in time. For these individuals, their mean scores on the three components of insight were statistically significantly higher than for those who did not have a history of suicidal ideation or attempts. Evren and Evren (2004) replicated other studies (e.g. Caldwell & Gottesman, 1990) that indicated that those that did attempt suicide and those that did not attempt suicide did not differ on demographic characteristics such as age, gender, marital status, educational status, and employment history.

*The Role of Insight in Treatment and Recovery*

While increased levels of insight have been shown to be a risk factor for suicide, moderate levels of insight can also act as an important factor in treatment and recovery. Poor insight can create a barrier between practitioner and patient that may affect the alliance during therapy and the patientôs chance for long-term success. Poor insight has been associated with poor work skills, more noncompliance, and more readmissions to hospitals (Lysaker et al., 1994). Several studies have shown that high levels of insight are associated with improved outcome, fewer hospitalizations, better post-hospital

adjustment, and better medication compliance both in psychiatric in-patient settings and outpatient settings (Amador et al., 1993; Schwartz, 1998). These findings support the view that increasing insight early during the course of treatment can increase the probability of treatment being successful.

*Insight and Human Development*

To fully understand insight into adult SMI, attention must be paid to the emotional, physical, and mental health difficulties that people experience as they transition from adolescence to adulthood. Research indicates that one in five children have some form of a diagnosable mental, emotional, or behavioral disorder, yet 70 percent of those children do not receive mental health services (Kenny et al., 2002). In addition to a lack of a common approach to detecting and following these children across systems, the neglect of services seems to be due to factors such as the varying definitions and classifications of childhood psychiatric disorders, research with heterogeneous child samples, using differing age groups for studies examining ñadolescence,ò and multi-disciplines disagreeing on what constitutes child and adolescence psychosis and emotional disorders.

The term Serious Emotional Disturbance, applied to people under age 18, is comparable to Serious Mental Illness applied to adults. Both terms are used colloquially and legislatively to describe people who are diagnosed with a psychiatric disorder according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 1994), when the diagnosed condition results in severely impaired functioning and disability.

Children and adolescents can be diagnosed with different diagnoses as they progress through the lifespan even though their symptomatology may be similar; they can be deemed as having SED prior to age 18 and after they are 18 they can be deemed again as having SMI. Therefore, it is difficult to estimate the rates of SED and SMI in the population age 16 ï 21 (Jonikas, Laris, & Cook, 2003) and hence it is difficult to estimate the amount of the population that is not receiving mental health services.

Research into SMI has demonstrated that disorders in the schizophrenia spectrum are chronic and that poor outcome is often linked to earlier onset (Helgeland & Torgensen, 2005). Helgeland and Torgensen (2005) also found diagnostic stability from adolescence psychiatric pathology to adulthood for schizophrenia spectrum disorders. Other researchers disagree with this finding, concluding that it is impossible to have valid diagnostic consistency between schizophrenia and psychosis in childhood (Chen, Swann, & Burt, 1996). Due to these inconsistent results it is clear that further research into the transition from SED to SMI is needed.

The transition from adolescence to adulthood can be understood in terms of developmental and institutional transitions (Vander Stoep, Davis, & Collins, 2000). Developmental transitions are biological and social in nature while institutional transitions refer to changes in service settings, legal, or bureaucratic status. Research by Vander Stoep et al. (2000) suggests that establishing and maintaining peer and family relationships, employment, high levels of functioning, treatment adherence, and transition back into a community setting can be impeded or delayed throughout the lifespan by SED or psychiatric pathology in childhood or adolescence.

According to Helgeland and Torgersen (2005), SMI in adulthood is associated with developmental hardships such as complications during pregnancy, neurodevelopmental abnormalities, and delayed motor and language development, thus suggesting schizophrenia is a developmental mental illness with relative stability in childhood and adolescence and onset in early adulthood. As a result it can be deduced that individuals with adolescent psychiatric pathology (APP) that have poor levels of insight may continue to have poor levels of insight once in the SMI population. Clinical characteristics such as degree of psychopathology, length of previous hospitalizations, and age of first hospitalization are also associated with patterns of psychosocial treatment response and insight into oneôs illness (Kupper and Hoffmann, 2000; Peer and Spaulding, 2007). Although research has not conceived a developmental theory of insight, it can be assumed that valuable information that can inform recovery decisions can be gleaned from future research viewing insight in a developmental context.

Simply having APP can hinder an individualôs level of functioning and course of illness factors such as treatment adherence, but failure to engage in services can also be attributed to lack of insight (Carpenter, Strauss, & Bartko, 1973; Ghaemi & Pope, 1994; Lysaker et al., 1994; Shwartz, 1998; Smith et al., 1999). Developmental impairments are more ubiquitous in those with symptoms in adolescence or APP than in those with late onset schizophrenia (Helgeland & Torgersen, 2005), thus indicating a possible more biologically severe subtype of the SMI population. Individuals that have the lowest degrees of insight and a history of APP may have more severe symptoms and may, despite receiving mental health services during adolescence, continue to have poor insight as adults receiving in-patient services.

Families are often a source of emotional support for those with a mental illness. Research has shown that individuals with APP have more dysfunctional family relationships as well as increased perceptions that their families are distant and do not offer support (Jonikas et al., 2003). While adolescence individuals may seek support from other sources such as friends or significant others; for adolescents with mental illnesses this may not be possible due to poor social skills, paranoia, stigma associated from having a mental illness, blunted affect, and aggressive behaviors towards peers. Failure to establish or maintain relationships may force the person to manage their illness differently; poor insight may develop as a coping mechanism in adolescence to substitute for the lack of support from family and peers. This method of coping may continue throughout the course of the illness and contribute to the individualôs insight remaining low after being admitted to inpatient treatment settings.

In a study Van Meijel et al. (2002) healthcare professionals and families of patients with schizophrenia were interviewed. All interviewees agreed that in order to improve outcomes for those with SMI earlier intervention and symptom recognition is needed. Furthermore, all participants in the study agreed that a certain level of insight is needed to accomplish early recognition and intervention for the SMI population (Van Meijel et al., 2002). Those that have lower levels of insight in adolescence while meeting criteria for SED may, with the help of mental health services and psychopharmacology, increase their levels of insight while making the transition into the SMI population. This increased understanding of the need for services, ability to understand their mental illness, and the ability to re-label unusual mental events as pathological can have important implications for treatment and the chronicity of states of psychosis that the

patient experiences and copes with, as well as the number of times that they must be hospitalized. However, individuals with extremely poor insight during adolescence and into adulthood may, despite intensive intervention, not be able to understand and re-label their illness and may be more likely to have poorer treatment outcomes. Further research needs to accurately longitudinally measure, conceptualize, and define insight in order to inform our decisions for early identification and intervention strategies, as well as help explain the developmental transition from SED to SMI and the impact insight may have on this population with greater symptom severity. The conclusion can be drawn that further analysis into the relationship of insight and the transition from SED or APP to SMI can create new contexts in which SED and SMI and the mental health services for each can be viewed.

To date, there has been only one exploratory study conducted in a clinical setting that compares the characteristics of people with APP to those without. In a study by Wynne (2009) the relationship between APP and SMI was examined by assessing the relationship between prior mental health services before the age of 18 and time of assessment on peopleôs insight into their illnesses as adults participating in a psychiatric rehabilitation. The sample consisted of 112 patients recruited from an inpatient psychiatric rehabilitation unit at a state psychiatric hospital. Results indicated that those with service use during adolescence were found to be younger at admission, have slightly lower levels of education, have an earlier age of onset, and significantly more previous hospitalizations. A relationship between Axis II diagnosis and service use was also identified, indicating that having an Axis II diagnosis in adulthood and APP may signify that individuals had particularly noticeable symptoms that increased their chances of

being served in adolescence.

Wynne (2009) also found that improvements in neurocognitive functioning were not evident over the course of treatment. Although improvements in insight were evident over the course of treatment for the general CTP population, adults with SMI who used mental health services before the age of 18 did not significantly differ from those who did not use services before the age of 18 with respect to level of insight; except for awareness of illness at 6 months as measured by the IS. Results of analyses on insight measures over the course of treatment by APP severity level suggest that increases in measures of insight are not evident for the medium and high APP severity groups and changes in total insight and insight into need for treatment are different for the no services in adolescence and low APP severity groups over time. This field of research has numerous implications for measuring and increasing insight among persons with SMI and may have implications for treatment success within institutions and treatment outcomes once discharged into the community.

A major factor contributing to the paucity of research in this area is the substantial methodological problems associated with this kind of research. The impact of prior mental health services in adolescence on SMI takes years to demonstrate full, measurable effects. Obtaining historical information from treatment providers who served individuals during adolescence also proves problematic, as by the time this information has been requested by the adultôs treatment provider, long periods of time may have passed and the clinical information destroyed. Furthermore, it takes years to accumulate the needed data in order to be able to understand this process. Although the study by Wynne (2009) used data from a nine year period, there was low power for several key

analyses due to missing data and/or changes in the clinical assessment battery. The use of multivariate analyses in this study was undermined by a low number of valid cases on many of the variables over time. Therefore, conclusions about differences between groups, or the lack thereof, over the course of treatment are tentative due to insufficient power. Even though there was low power the presence of several interactions between service use and APP severity levels and insight measures across treatment approaching statistical significance indicates that effects were ñmissed.ò At any rate, this study explored the relationship between service use and insight such that future studies in this area can make more informed research hypotheses using stricter constraints in research design to circumvent problems related to lack of power and missing data. Thus further study using a greater amount of participants completing repeated measures over time could overcome low power problems and find statistically significant relationships between APP severity groupings and insight over time in treatment.

In summary, previous research has indicated that psychosocial functioning (e.g., social competence, social interest) in SMI is a product of complex relationships between factors such as neurocognitive functioning (Brekke, Kohrt, & Green, 2001) and sociocognitive variables, such as locus of control, and that both of these domains have been implicated in the research on the concept of insight. A greater understanding of the interrelationships between these factors, utilizing the developmental conceptualization of insight proposed by Wynne (2009) may aid not only in improving conceptualization of insight and psychosocial functioning during treatment in adolescence and adulthood, but also treatment outcomes once individuals are in the community functioning as adults (Hoffmann & Kupper, 2002; Kupper & Hoffman, 2000; Smith et al., 1999). Also, better

understanding of these complex relationships may be able to aid in improving treatment outcomes for those with SMI without solely depending on improving a personôs insight into their illness.

*Present Study*

The purpose of the present study was to further examine the relationship between adolescent psychiatric pathology, often captured by the term of art SED, and SMI by assessing the relationship between prior mental health services before the age of 18 and time of assessment on peopleôs insight into their illnesses. Earlier understanding of degrees of insight in the SED population has important ramifications for the lifelong diagnosis and treatment of those with SMI. Whereas poor levels of insight in adolescence in some individuals with more severe symptomatology may continue to be stable into adulthood despite receiving psychological services, some individuals with the help of mental health services may be able to increase their levels of insight over time and improve their likelihood of successful treatment outcome and transition into the community. However, there are also reasons to believe these APP severity groups do not differ. The reasons for which an individual interacts with mental health service systems are complicated and there is no one path to treatment. For example, family involvement for people with SMI varies greatly. If one person has an active family and another does not, the former may be more likely to have a receive services or be screened for APP than the latter, independent of their functional abilities, simply because a family member advocated for the appointment. Alternatively, an individual may repeatedly encounter mental health professionals in adolescence, typifying a more chronic course that may be

better served through guardianship, but no interested party seeks guardianship on behalf of the individual. These confounds suggest that we need to know more about the concept of insight and APP and its correlates to the clinical picture for these same people as they transition and receive adult psychiatric services.

The present study had two primary objectives:

*1. To determine if there was a pattern of differential functioning for adults with SMI with or without mental health service use during adolescence across various levels of functioning.* In general, it was anticipated that individuals with adolescent psychiatric pathology would demonstrate lower overall functioning than those without adolescent psychiatric pathology. As described above, these are individuals that for various unknown reasons, received mental health services during adolescence. Research indicates that this population may represent individuals experiencing more severe symptomatology, and that adolescent psychiatric pathology can impede treatment success in adulthood. Because of this, hypothesis 1 predicted that those individuals who had various levels of APP will show demonstrably lower functioning in the clinical setting. Thus, it was hypothesized that the APP severity would correlate with clinical functioning. Specifically, the groups would differ in statistically significant ways across all domains of functioning measured (neurocognitive, social cognitive, symptomatology, and behavioral functioning).

*A. Upon Admission.* Hypothesis 2 predicts that at the time of admission, individuals with adolescent psychiatric pathology would demonstrate lower overall functioning than those without adolescent psychiatric pathology on neurocognitive, social cognitive, and

behavioral functioning measures. However, hypothesis 3 predicted that because of prior contact with services, those individuals with adolescent psychiatric pathology would have higher levels of insight into their disorder at admission than those without adolescent psychiatric pathology. In addition, hypothesis 4 anticipated that those with adolescent psychiatric pathology would have higher levels of symptomatology. When analyses using different levels of adolescent psychiatric pathology were conducted, hypothesis 5 predicted that those with adolescent psychiatric pathology that required hospitalization in adolescence or high mental health service utilization in adolescence would have higher levels of insight into their disorder at admission than those with none or less adolescent psychiatric pathology. However, hypothesis 6 predicted this group would also have the highest levels of symptomatology and would have the lowest scores on neurocognitive and sociocognitive measures.

*B. Over the course of treatment.* Hypothesis 7 predicted that overall differences in functioning, symptomatology, and treatment adherence would not remain over the course of treatment. It was hypothesized that as a result of psychiatric rehabilitation there would be an increase in neurocognitive functioning, insight into disorder, internal locus of control, and behavioral functioning and a decrease in external locus of control and symptomatology for those with and without adolescent psychopathology. That is, it is hypothesis 8 anticipated that both groups would show improvement in functioning over the course of psychiatric rehabilitation. It was predicted that significant differences at admission or six months would not remain between those with adolescent psychiatric pathology and those without adolescent psychiatric pathology in all areas after 12 months of treatment. However, it was predicted that those individuals with adolescent

psychiatric pathology would demonstrate higher symptomatology after 12 months of rehabilitation. Furthermore, when different levels of adolescent psychiatric pathology were used in analyses, hypothesis 9 predicted that as adolescent psychiatric pathology becomes more severe functioning will decrease, there would be more severe symptomatology. Overall, while it was hypothesized there would be differences in a variety of domains it was also hypothesized that differences in insight upon admission would not remain one-year after beginning psychiatric rehabilitation.

*2. To determine if there is a pattern of differential outcome following discharge for individuals with adolescent psychiatric pathology from those without.* While previous research had not been conducted to inform hypotheses in this area, it was generally hypothesized that there would be differences between groups in terms of treatment outcome. Specifically:

*C. Discharge disposition.* Hypothesis 10 predicts that discharge disposition would differ between the two groups in that individuals with severe adolescent psychiatric pathology would be discharged to a more restrictive setting. This hypothesis was based on the idea that those individuals who used high amounts of mental health services or were hospitalized during adolescence may have represented a group with more severe symptomatology and may have been hospitalized more and for longer periods of time during the course of their illness. These individuals may, though frequent hospitalizations, been reinforced to fulfill the ñpatient roleò and have been institutionalized, thus representing a group or participants who take a longer time to transition into the community and may influence treatment providersô notions such that

there is an assumption that individuals who were hospitalized during adolescence require higher levels of care and supervision.

*D. Rehospitalization rate.* Hypothesis 11 predicted that there would be a greater rate of rehospitalization for those with APP than those without APP. Furthermore, when analyses were conducted between the different APP severity groups, hypothesis 12 predicted that those individuals in the medium and highest APP severity groups would have a greater rate of rehospitalization than those in the low to no APP severity groups. In addition, hypothesis 12 predicted that those in the highest APP severity group would have the greatest rate of rehospitalization, as these individuals may represent a subgroup experiencing more severe and refractory symptoms that can be potential barriers to living in the community for extended periods.

Based on the results of these analyses, exploratory analyses were undertaken to glean additional information about the role of service use and APP severity level in the psychiatric rehabilitation and insight of individuals with SMI. This data was accumulated over the course of thirteen years, allowing for a preliminary look at the therapeutic consequences of prior mental health service usage and the longitudinal effects of psychiatric rehabilitation treatment for these individuals. The archival database utilized in this proposed study was ideal for this type of research. It afforded the opportunity to study populations with different service histories under a similar set of clinical circumstances over an extended period of time. Although one previous study (Wynne, 2009) sought to better understand the relationship between mental health service utilization during adolescence on insight scores across treatment in adulthood, it should

be reiterated that the proposed study built on the previous study by Wynne (2009), was highly exploratory in nature, and sought to expand the scope of previous research by including a larger sample size and more assessment measures that have been implicated as important to the study of the concept of insight and in the treatment outcome for those with SMI. This was a critical first step in the analysis of the role of mental health service usage during adolescence and adolescent psychiatric pathology in the treatment of adults with SMI and these adultôs insight into their mental illness.

# CHAPTER 2 - METHOD

## *Design Overview*

The primary purpose of this study was to assess the relationship of mental health service usage and adolescent psychiatric pathology severity with insight before, during, and after treatment. In addition, a secondary relationship between adolescent psychiatric pathology and functioning in a variety of domains before, during, and after treatment was assessed. The participants with adolescent psychiatric pathology were compared to those without to determine if any differences existed. Also, when adolescent psychiatric pathology was separated into three separate groups by the amount and type of services utilized during adolescence, these three different levels of adolescent psychiatric pathology were compared to those without. Univariate and multivariate analyses were conducted within and between the two groups service groups (service use vs. no service use in adolescence) and the four APP severity level groups with respect to overall functioning using multiple measures described below.

## *Setting*

The Psychiatric Rehabilitation Program, formerly known as and will continue to be referred to in this paper as the Community Transition Program (CTP), was an inpatient unit at the Lincoln Regional Center (LRC) a public state psychiatric hospital in Lincoln, Nebraska. This 40-bed inpatient unit hosted a comprehensive psychiatric rehabilitation program for those most disabled by mental illness in the State of Nebraska. Individuals were typically discharged to a less restrictive setting after a 9 to 18 month period of intensive treatment, with the average length of stay being 12 months. Treatment

engagement was encouraged through the use of contingency management based on social learning theory. The regimen included pharmacotherapy, psychoeducational groups and classes to target improved management of symptoms and disorder, and training aimed at improving occupational, leisure, and social skills. The treatment was designed to target multiple levels and domains of functioning for individuals with SMI, rather than only targeting an isolated area of deficit (e.g., symptoms). Thus, treatment did not focus on clinical diagnosis. Rather, treatment plans using functional analysis were individualized and based on making step-wise improvements in deficient areas of functioning and capitalizing on observed and participant perceived areas of relative strength of the individual. Treatment plans were designed by a multidisciplinary treatment team including nurses, social workers, psychiatrists, occupational therapists, psychologists, and psychiatric technicians. In addition, program participants were encouraged to be active members of their own treatment team for the purpose of increased engagement in treatment and to promote the concept of recovery in the therapeutic milieu. Consequently, the CTP referred to individuals as ñparticipantsò instead of patients, reinforcing the idea of active engagement of participants in their treatment. For a detailed outline on the theoretical foundation and practical applications of this innovative, state-of-the-art treatment technology read *Treatment and Rehabilitation of Severe Mental Illness* (Spaulding et al., 2003).

The Lancaster County Community Mental Health Center (LCCMHC) also contributed data to the archival database. Since a majority of participants from CTP are served by LCCMHC upon discharge, ongoing program evaluation using records at

LCCMHC yielded data pertaining to outcome such as rehospitalization rate, discharge location, and use of services in the community.

*Participants*

Participants discharged from the CTP program from 1996 through March 2009 contributed data to the archival database utilized in this study. The CTP program participants were not directly involved in any specific research procedure. Rather, the database included the ongoing clinical data collected as part of the routine assessment process described further below at the CTP and additional data gathered through chart review.

Participants of the CTP must have had as part of the criterion for admission an Axis I major mental disorder administrative designation as SPMI. This sample represents a severe and treatment refractory subpopulation. They were referred to the CTP because of either extended institutionalization in custodial settings or repeated re-hospitalizations with no stable community functioning. The sample consisted of 354 participants. All subjects met DSM-IV (American Psychiatric Association, 1994) criteria for schizophrenia, schizoaffective disorder, or bipolar disorder. Participants were between the ages of 18 and 60.

DSM-IV (American Psychiatric Association, 1994) diagnoses for patients with schizophrenia, schizoaffective disorder, and bipolar disorder were confirmed prior to the study by interviews with the participants, chart reviews, reviews of historical documentation, and consultation with the program director and treatment team. Patient data was used only when ratings from these different sources produced the same

diagnosis. All patients were on various combinations of antipsychotics, mood stabilizers, and anxiolytic medications during the study.

Initially, the archival database had 354 participants. Because available outcome data in the database pertained to the most recent admission to CTP and multiple individuals in the database received rehabilitation at various stages in their life and disorder, all previous admissions before the most recent admission were excluded from analyses to maximize the number of valid cases available for analyses. Also, participants with lengths of stay in the CTP program of less than six months were excluded from analyses since treatment effects were captured as there was not adequate time to participate in the CTP rehabilitation program or have multiple assessment administrations within six months time.

A vast majority of CTP participants were either civilly committed or admitted by a legal guardian. Either way, treatment was typically viewed as involuntary in that most did not decide for themselves to enter the program. This was particularly important in developmental analyses of insight due to individuals being hospitalized in adolescence being made wards of the state at an earlier age. Involuntary treatment may play a role in the concept of ñinsight,ò as some researchers have suggested that insight is often viewed in clinical contexts as an individualôs degree of agreement with treatment providers (Rusch & Corrigan, 2002). Analyses took this variable into account and determined differences amongst those with and without mental health service use in adolescence and between the different APP severity levels.

*Measures*

*Demographic and Clinical Characteristics*

Through chart review at CTP, information regarding the demographic and clinical characteristics of participants was included in the archival database. These variables included gender, age, years of education, race/ethnicity, marital status, legal status, number of previous hospitalizations in the participantôs lifetime, age of first hospitalization, Axis I and Axis II psychiatric diagnoses, comorbid Axis I diagnoses, length of stay at CTP, and other relevant variables.

*Neurocognition Measures*

1) Repeatable Battery for the Assessment of Neuropsychological Status (RBANS; Randolph, 1997). The RBANS is a brief neurocognitive screening assessment (approximately 25 minutes) ideal for individuals who may lack levels of attention needed to complete longer assessments. There are two forms of the RBANS (Form A and Form B), intended to minimize the practice effects of repeated administrations. The twelve subtests of the RBANS are grouped into five neurocognitive domains. The five domain scores of the RBANS include immediate memory, delayed memory, attention, language, and visuospatial/constructional functioning. In addition, a total index score represents overall cognitive functioning. Convergent validity has been established in people diagnosed with schizophrenia for the RBANS with other neuropsychological constructs, like memory and intelligence (Gold, Queern, Iannone, & Buchanan, 1999; Hobart, Goldberg, Bartko, & Gold, 1999). In addition, sensitivity to patterns of cognitive impairment in SMI and general reliability and validity have been evaluated (Gold et al., 1999; Hobart et al., 1999).

2) COGLAB (Spaulding, Garbin, & Dras, 1989). COGLAB was created as a computerized test battery comprised of tests common in the psychopathology literature. The WCST, a measure of executive functioning, was used in an effort to understand the subjectôs ability for abstract thought, cognitive flexibility, and to replicate past studies that have found a significant relationship between the WCST and insight (Lysaker et al., 1994; McEvoy et al., 1996). CTP standard assessment included two of the tests from the battery; however, for the current study the Card Sorting Task (WCST; an adaptation of the Wisconsin Card Sorting Task, Heaton et al., 1993) was used. The WCST is a computerized neuropsychological test of ñset shiftingò in which participants are asked to display their ability to be flexible when exposed to changing schedules of reinforcement by matching a target card to one of four stimulus cards without being told the matching principle of color, shape, or number that changes frequently without warning to the subject. The WCST was used to measure executive functioning and its known sensitivity to impairment in concept formation, cognitive flexibility, and abstract thought (Lysaker et al., 1994; Lysaker et al., 1998). The WCST allows clinicians and researchers to assess frontal lobe functions such as strategic planning, organized searching, utilizing environmental feedback to shift cognitive sets, goal oriented or problem solving behavior, and decreasing impulsive responses. The computerized WCST takes approximately 12-20 minutes to complete and provides objective measures of overall success by computing the number of categories achieved, number of trials, number of errors, number of perseverative errors, percentage of perseverative errors, and the consolidation index as a measure of set-shifting.

Good discriminant validity was demonstrated between individuals diagnosed with schizophrenia and controls in an early study of the COGLAB (Spaulding et al., 1989). Results from large multivariate studies conducted with normal and ñpatientò populations indicate overall acceptable psychometric properties of the COGLAB (Spaulding, Hargrove, Crinean, & Martin, 1981; Spaulding et al., 1989).

3) Rey Auditory Verbal Learning Test (RAVLT; Schmidt, 1996). The RAVLT, is a seven trial list-learning task with alternative forms consisting of 15 words presented in an auditory format. Participants were instructed to recall as many words as they can from the list immediately following each of five trials. A distractor trial was then presented consisting of a different list of 15 words and participants are required to recall as many words from this distractor list. Finally, participants were required to recall as many words as possible from the original list without it being presented again. In general, the RAVLT provides a measure of verbal memory. The number of words remembered after the fifth trial is the most commonly used RAVLT score. Acceptable discriminant validity between memory impaired vs. memory intact patients and normal vs. neurological patients has been demonstrated, as well as adequate test-retest validity (Schmidt, 1996).

4) Rey-Osterrieth Complex Figure Test (RCFT; Rey, 1941). This is a test of visuoconstructional ability and nonverbal memory. It is comprised of four tasks: a copy trial, immediate recall trial, delayed recall trial, and a recognition task. Figures were scored using the 18-point scoring system, originally developed by Osterrieth (1944), and outlined in Meyers & Meyers (1995).

5) The Trailmaking Test (A&B) (Army Individual Battery, 1944). This two component test assesses attention, visual scanning, and information processing. In Part A, individuals connected circles numbered 1 through 25 by drawing a line sequentially from 1 to 25 as quickly as possible. In Part B, individuals completed a similar task alternating sequentially between numbers and letters (e.g. 1 to A, A to 2, 2 to B, B to 3). Performance was measured by subtracting the number of errors from the total possible score, resulting in two scores, one for each trial.

6) Neuropsychological Assessment Battery Screening Memory Domain (NAB) (Stern & White, 2001). The NAB Screening Memory Domain score is a composite measure of the participantôs verbal and visual memory functioning, based on the sum of the Screening Shape Learning Immediate Recognition, Screening Shape Learning Delayed Recognition, Screening Story Learning Immediate Recall, and the Screening Story Learning Delayed Recall scores. The Screening Memory Domain score is used as an indicator of an individualôs verbal explicit learning, visual explicit learning, verbal free recall after a brief delay, and visual delayed recognition memory after a brief delay (Stern & White, 2001). The reliability coefficient of the Screening Memory Domain score is .79 (Stern & White, 2001).

7) Controlled Oral Word Association Test (COWAT or FAS) (Benton & Hamsher, 1976). The COWAT measures verbal fluency and word generating ability, or the ability to rapidly generate and organize verbal information. In a series of 60-s trials, participants were asked to name as many words as possible that began with specified letters of the alphabet F, A, and S. Total number of words generated was scored.

*Theory of Mind Measures*

1) Hinting Task (Corcoran, Mercer & Frith, 1995). The Hinting Task measures theory of mind abilities and requires working memory, verbal comprehension, and verbal production abilities. A summary score was generated based on ability and facility of comprehension and interpretation of social implications. Limited psychometric data is available, however, the Hinting Task is sensitive to deficits in schizophrenia, correlates with other ToM measures and has good face validity in studies with seriously mentally ill participants (Corcoran & Frith, 2003).

*Socialcognition Measures*

1) Inventory for the Measurement of Self-Efficacy and Externality (I-SEE or FKK; Krampen, 1991). The I-SEE provides a measure of global attributional style, or locus of control. It is comprised of 32 items which were each rated on a six point Likert scale ranging from *strongly disagree* to *strongly agree*. The measure consists of four main scales: ñinternalityò (i.e., ñwhether I have an accident is based on my own behaviorò); ñself-concept of oneôs own competenceò or ñself-efficacyò (i.e. ñI can do many things to protect my self-interestò); ñpowerful othersô in controlling beliefsò (i.e., ñother people often prevent my plans from becoming realityò); and ñchance in controlling beliefsò (i.e., ñwhether I fall ill is a matter of chanceò). These scales were combined to yield two composite scales a general external scale (ñexternalityò) and a general internal scale (ñself-concept of oneôs own efficacyò) which represents participantôs beliefs about their self-efficacy. Krampen (1991) established reliability for the two composite scales.

2) The Internal, Personal, Situational Attribution Questionnaire (IPSAQ) (Kinderman & Bentall, 1997) assesses a more interpersonal attributional style based on

participants explanations of positive and negative social scenarios. It yields two measures: an externalizing bias (Eb) score (the degree to which persons attribute negative events to external factors and attribute positive events to themselves) and personalizing bias (Pb) (the degree to which persons attribute negative events to other people as opposed to situational factors).

3) The Coping Strategies Task (CST) (Mindt & Spaulding, 2002). The CST is used for assessing coping-related cognition in individuals with schizophrenia-spectrum disorders. The CST is comprised of four coping subscale scores including: Social Support Seeking, Self-Controlling, Escape Avoidance, and Planful Problem Solving. Reliability analyses reveal that the CST and its subscales demonstrated adequate reliability, although one subscale (Behavior Reaction) demonstrated less robust split-half and test-retest reliabilities. Concurrent validity was evaluated by analyzing the relationship between the CST and measure of stress, observed behavior, and neurocognition. Correlational analyses have revealed that coping attributions, as measured by the CST, were found to be association with perceived stress, observed behavior, and executive functioning.

*Insight Measures*

1) Insight Scale (IS; Birchwood, Smith, Drury, Healy, Macmillan, & Slade, 1994). This brief self-report measure (8 items) allows participants to choose one of three responses: agree, disagree or unsure, for each item. It yields a total score and three subscale scores representing Davidôs (1990) three domains of insight. The correct answer for each was counted as one point and each dimension is scored on a scale of 0-4, with an

overall insight score ranging from 0 to 12 with higher scores indicating higher levels of insight. The three subscales, therefore, are: ñneed for treatmentò (i.e., ñI do not need medicationò), ñability to relabel psychotic experiencesò (ñsome of my symptoms were made by my mindò), and ñawareness of illnessò (ñI am mentally wellò). This measure of insight focused on insight into functional impairment rather than specific illness categorizations. This self-report questionnaire is well validated and used extensively with the SMI population, with test-retest reliability equaling .90 (Birchwood et al., 1994).

2) The Self-Appraisal of Illness Questionnaire (SAIQ) (Marks, Fastenau, Lysaker, & Bond, 2000). The SAIQ is a self-report instrument designed to assess attitudes toward mental illness among persons receiving psychiatric treatment. The SAIQ is a pencil and paper self-report instrument composed of 17 items. The format for each item is a statement or a question. The items addressed acknowledgment of illness, beliefs about the outcome of illness, acknowledgment of a need for psychiatric treatment, and extent of worry about illness and about illness related issues. Participants were asked to respond to the statements and questions using a four-point Likert scale, which varies according to the statement or question content. The validity of the SAIQ was examined through a factor analysis. Three factors emerged: Need for Treatment, Worry, and Presence/Outcome of Illness. The three SAIQ subscales are correlated with researcher rated insight scales and neuropsychological tests. Results indicate that the Need for Treatment and Presence/Outcome subscales were significantly correlated with both researcher-rated insight scales and with neuropsychological tests of executive functioning. The Worry subscale has been found to not be related to either researcher-rated insight scales or neuropsychological tests (Marks, et al., 2000).

*Behavioral Functioning Measures*

1) Nurse Observation Scale for Inpatient Evaluation (NOSIE-30; Honigfeld, Roderic, & Klett, 1966). The NOSIE is a 30-item behavioral checklist format completed by nursing staff at CTP, with responses ranging from zero (never) to four (always). Two psychiatric technicians completed the checklist weekly for each participant. Items cover six areas of unit (ñwardò) functioning: social competence (ñrefuses to do ordinary things expected of him or herò), social interest (ñtries to be friendly with othersò), neatness (ñkeeps clothes neatò), irritability (ñgets angry or easily annoyedò), psychoticism (ñtalks, mutters, or mumbles to selfò), and motor retardation (ñis slow-moving or sluggishò). When combined, these six areas represent a total assets score. Adaptive functioning scales (i.e., social interest) were positively weighted and maladaptive scales (i.e., irritability) were negatively weighted when determining the total assets score. This measure has been widely used as part of the psychiatric rehabilitation treatment and was a routine assessment in the treatment program. Analyses within the CTP population have yielded Pearson correlations between 0.68 and 0.72 for all scales (Penn, Mueser, Spaulding, Hope, & Reed, 1995; Spaulding et al., 1999b). Also, a more recent reliability update of this measure confirmed it remains reliable in modern treatment settings, with inter-rater reliability on the total assets score at 0.76, on maladaptive scales at 0.68, and adaptive scales at 0.75 (Lyall, Hawley, & Scott, 2004).

*Symptomatology Measures Over Course of Treatment*

1) The Brief Psychiatric Rating Scale ï Extended Versions (BPRS-E; Lukoff, Nuechterlein, & Ventura, 1986; Van der Does, Linszen, Dingemans, Nugter, & Scholte, 1993). Used to evaluate symptoms, the BPRS-E was used routinely every six months at CTP. In general, the BPRS-E is widely used to assess changes in psychiatric symptoms. Using a Likert scale from 1 (symptom is not present) to 7 (symptom is very severe), clinicians rated individuals based on interview content and general, observed behavior on 24 items. The BPRS-E is a widely used instrument and reliability and validity have been demonstrated (Bailley, Lachar, Rhoades, Diefenbach, Espadas, & Varner, 2004). Factor analyses on the former 18-item version and the newer 24-item version have yielded four, five, and six factor solutions of symptom items (e.g., Spaulding, Reed, Sullivan, Richardson, & Weiler, 1999a; Perlick, et al., 1999; Burger et al., 1997). The six-factor solution validated by Spaulding, Fleming, Reed, Sullivan, Storzbach, & Lam (1999a) was used in this study because the original validation took place with the same population at CTP. A standard principal component analysis of the BPRS (Spaulding et al., 1999a) yielded six factors: Psychotic Disorganization, Hallucinations/Delusions, Paranoia, Emotional Blunting, Agitation/Elation and Anxiety/Depression.

*Symptomatology Measures at Admission*

The following assessments were administered at time of admission to CTP and as deemed necessary by the treatment team. In order to obtain the largest sample, only admission scores on the following assessments was used.

1) The Beck Hopelessness Scale (BHS) (Beck & Steer, 1988). The BHS is a self-report instrument that consists of 20 true-false statements designed to assess the extent of

positive and negative beliefs about the future during the previous week and takes less than five minutes to complete. Each of the 20 statements was scored 0 or 1. A total score was calculated by summing the pessimistic responses for each of the 20 items. The BHS has been standardized using psychiatric inpatients and outpatients (Beck et al., 1974; Beck & Steer, 1988). Beck and Steer (1988) report high internal reliability across diverse clinical and nonclinical populations with reliabilities ranging from .87 to .93. The BHS has adequate one-week test-retest reliability in a psychiatric outpatient sample (r = .69; Beck & Steer, 1988). Correlation coefficients between the BHS and the Beck Depression Inventory pessimism item range from .42 to .64 in clinical samples (Beck & Steer, 1988).

2) Beck Depression Inventory-II (BDI-II) (Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report assessment of depressive symptoms. The respondent was asked to rate how much he or she has been bothered by each symptom on a 4-point scale ranging from 0 to 3. Each item consists of four statements that reflect gradations in the intensity of a particular depressive symptom. The respondent chooses the statement that best corresponds to the way that he or she has felt for the past two weeks. The psychometric properties of the inventory have been reviewed by Beck, Steer, and Brown (1996**).**

3) Suicide Probability Scale (SPS) (Cull & Gill, 1988). The SPS is a 36-item self-report measure of current suicidal ideation, hopelessness, negative self-evaluation, and hostility that takes approximately 10 minutes to administer. Subjects answered each item on a 4-point scale ranging from 1 (ñNone or a little of the timeò) to 4 (ñMost or all of the timeò). There are three summary scores: A Suicide Probability Score, a total weighted score and a normalized T-score. The Suicide Probability Score can be adjusted to reflect

different a priori base rates for particular clinical populations. The internal reliability for the SPS is high (Cronbach alpha = .93) and has high test-retest reliability over a three-week period (r = .92; Cull & Gill, 1988). Although the SPS was designed to be a measure of suicide risk, there is a paucity of research studies that have tested the predictive validity of this measure.

*Outcome Measures*

1) Rehospitalization rate. One of the primary goals, often inappropriately cited as the only goal, of treatment programs is the prevention of future hospitalizations and the decrease of inpatient hospital days and use of emergency services (Cook, Pickett, Razzano, Fitzgibbon, Jonikas, & Cohler, 1996; Anthony, Cohen, & Vitalo, 1978). The inclusion of data from LCCMHC was a critical part of analyzing outcome from the CTP program since a majority of participants were served through LCCMHC upon discharge from CTP. Program evaluation activity at the LCCMHC has in the past, and hopefully in the future, established a rehospitalization data-tracking program. The data available for participants prior to 2005 was cross-checked with chart reviews at CTP and chart reviews and interviews with staff at LCCMHC. The data for participants from 2005-2009 was obtained and/or cross-checked from LCCMHC. Since the archival database in this study included people discharged from CTP in 1996 to people discharged from CTP in 2009, people may range in the possible amount of time since discharge. This study explored ways of addressing this such as the percentage of hospital days out of all hospitals and non-hospital days since discharge and the survival rate (or how long before the first rehospitalization).

2) Discharge disposition. The restrictiveness and nature of the setting to which individuals were discharged from the CTP can also serve as a measure of outcome. There were at least 35 different discharge locations to which people went following CTP. Less restrictiveness (e.g., independent living) was characteristic of better outcome and less symptomatology. For the purposes of this study, there were essentially four categories of discharge location from most restrictive to least restrictive: 1) Regional Center transfer, 2) Psychiatric Residential Rehabilitation, 3) Assisted Living, and 4) Independent living. These categories were based on interviews with the CTP program director and CTP social workers who were primarily responsible for discharge planning and most familiar with community services as part of previous research in the construction of the archival database. These four categories did not encompass all discharges from CTP such as those to nursing homes or developmentally disabled (DD) group homes. Few individuals were discharged to nursing homes, which were considered more restrictive than even psychiatric residential rehabilitation. Discharges to nursing homes from CTP were rare and typically due to the personsô medical rather than psychiatric condition, and therefore were not included in analysis. Similarly, very few people were discharged to DD settings because one of the exclusion criteria from admission to CTP was developmental disability.

*Procedure*

*Data Collection*

An archival longitudinal database was used in this study. Approval for construction of this deidentified archival clinical data for research purposes was obtained

from the university IRB and the state hospital research committee. Most of the archival data came from the CTP clinical archives, but additional data pertaining to outcome and community functioning was collected from Lancaster County Community Mental Health Center. Clinical data was routinely collected as part of the CTP program and contributed significantly to the database.

In addition, extensive chart review at both CTP and LCCMHC added additional data regarding hospitalization history and general clinical and demographic characteristics. In addition to the initial interview in which participants were asked about what mental health services they received before the age of 18, a large amount of historical information was gathered from a review of participantsô past records and social history reports. Prior mental health services usage before the age of 18, coded as no service use vs. service use, was derived from whether or not a participant received any type of mental health services before age 18 (therapy, medications used for mental illnesses, special behavioral school classes or programs, institutionalization during adolescence, etc.). These prior history variables addressed whether or not the participant had any DSM diagnosis, displayed prolonged characteristics pertinent to the schizophrenia spectrum prior to age 18, or if they could have been termed has having ñserious emotional disturbanceò during pre-adolescence or adolescence.

Information regarding symptoms at onset, whether or not the patient had premorbid behavioral problems, and number of previous hospitalizations was also obtained. Although instances of violence and delinquency in adolescents were noted, individuals were not assessed as having SED or APP in adolescence simply due to delinquency or aggression. These variables, taken into account with the other historical

variables, were used to assess categorize individuals who used services prior to the age of 18 into different APP severity level groupings. Those participants that did not receive services or have any historical variables indicating APP were coded as not having APP in adolescence. Individuals with one or two instances of mental health service use (i.e. met with a mental health provider once for evaluation,) were coded as the low severity APP group while individuals with more frequent or longer duration of mental health services prior to the age of 18 were coded as the moderate APP group. Those participants that were institutionalized during childhood and or adolescents and had received extensive mental health services at that time were coded as the high severity APP group. , Data from 354 participants discharged from the CTP program between 1996 and March 2009 were used in analyses.

*Assessments at CTP.* All participants completed a comprehensive clinical assessment upon admission to the CTP program and most of these assessments were repeated at six month intervals throughout a personôs hospitalization in order to monitor treatment response and inform future treatment planning decisions. These assessments primarily included measures of neurocognitive and social cognitive functioning. Clinical psychology graduate students or trained clinical assistants administered and scored all measures according to standardized instructions. Scoring was assisted by several computerized scoring programs. One significant change occurred in the routine assessment battery during the thirteen-year period from which the archival data was extracted. The RBANS, the IS, and social cognitive measures were added to the assessment battery between 2000 and 2001 when new admissions arrived during that time. The RAVLT, and SAIQ were phased out at that time in order to maintain that the

assessment battery could be completed in a manageable amount of time or in favor of newer assessment measures with stronger psychometric properties. Therefore, individuals discharged before 2000 did not have RBANS and social cognitive data. Likewise, people who entered the program at the time of the change did not have RAVLT, and SAIQ data. The RBANS was phased out in 2005-2006 and the NAB was used instead. Therefore, individuals discharged after 2000 and before 2006 had RBANS data while those participants entering the program between 2006 and 2009 had NAB data. Results using the RBANS and NAB were analyzed separately. Assessments continued to be collected at six-month intervals and therefore biannual neurocognitive and/or social cognitive data, as well as insight data was available for most participants. Analyses were conducted for the different APP severity groups on the various psychological assessments available at CTP during those participantôs involvement with the program. Comparisons between and within groups were conducted across the different domains of assessments for different time points.

In addition, assessments of various areas of functioning and overall functioning were regularly completed in the context of the general milieu. Psychiatric technicians completed NOSIE assessments on a weekly basis. The monthly average of weekly ratings was included in the present database, making monthly NOSIE data pertaining to each personôs unit functioning available. Data entry and management was completed by a trained clinical psychology graduate student on a monthly basis to be used in treatment progress meetings. At the time of extraction, the data was subjected to fidelity checks to monitor if the behaviors are being correctly recorded and contingencies implemented as intended by the treatment team.

The current study was a retrospective longitudinal study in which three assessments were taken from all participants in the study during the intake within two weeks of admission, at 6 months, and a year after admission. The 12 month time period was selected because the average length of stay at CTP is around 12 to 14 months which maximizes the amount of data available at any given time point. The greater part of treatment in skills training is also delivered within this time frame. All participants were interviewed and given the BHS, BDI-II, socialcognition battery, neurocognition battery, BPRS, and insight measures within the first two-weeks of their stay in the in-patient unit. Patients were interviewed again at 6-months for their semi-annual review, and at one-year for their annual review and given the BPRS, socialcognition and neurocognition batteries, and insight measures at each time point. The NOSIE was completed by psychiatric technicians weekly for each participant. Average monthly scores were computed for the six areas and total assets score on the NOSIE. NOSIE scores within two weeks of admission, after six months of treatment, and after one year of treatment were used in the present study.

*LCCMHC.* Comprehensive chart review and interviews with LCCMHC staff were completed by a clinical psychology graduate student involved in program evaluation activity as part of a practicum placement at LCCMHC. After collecting hospitalization data, the data was cross-checked with LRC records through chart review to ensure its accuracy. Not all CTP participants were served by LCCMHC upon discharge, nor has discharge data been obtained for those individuals served from 2006-2009. Whenever possible data for these individuals was obtained through LRC records.

After the archival database was completed with data from both settings, two graduate students completed additional quality assurance checks. Data was subjected to cross-checking with original and computerized archival data to ensure its reliability and accuracy. Once outcome data was obtained or completed for those individuals served from 2006 to 2009 the same methods described above were used to ensure reliability and accuracy.

*Data Cleaning*

Before analyses, data was examined for skewness and potential outliers. It was necessary to ensure normal distribution of the dependent variables because most of the analyses that were used in this study assume normality. Distributional skewing and asymmetrical outliers can both produce skew and therefore transformation and/or outlier windsorizing was applied only after examining the nature of the skew. Any dependent variables that demonstrated a skewed distribution (skewness > +/- 1.00) without outliers was normalized using conservative transformation procedures. Using Tukeyôs Hinges, the data was systematically screened for outliers. All outliers were included after a windsorizing procedure which replaces extreme values with the highest acceptable value was applied (Hoaglin, Mosteller & Tukey, 1983). All variables were cleaned to within acceptable skewness range with the exception of the rehospitalization and previous hospitalizations data. A few variables required both square root transformation and windsorizing of extreme outliers in order to normalize the distribution. Using the above procedures, all variables were cleaned to within acceptable skewness range with the exception of the rehospitalization data. The nature of this data prevented transformation or windsorizing. Therefore, the rehospitalization data were analyzed disregarding skew.

However, follow-up analyses were conducted by creating categorical variables to further corroborate the results.

*Data Analysis*

This study was exploratory in nature. In general, the study aimed to determine if there are differences between those who have different levels of adolescent psychiatric pathology and those who do not, and in particular to follow-up preliminary research (Wynne, 2009). The thirteen hypotheses of this study are evaluated with combinations of group contrast and correlational analyses. A hierarchical strategy for data analysis was used, starting with omnibus multivariate analyses of variance (MANOVA) performed within the domains of measurement selected for analysis (clinical, cognitive, behavioral, etc), then continuing to ANOVAôs on specific measures and scales, followed by planned comparison cell contrasts, and finally correlational analysis. Analysis of variance (ANOVA) and its variants were the primary statistic used in order to replicate earlier results (Wynne, 2009). One-way ANOVAs with time 1 or time 2 covariates were used whenever possible. Whether or not individuals used services in adolescence, and further analyses utilizing Adolescent psychiatric pathology groupings were the between-subjects factor and each set of measures were the within-subjects factors. One tailed t-tests were used in analyses because of specific directional hypotheses. In addition, evaluating the relationships between categorical variables was accomplished through Chi square analysis. Also, results were compared across the different assessment measures used at different time periods at CTP, possibly providing results for future results on different factors or clusters of neurocognitive, socialcognitive, symptom, and insight measures that can be grouped together to better capture the multidimensional, and perhaps

developmental nature of insight in individuals who had varying levels of APP and are now participating in psychiatric rehabilitation as adults.

Because this is an exploratory study of a very complex database and there was an unusual amount of missing data, appropriate use of MANOVA was prevented. Significant omnibus MANOVA results were not strictly interpreted as necessary for further group comparisons. Since the specific analyses relate to the respective study hypotheses in complex ways, the results will be organized according to the hypotheses, with the relevant analyses identified and described for the respective hypotheses in turn.

*Unequal n correction.* Due to the significant differences in the number of participants in each condition, a correction of unequal *n*ôs was performed. The most accepted procedure that best fits the collected data was used during analysis.

# CHAPTER 3ï RESULTS

The overall purpose of this study is to determine if there is a pattern of differential functioning for adults with SMI with or without a history of using mental health services in adolescence, and further delineated into APP severity groupings, across various levels of functioning. Before proceeding to evaluate the hypotheses, descriptive analyses of the demographic and clinical characteristics of people with different amounts of service use during adolescence are described.

*Demographic and Clinical Characteristics of People at CTP*

Of the 320 participants in this study, 171 (53.4%) used or had contact with mental health services during adolescence, see Tables 1-3. Of the people who did not use services during adolescence, 63.1% ($n$ = 94) are male and 35.6% ($n$ = 53) are female. Of the people who did use services 64.1% ($n$ = 109) are male and 35.9% ($n$ = 61) are female; the difference in gender proportions between service users and non-users is not statistically significant, $X^2(1) = 0.001$, $p = .98$.

Analyses using the No Service Use in adolescence vs. Service Use in adolescence distinction reveals a pattern of relationships among several demographic variables. There is a significant relationship between diagnostic subtype and mental health service use, $X^2(8) = 19.14$, $p = .01$ (see Table 4). Those diagnosed with Schizophrenia, Chronic/Undifferentiated Type, Schizoaffective Disorder, and ñotherò are more likely to have used mental health services during adolescence than those diagnosed with Schizophrenia, Paranoid Type. Also, there is a significant relationship between Axis II diagnostic subtype and service use, $X^2(9) = 18.14$, $p = .03$ (see Table 5). Those diagnosed with Paranoid Personality Disorder are less likely to have received services

during adolescence than those diagnosed with Borderline Personality Disorder. Those diagnosed with Borderline Personality Disorder are more likely to have received services during adolescence than those without an Axis II diagnosis, which are more likely to have not used services during adolescence.

There is not a significant relationship between race and service use, $X^2$ (5) = 2.37, $p$ = .797 (see Table 6). When those participants identified as African American, Hispanic, Asian American, or Other are combined into one category and compared to those identified as Caucasian, or ñWhite,ò there is not a significant relationship with service use, $X^2$ (1) = .007, $p$ = 0.93. This suggests that people who areñNon-Whiteò are just as likely as those who are ñWhiteò to receive or have access to mental health services during adolescence. There is not a significant relationship between marital status and service use, $X^2$ (4) = 6.29, $p$ = .18 (see Table 7).

Finally, analyses between service use and age, length of stay at CTP, age at first hospitalization, number of previous hospitalizations in lifetime, and years of education reveal significant relationships. The means and standard deviations for each group for these variables are shown in Table 8. Analyses using one-way ANOVAs reveal a significant difference between groups in age $F$ (1, 306) = 42.20, $p$ < .001; number of years of education, $F$ (1, 281) = 24.31, $p$ < .001; the number of previous hospitalizations, $F$ (1, 296) = 4.46, $p$ = .04; and in the age of onset, $F$ (1, 246) = 71.82, $p$ < .001. There is no significant difference between groups on length of stay, $F$ (1, 135) = 2.33, $p$ = .13.

To summarize the results of the descriptive analyses, those with service use during adolescence tend to be younger at admission to CTP, have slightly lower levels of education, and have an earlier age of onset and more previous hospitalizations, as

expected. A relationship between Axis I and Axis II diagnoses and service use was identified. Those diagnosed with Schizophrenia, Chronic/Undifferentiated Type, Schizoaffective Disorder, and ñotherò are more likely to have used mental health services during adolescence than those diagnosed with Schizophrenia, Paranoid Type. Those diagnosed with Paranoid Personality Disorder are less likely to have received services during adolescence than those diagnosed with Borderline Personality Disorder; whereas those diagnosed with Borderline Personality Disorder are more likely to have received services during adolescence with ñotherò or no diagnosis. These results are consistent with expectations previously outlined and support the reliability of the distinctions made between who did or did not use mental health services prior to the age of 18 used in this study

*Hypothesis 1*

The first hypothesis of this study is to determine if there is a pattern of differential functioning between adults with SMI with or without mental health service use during adolescence across various levels of functioning both at admission and across treatment. In general, it is anticipated that individuals with adolescent psychiatric pathology will demonstrate lower overall functioning than those without adolescent psychiatric pathology. Because of this, hypothesis 1 predicts that those individuals who used mental health services in adolescence will show demonstrably lower overall functioning in the clinical setting than individuals who did not use mental health services during adolescence. Thus, it is hypothesized that the service usage will correlate with clinical functioning. Specifically, the groups (No Service Use vs. Service Use) will differ across

all domains of functioning measured (neurocognitive, social cognitive, symptomatology, and behavioral functioning) at admission and over the course of treatment.

*Functioning at Admission*

*Neurocognitive Functioning*

The RBANS, RCFT, RAVLT, COGLAB Card Sort, Trails A & B, COWAT/FAS, and NAB were included in analyses as measures of neurocognitive functioning. Bivariate correlations between whether or not individuals used mental health services prior to age 18 and the neurocognitive variables included in analyses are shown in Table 9.

Between groups ANOVAs were conducted to maximize the power available to detect any differences between individuals who used mental health services in adolescence vs. those who did not use services on the neurocognitive variables (Tables 10 and 11). Contrary to all hypotheses, on all measures of neurocognition individuals with SMI who used services prior to the age of 18 do not demonstrate poorer neurocognitive functioning than those who did not use services, all $F$s < 3.33, all $p$s > .07. Of the 14 tests, one significant test is expected. Two reached trend level, p = .07-.08. However, when planned comparisons were made as expected better performance on RCFT Recognition was attained by individuals who did not use services prior to the age of 18 ($M$ = 20.54) than by individuals who had used services prior to age 18 ($M$ = 18.17), $t$ (71) = 1.82, p = .04. Furthermore, as hypothesized better performance on Trails B was achieved by individuals without service use prior to age 18 ($M$ = 105.14) than by individuals who had used services prior to age 18 ($M$ = 125.24), $t$ (114) = -1.63, p = .05.

Also as hypothesized, scores on RBANS Total were greater for individuals without service usage in adolescence ($M$ = 75.50) than by individuals who had used services prior to age 18 ($M$ = 69.74), $t$ (92) = 1.77, p = .04. These significant planned comparisons indicate analyses utilizing ANOVAs did not have enough power in some instances to detect significant differences.

Furthermore, when individuals who used services prior to age 18 are grouped based on adolescent psychiatric pathology, APP severity groups do not differ in statistically significant ways on neurocognitive measures at admission, all $F$s < 2.18, all $p$s >.10 (Table 11). Of the 14 tests, one significant test is expected. However, no tests reached trend level. Overall, contrary to hypotheses, these results suggest that participants with low, medium, and high APP severities do not significantly differ from those without APP at the time of admission, with respect to neurocognitive functioning.

*Social cognitive functioning*

The I-SEE (FKK), a measure of attributional style, the Hinting Task, a measure of theory of mind, the IPSAQ, a measure of interpersonal attributional style, and the CST, a measure of coping-related cognition, were used to examine social cognitive differences between individuals with SMI who used services in adolescence and those who did not use services prior to the age of 18. It is hypothesized that people who used services prior to the age of 18 would demonstrate lower overall sociocognitive functioning than those who did not use services. Furthermore, when analyses utilize APP severity groupings it is hypothesized that individuals in the high APP severity group will have the lowest

scores on social cognition measures at admission. Bivariate correlations can be found in Table 12.

Despite not having any significant MANOVA results, univariate ANOVAs were conducted to maximize the power available to detect any differences in the neurocognitive variables because an extremely low number of valid cases in the MANOVA analyses may have prevented any significant differences from being detected. Exploratory analyses using one-way between groups ANOVAs reveal no significant differences between those who did and did not use services prior to the age of 18 on measures of social cognition at admission, all $F$s < 2.58, all $p$s > .12 (Table 13). Of the 17 tests, one significant test is expected. However, no tests reached trend level. When planned comparisons were completed, no significant differences exist between the groups.

Furthermore, when APP severity grouping were considered in analyses groups do not differ in statistically significant ways on socialcognition measures at admission, all $F$s < 2.49, all $p$s >.07 (Table 14). Of the 14 tests, one significant test is expected. Two reached trend level, p = .07-.08. Overall, contrary to hypotheses, these results suggest that participants who used mental health services in adolescence do not significantly differ from those without service use in adolescence at the time of admission, with respect to social cognitive functioning. In addition, there do not appear to be substantial differences in social cognitive functioning at admission for the various APP severity levels.

*Insight*

The Birchwood Insight Scale (IS), a measure of insight representing Davidôs (1990) three domains of insight, and the Self-Appraisal of Illness Questionnaire, a measure designed to assess attitudes towards mental illness among people receiving psychiatric treatment, were used to examine insight differences between individuals with SMI who used services in adolescence and those who did not use services prior to the age of 18. It is hypothesized that because of prior contact with services, those individuals with contact with mental health services in adolescence have higher levels of insight into their disorder at admission than those who did not use mental health services in adolescence. Furthermore, when analyses utilize APP severity groupings, it is hypothesized that individuals in the high APP severity group would have greater insight scores at admission than individuals with no, low, or medium APP. The bivariate correlation matrix for the insight measures and their subscales can be found in Table 15.

Exploratory analyses using one-way ANOVAs reveal no significant differences between those who did and did not use services prior to the age of 18 on measures of insight at admission, all *F*s < 2.56, all *p*s > .13 (Table 16). Of the seven tests, one significant test is expected yet none reached trend level. When planned comparisons were completed, as expected scores on SAIQ Presence/Outcome of Illness subscale scores were greater for individuals with service usage in adolescence (*M* = 14.29) than for individuals who did not use services prior to age 18 (*M* = 12.20), *t (*15) = -1.60, p = .05.

Furthermore, analyses utilizing APP severity groupings indicate APP severity groups do not differ in statistically significant ways on insight measures at admission, all *F*s < 1.59, all *p*s >.20 (Table 17). Overall, contrary to hypotheses, these results suggest that participants who used mental health services prior to the age of 18 do not

significantly differ from those who did not use services in adolescence at the time of admission, with respect to insight. In addition, there are not significant differences in insight at admission for the various APP severity levels. Note in Table 17 one significant F test is expected and only one reached trend level at p = .06 - .08.

*Behavioral functioning*

The NOSIE total assets score was used as a measure of general behavioral functioning. Bivariate correlation of NOSIE subscales can be found in Table 18. It is expected that those who used mental health services prior to the age of 18 would demonstrate poorer behavioral functioning at admission than those who did not use services in adolescence. Contrary to the hypothesis, a one-way ANOVA does not reveal a significant difference, $F$ (1, 119) = 2.46, $p$ = .12, on total assets between individuals without mental health service usage in adolescence ($M$ = 157.68, $SD$ = 24.13) and those who used mental health services in adolescence ($M$ = 150.50, $SD$ = 26.26) (Table 18). Of the seven tests, one significant test is expected yet none reached trend level. When planned comparisons were completed, no significant differences between those with mental health service usage in adolescence and those without mental health service usage in adolescence.

In addition, it is hypothesized that individuals in the high APP severity group demonstrate poorer functioning on behavioral functioning measures. When NOSIE total assets are examined across APP severity groups using a one-way ANOVA, contrary to hypotheses individuals with more severe adolescent psychiatric pathology do not

demonstrate poorer behavioral functioning at admission than those individuals with none, low, and medium APP, $F$ (3, 117) = 1.60, $p$ = .19 (Table 19).

Because the NOSIE is comprised of three adaptive functioning scales and three maladaptive functioning scales, further exploratory analyses were conducted to determine if differences were apparent across all areas of functioning assessed by the NOSIE or whether the differences were specific to particular subscales. Pearson correlations reveal significant intercorrelations among all subscales and the total assets score. The bivariate correlation matrix can be found in Table 17.

Follow-up analyses did not reveal significant differences between those with mental health service use prior to age 18 and those without mental health service use prior to age 18 on the NOSIE subscales at admission, all $F$s < 2.46, all $p$s >.12 (see Table 18). When NOSIE subscales were examined across APP severity groups using a one-way ANOVA, contrary to hypotheses individuals with more severe adolescent psychiatric pathology do not demonstrate poorer behavioral functioning on five of six subscales at admission than those individuals with none, low, and medium APP, all $F$s < 2.15, all $p$s > .09. Differences between APP severity groups are found for the NOSIE Motor Retardation subscale, $F$ (3, 117) = 2.70, $p$ = .05 (see Table 19 for means and standard deviations). However, contrary to hypotheses, individuals in the high APP group have lower NOSIE Motor Retardation scores, thus indicating better functioning, than those in the medium and low APP groups and had NOSIE Motor Retardation scores equivalent to those without APP (LSD minimum mean difference = 2.1).

Overall, results of NOSIE analyses do not support hypotheses that those with mental health service use in adolescence demonstrate poorer behavioral functioning upon

admission than those without mental health service use in adolescence. Furthermore, hypotheses are not supported that differences in behavioral functioning at admission exist between the different APP severity groupings. Although significant difference was found on the NOSIE Motor Retardation subscale, results were opposite to hypothesized and the high APP severity group received lower scores than individuals in the low and medium APP severity groups.

*Symptomatology*

It was hypothesized that individuals who used mental health services in adolescence would have a higher level of symptomatology at admission than those who did not use services prior to the age of 18 . Contrary to hypothesis, a one-way ANOVA reveals no significant mean difference, $F$ (1, 154) = 0.10, $p$ = .75, in overall symptomatology at admission as measured by the BPRS total score between those who used mental health services prior to age 18 ($M$ = 48.29, $SD$ = 14.62) and those who did not use services prior to age 18 ($M$ = 47.60, $SD$ = 12.15). Also it was hypothesized that when APP severity groupings are considered those individuals with the most severe APP demonstrate a higher level of symptomatology than those with less severe APP. Contrary to hypothesis, there is no significant mean difference, $F$ (1, 154) = 0.10, $p$ = .75, in overall symptomatology between those without APP and the various levels of APP severity (Tables 22 and 23).

Six factor scores for the BPRS were computed in order to evaluate symptom groupings as opposed to the gross overall measure of symptomatology provided by the total score. The six factors used were Psychotic Disorganization,

Hallucinations/Delusions, Paranoia, Emotional Blunting, Agitation/Elation and Anxiety/Depression. One-way ANOVAs for each of the BPRS factor scores were conducted to determine whether differences existed between groups in symptom areas. There are no significant differences between individuals who used mental health services prior to the age of 18 and those who did not use services prior to age 18 for any of the symptom factor scores, all *F*s < 2.65, all *p*s >.11, see Table 22. Of the six tests, one significant test is expected yet none reached trend level. When planned comparisons were completed, contrary to hypothesis scores on BPRS Paranoia Factor scores were greater for individuals without service usage in adolescence ($M$ = 9.00) than for individuals who did use services in adolescence ($M$=8.14), $t$ (155) = 1.63, p = .05. Furthermore, when analyses consider differences between APP severity groupings, there are no significant mean differences for any symptom factor scores, all *F*s < 1.48, all *p*s >.22, see Table 23. Of the six tests, one significant test is expected yet none reached trend level.

Finally, one-way ANOVAs for each of the 24 BPRS items were conducted to determine if there were differences in any specific symptoms between individuals who used mental health services prior to age 18 and those individuals who did not use services. Two significant differences emerged. People who used mental health services in adolescence ($M$ = 1.79, $SD$ = 1.37) have a higher rating of Suicidality, $F$ (1, 156) = 10.36, $p$ = .002, than those who did not use mental health services in adolescence ($M$ = 1.23, $SD$ = .62). Although a significant difference occurs between the groups on Uncooperativeness, $F$ (1, 155) = 3.91, $p$ = .05, contrary to hypothesis those who did not use services in adolescence ($M$ = 1.83, $SD$ = 1.23) have a higher rating of Uncooperativeness than those individuals who used services in adolescence ($M$ = 1.49,

*SD* = .91). Results of all the one-way ANOVAs can be found in Table 24. Of the 24 analyses, one is expected to be significant. Two analyses were significant and three analyses reached trend level, p = .06. When planned comparisons were completed, as hypothesized scores on BPRS Suicidality item scores were greater for individuals with service usage in adolescence (*M* = 1.79) than for individuals who did not use services in adolescence (*M* = 1.23), *t (*156) = -3.22, p < .001. Also, as hypothesized BPRS Guilt item scores were greater for individuals with service usage in adolescence (*M* = 2.19) than for individuals who did not use services in adolescence (*M* = 1.84), *t (*156) = -1.69, p = .05. As hypothesized, BPRS Hallucination item scores were greater for individuals with service usage in adolescence (*M* = 2.41) than for individuals who did not use services in adolescence (*M* = 1.87), *t (*156) = -1.91, p = .03. Also, as hypothesized BPRS Self-Neglect item scores were greater for individuals with service usage in adolescence (*M* = 2.39) than for individuals who did not use services in adolescence (*M* = 2.05), *t (*156) = -1.89, p = .03. Contrary to hypotheses, BPRS Grandiosity item scores were lower for individuals with service usage in adolescence (*M* = 1.63) than for individuals who did not use services in adolescence (*M* = 2.13), *t (*156) = 1.88, p = .03. Also contrary to hypotheses, BPRS Suspiciousness item scores were lower for individuals with service usage in adolescence (*M* = 2.33) than for individuals who did not use services in adolescence (*M* = 2.77), *t (*156) = 1.62, p = .05. Finally, contrary to hypotheses BPRS Uncooperativeness item scores were lower for individuals with service usage in adolescence (*M* = 1.49) than for individuals who did not use services in adolescence (*M* = 1.83), *t (*155) = 1.95, p = .03. Results of these planned comparisons indicated analyses using ANOVAs did not have enough power to detect significant differences.

One-way ANOVAs for each of the 24 BPRS items were conducted to determine if there are differences in any specific symptoms between those with no APP, low APP, medium APP, and high APP and two significant differences emerged. Partial support for hypotheses is found as people with medium or high APP have a higher rating on Suicidality, $F$ (3, 154) = 5.34, $p$ = .002, than those without APP or low APP. A significant difference is found between the groups on Disorientation, $F$ (3, 153) = 3.73, $p$ = .01. Contrary to hypothesis, those with no, medium, or high APP receive lower ratings of Disorientation than those with low APP. Results of all the one-way ANOVAs can be found in Table 24. Of the 24 analyses, one is expected to be significant. Two analyses were significant and no analyses reached trend level.

Further analyses of symptomatology measures at admission included the SPS, BDI-II, and the BHS. Again, it was anticipated that individuals who used services in adolescence would have a higher level of symptomatology at admission than individuals who did not use services in adolescence. One-way ANOVAs for the BDI-II, BHS, SPS Suicidality scale, SPS Negative Self-Evaluation scale, and the SPS Hostility scale at admission reveal no significant mean differences, all $F$s < 3.30, all $p$s > .07 (Table 22). Two significant differences emerge for the SPS Total score and the SPS Hopelessness scale score. As hypothesized, people who used mental health services in adolescence ($M$ = 61.02, $SD$ = 10.22) receive higher symptomatology scores as measured by the SPS Total score, $F$ (1, 122) = 7.41, $p$ = .01, than those who did not use mental health services in adolescence ($M$ = 56.02, $SD$ = 10.19), and further directional planned compairisons also found this result, $t$ (122) = -2.72, p < .01. Also, as hypothesized, people who used mental health services in adolescence ($M$ = 57.48, $SD$ = 13.09) received higher

symptomatology scores as measured by the SPS Hopelessness score, $F$ (1, 122) = 3.76, $p$ = .05, than those who did not use mental health services in adolescence ($M$ = 53.33, $SD$ = 10.42), planned comparisons for this variable were also significant, $t$ (122) = -1.94, p = .03. Further planned comparisons found as hypothesized SPS Hostility scores were higher for individuals with service usage in adolescence ($M$ = 56.88) than for individuals who did not use services in adolescence ($M$=52.81), $t$ (121) = -1.82, p = .04.

One-way ANOVAs were also conducted to determine if there were differences in any specific symptoms between those with no APP, low APP, medium APP, and high APP and two significant differences emerged. Partial support for hypotheses is found as people with medium or high APP (which were equivalent to each other) are rated with a higher level of symptomatology as measured by the SPS Total score, $F$ (3,120) = 3.34, $p$ = .02, than those without APP or low APP. Results of all the one-way ANOVAs and means and standard deviations can be found in Table 23.

Overall, results of analyses using the BPRS total, BPRS factor scores, and BPRS items suggest that only a significant relationship exists on two BPRS items for service use and level of symptomatology. The amount of significant differences between those who used services in adolescence and those who did not use services in adolescence is close to what is expected to occur by chance, thus lowering confidence that these differences occur due to specific differences between the groups on measures of symptomatology. Although those who used services prior to adolescence receive higher suicidality scores than those who did not use services, those who did not use services in adolescence are deemed more uncooperative than individuals who did use mental health services in adolescence. Planned comparisons found that individuals with service usage

in adolescence are rated higher on suicidality, guilt, hallucinations, and self-neglect. However, contrary to hypotheses results from planned comparisons indicate individuals with mental health service usage are rated lower on grandiosity, suspiciousness, and uncooperativeness. When analyses are conducted between APP severity level and BPRS total, BPRS factor scores, and BPRS items only two significant differences emerge. Again as hypothesized, those individuals with medium or high APP receive higher suicidality scores than those without APP or in the low APP severity group.

Results of analyses of symptomatology at admission using the BDI-II, BHS, and SPS Total and SPS scales suggest several differences exist. As hypothesized, individuals who had mental health services in adolescence demonstrate more symptomatology at admission than those who did not have services in adolescence as measured by the SPS Total and SPS Hopelessness scale scores. Planned comparisons also found that individuals with mental health service usage in adolescence have more hostility as measured by the SPS Hostility scale. When analyses are conducted between symptomatology measures and APP severity levels, partial support for hypotheses is found, as individuals with medium or high APP receive higher SPS Total scores than those with no or low APP.

*Functioning Over the Course of Treatment*

When analyzing difference over the course of treatment, it is predicted that overall differences in functioning and symptomatology, and will not remain over the course of treatment. It is hypothesized that as a result of psychiatric rehabilitation there will be an increase in neurocognitive functioning, insight into disorder, internal locus of

control, and behavioral functioning and a decrease in external locus of control and symptomatology for those who did and did not use services in adolescence. That is, it is hypothesized that both groups will show improvement in functioning over the course of psychiatric rehabilitation. However, it is predicted that those individuals who used services prior to age 18 will demonstrate higher symptomatology after 12 months of rehabilitation. Furthermore, when different levels of adolescent psychiatric pathology are used in analyses, it is predicted that as adolescent psychiatric pathology becomes more severe functioning will decrease and there will be higher symptomatology. Overall, while it is hypothesized there will be differences in a variety of domains it is also hypothesized that differences in insight upon admission will not remain one-year after beginning psychiatric rehabilitation.

*Neurocognitive Functioning Across Treatment.*

As described above, it was anticipated that while there will be difference in neurocognitive functioning between those who used mental health services in adolescence and those who did not use services in adolescence, neurocognitive functioning will improve over the course of treatment for both groups, and there will be no differences between groups on neurocognitive measures after one year of treatment. A 2 (service use) x 3 (assessment time) repeated measure ANOVA was completed for each measure.

There is not an interaction of assessment time and service use as they relate to WCST Correct score ($F(2, 72) = .64$, $p = .53$). Contrary to hypotheses, there is no main effect for WCST correct over time ($F(2, 72) = .66$, $p = .52$) or for service use ($F(1, 36) =$

1.35, $p$ = .25). However, when planned comparisons were analyzed contrary to hypothesis WCST correct scores were higher for individuals with service usage in adolescence ($M$ = 24.66) than for individuals who did not use services in adolescence ($M$ = 21.74), $t$ (58) = -2.01, p = .02. There is not an interaction between assessment time and service use as they relate to WCST Perseverative Errors ($F$(2, 112) = 1.36, $p$ = .26). Contrary to hypotheses, there is no main effect of time for WCST Perseverative Errors ($F$(2, 112) = 2.53, $p$ = .08). However, there is a main effect for service use ($F$(1, 56) = 5.13, $p$ = .03), with more overall WCST Perseverative errors made by those who did not use services prior to age 18 ($M$ = 26.72, $SD$ = 16.00) than from those individuals who did use services prior to the age of 18 ($M$ = 20.52, $SD$ = 11.58) (LSD minimum mean difference = 3.90). However, this pattern of the main effect is only descriptive for performance after six months and one year of participating in a psychiatric rehabilitation program

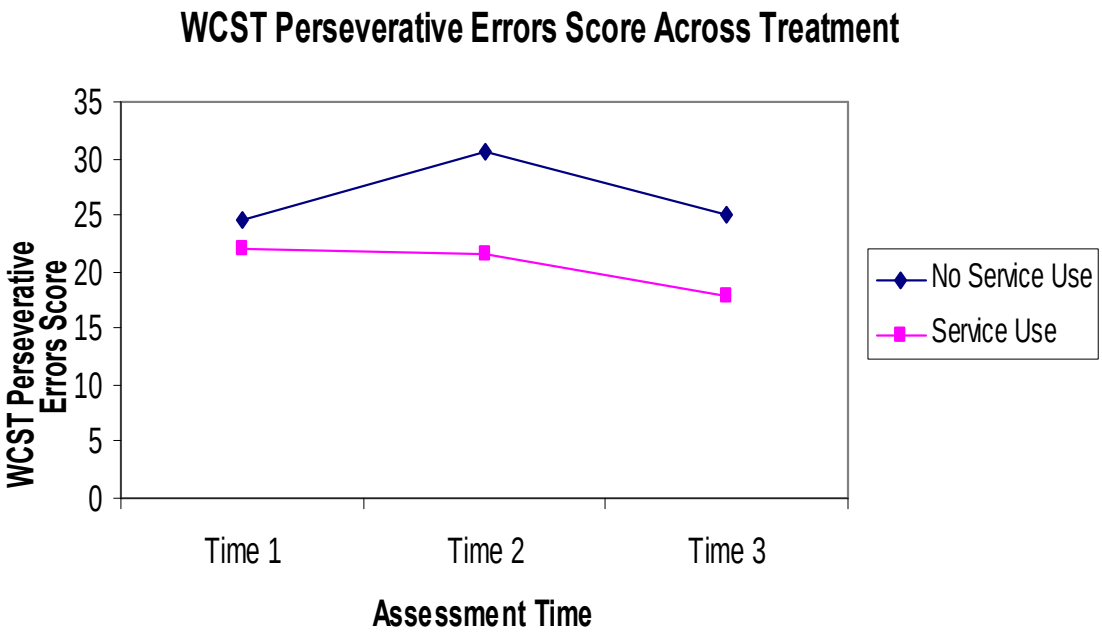


Figure 3.1 Service Main Effect for Service Usage Groups on WCST Perseverative Error Score Across Treatment

There is no interaction between assessment time and service use as they relate to WCST Random Errors over time ($F(2, 112) = 0.17$, $p = .84$). As hypothesized, there is a main effect for WCST Random Errors over time ($F(2, 112) = 3.66$, $p = .03$), with more random errors made at admission than after six to twelve months of rehabilitation, representing an increase in neurocognitive functioning (LSD minimum mean difference = 2.98). This pattern is descriptive for both those that did and did not use mental health services in adolescence. As hypothesized, a main effect for service use is not found ($F(1, 56) = 0.71$, $p = .41$) and differences do not exist between those who did and did not use mental health services in adolescence after one year of treatment.

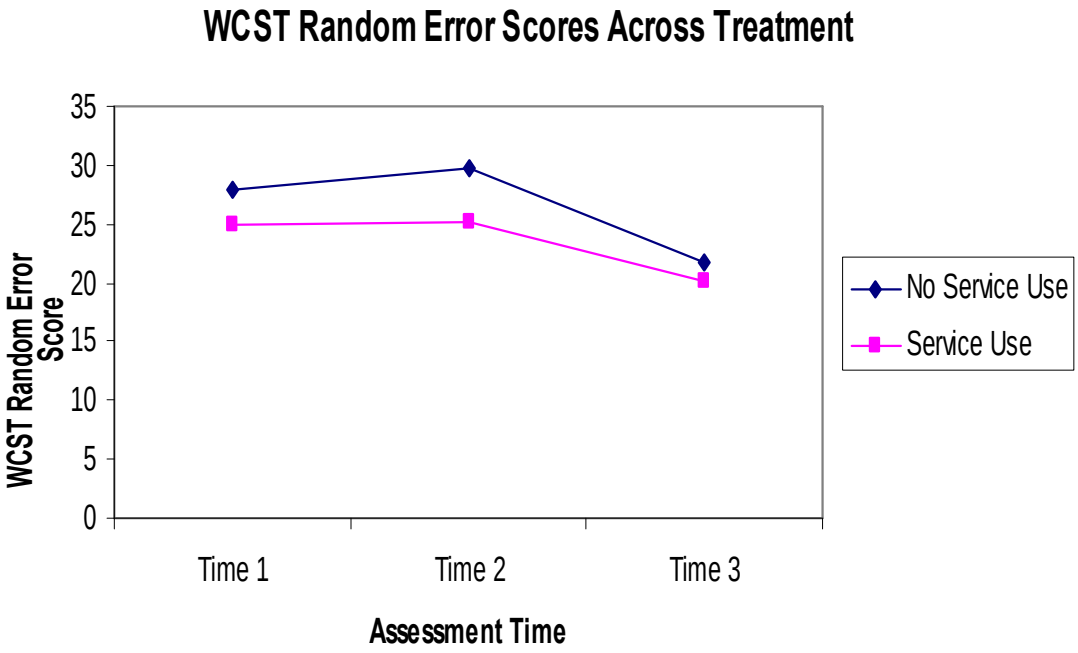


Figure 3.2 Time Main Effect for Service Usage Groups on WCST Random Error Score Across Treatment

There is not an interaction between assessment time and service use as they relate to WCST Consolidation Index scores ($F(2, 72) = .10$, $p = .91$). Contrary to hypothesis

there is no main effect for WCST Consolidation Index scores over time ($F(2, 72) = 1.92$, $p = .15$) or for service use ($F(1, 36) = .71$, $p = .40$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 26, 29 - 32.

There is an interaction of assessment time and service use as they relate to RAVLT scores ($F(2, 18) = 5.25$, $p = .02$, $Mse = 2.34$). The pattern of this interaction is that RAVLT performance increased over time as hypothesized for those that did not use mental health services in adolescence, whereas contrary to hypothesis individuals who did use services in adolescence demonstrate no significant difference on RAVLT scores from admission to 6 and scores decrease at one year of treatment (LSD minimum mean difference = 1.37). However, individuals who used mental health services in adolescence receive higher RAVLT scores at admission and six months than those who did not services in adolescence and as hypothesized this difference between groups does not exist after one year of treatment (Table 27, 33). Planned comparisons found no difference between groups at time one, however contrary to hypothesis RAVLT scores were higher for individuals with service usage in adolescence ($M = 9.50$) than for individuals who did not use services in adolescence ($M$=6.43), $t$ (30) = -2.61, p = .01. Again, as hypothesized planned comparisons found no differences in RAVLT scores between groups after one year of treatment There is no main effect for RAVLT over time ($F(2, 18) = .24$, $p = .79$) or for service use ($F(1, 9) = 2.19$, $p = .17$).

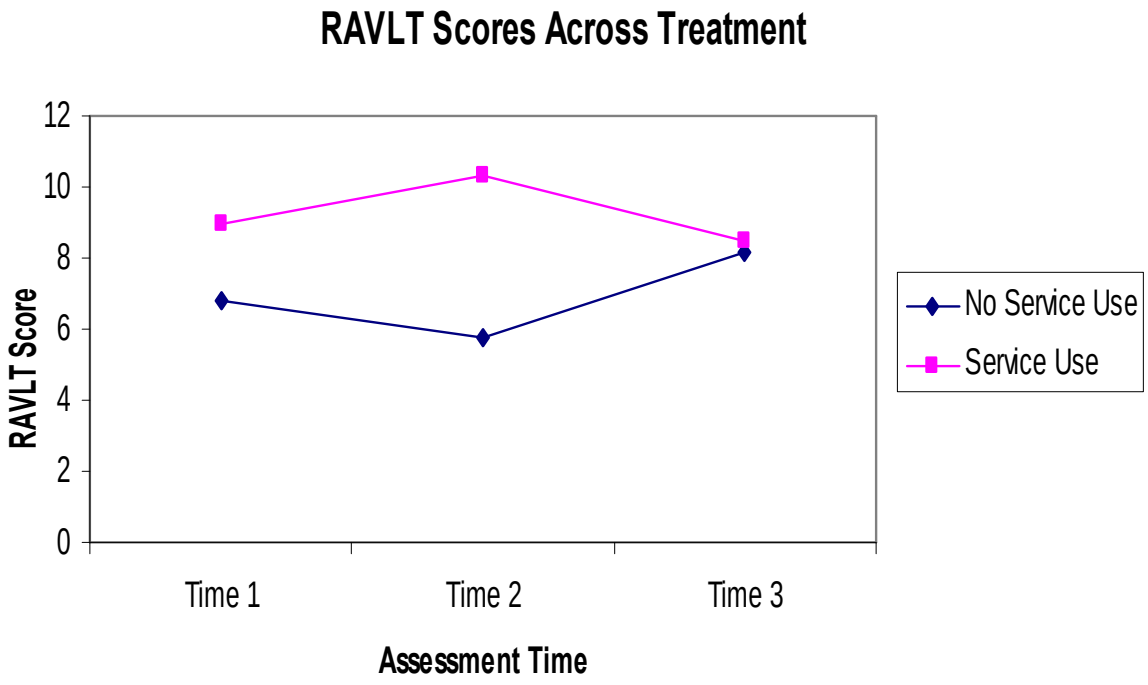


Figure 3.3 Interaction Between Service Usage Groups on RAVLT Scores Across Treatment

Contrary to hypotheses, there is not an interaction of assessment time and service use as they relate to NAB total score ($F(2, 26) = .47$, $p = .63$, $Mse = 52.61$). Contrary to hypotheses, there was no main effect for NAB total scores over time ($F(2, 26) = 1.74$, $p = .20$) or for service use ($F(1, 13) = .28$, $p = .61$) (Tables 27 and 34).

There is no interaction of assessment time and service use as they relate to RCFT Copy score ($F(2, 60) = .19$, $p = .82$, $Mse = 18.89$) or RCFT Recognition score ($F(2, 60) = .63$, $p = .54$, $Mse = 11.58$). There is no main effect for RCFT Copy scores over time ($F(2, 60) = 1.75$, $p = .18$) or for RCFT Recognition scores over time ($F(2, 60) = .55$, $p = .58$). Also there is no main effects for service use for RCFT Copy scores ($F(1, 30) = .32$, $p = .58$) or RCFT Recognition scores ($F(1, 30) = .04$, $p = .85$).

There is no interaction between assessment time and service use as they relate to RCFT Immediate Memory scores over time ($F(2, 60) = 1.37$, $p = .26$, $Mse = 186.63$). As hypothesized, there is a main effect for RCFT Immediate Memory scores over time ($F(2, 60) = 4.62$, $p = .01$), with no significant difference on scores from admission to six months however improvement in scores occurred at one year (LSD minimum mean difference = 6.83). However, this pattern is only descriptive for those who used mental health services in adolescence. A main effect for service use is not found ($F(1, 30) = 3.60$, $p = .07$).

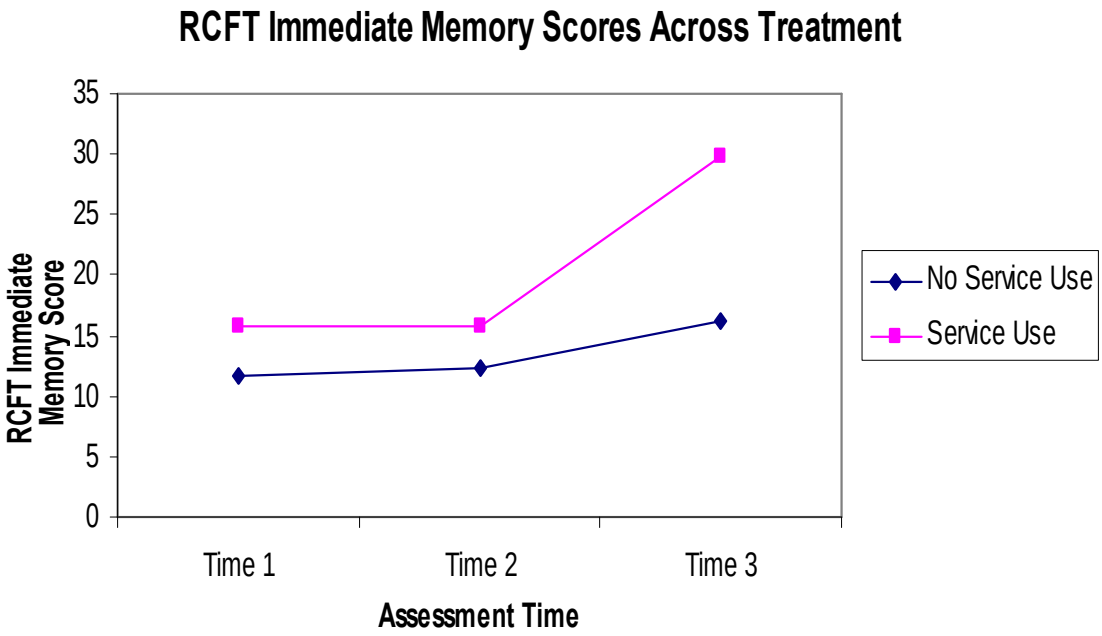


Figure 3.4 Time Main Effect for Service Usage Groups on RCFT Immediate Memory Scores Across Treatment

There is no interaction between assessment time and service use as they relate to RCFT Delayed Memory scores over time ($F(2, 60) = .13$, $p = .88$, $Mse = 30.90$). As hypothesized, there is a main effect for RCFT Delayed Memory scores over time ($F(2, 60) = 4.89$, $p = .01$), with no significant difference on scores from admission to six

months and improvement in scores at one year (LSD minimum mean difference = 2.78). This pattern is descriptive for those who did and did not use services in adolescence. A main effect for service use is not found ($F(1, 30) = 1.69$, $p = .20$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 28, and 39 - 42.

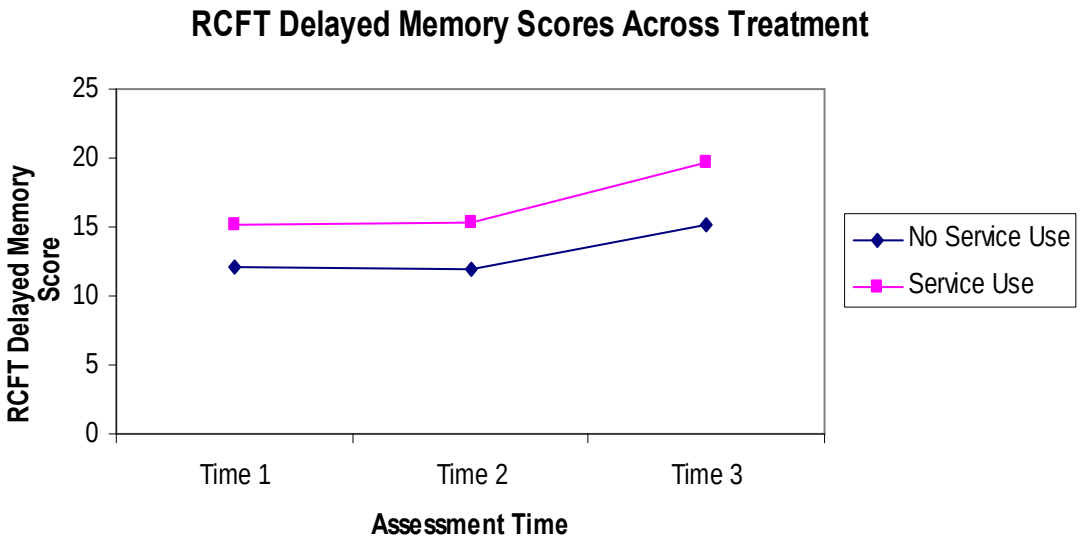


Figure 3.5 Time Main Effect for Service Usage Groups on RCFT Delayed Memory Scores Across Treatment

There is an interaction of assessment time and service use as they relate to Trails A performance ($F(2, 110) = 3.38$, $p = .04$, $Mse = 165.13$). As hypothesized, the pattern of this interaction is that Trails A performance was slower, and thus worse, at admission than at 6 months and one year (which were equivalent to each another) (LSD minimum mean difference = 2.78) for those who used mental health services in adolescence. However, partial support is found for hypotheses for those who did not use mental health services prior to age 18, as their performance worsens from admission to six months, however improves from six to twelve months. At admission, those who did not use

mental health services prior to age 18 demonstrate poorer performance on Trails A than those who did not use mental health services in adolescence.. At six months, those who did not use services prior to age 18 demonstrate poorer performance than those who did use services prior to age 18, however, as hypothesized after one year of treatment differences in Trails A performance do not exist between the two groups. There is no overall main effect for Trails A over time ($F(2, 110) = .51$, $p = .60$) or for service use ($F(1, 55) = .004$, $p = .95$).

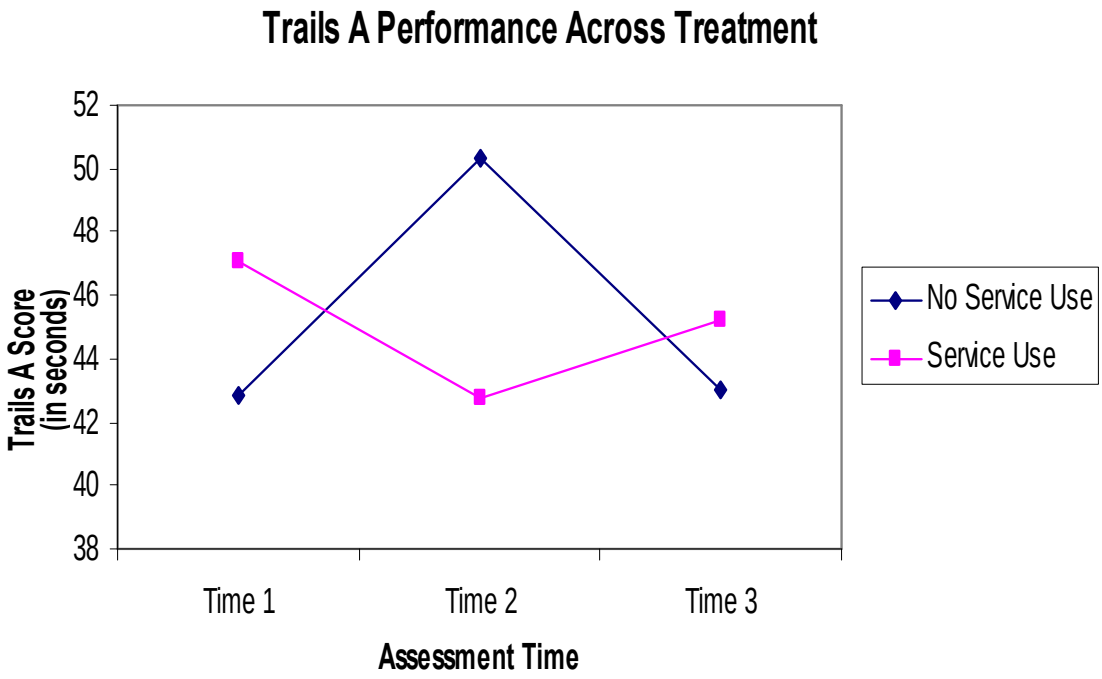


Figure 3.6 Interaction Between Service Usage Groups on Trails A Performance Across Treatment

There is no interaction between assessment time and service use as they relate to Trails B performance ($F(2, 110) = .53$, $p = .59$. Contrary to predictions, there is no overall main effect for Trails B over time and both groups do not demonstrate better performance over the course of treatment ($F(2, 110) = .12$, $p = .89$). There is also no

main effect for service use ($F(1, 55) = .20$, $p = .66$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 27, and 35-36.

There is an interaction between assessment time and service use as they relate to COWAT/FAS score over time ($F(2, 114) = 3.02$, $p = .05$, $Mse = 44.09$). Contrary to hypothesis, the pattern of this interaction is that although COWAT/FAS performance improves from six months to one year for those who did not use mental health services in adolescence, performance at one year is lower than at admission (LSD minimum mean difference = 1.41). However, for those who did use mental health services in adolescence performance is equivalent from admission to six months, however improves from six to twelve months. While those who did not use services prior to age 18 perform better on the COWAT/FAS at admission, this difference does not exist at six months. Contrary to hypotheses, after one year of treatment those who did use services prior to age 18 demonstrate better performance than those who did not use services prior to age 18. Also, contrary to hypotheses there is no overall main effect for COWAT/FAS over time ($F(2, 114) = 1.91$, $p = .15$) or for service use ($F(1, 57) = .06$, $p = .82$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 27 and 37.

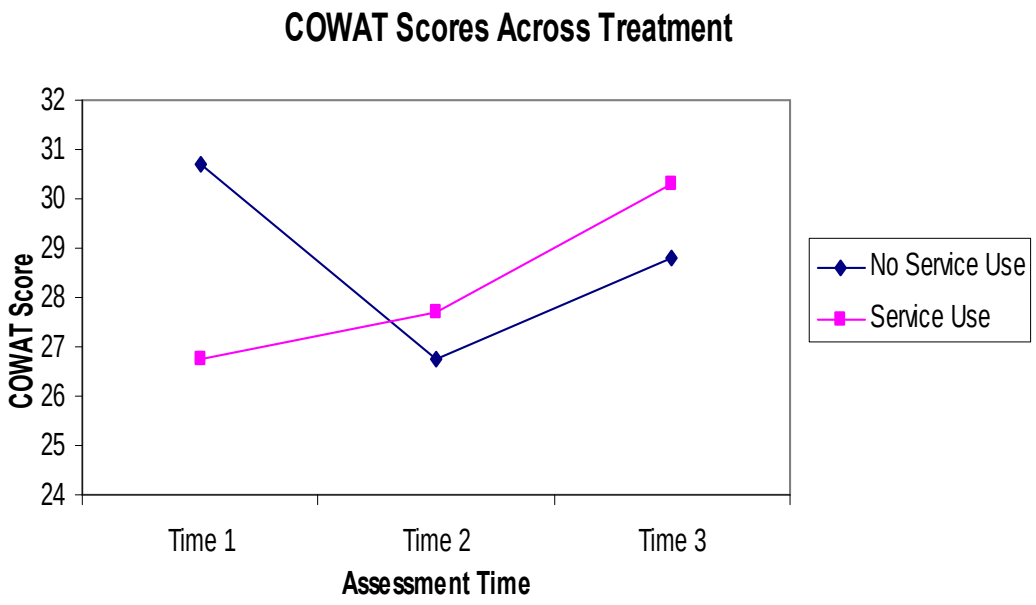


Figure 3.7 Interaction Between Service Usage Groups on COWAT Scores Across Treatment

There is an interaction of assessment time and service use as they relate to RBANS Total score ($F(2, 108) = 3.65$, $p = .03$, $Mse = 51.18$). Partial support for hypotheses is found, as the pattern of this interaction is that RBANS Total score improves from admission to six months but does not improve from 6 months to one year for those who used mental health services prior to age 18, although scores at one year are better than at admission (LSD minimum mean difference = 3.82). For those who did not use services prior to age 18, performance does not improve from admission to six months, however improves from six to twelve months. As hypothesized, there is a main effect for overall RBANS Total score over time ($F(2, 108) = 9.82$, $p < .001$), with performance remaining the same from admission to six months but improving from six to twelve months of rehabilitation (LSD minimum mean difference = 2.70). This pattern is only descriptive for those who did not use services in adolescence. There is no overall main effect for service use ($F(1, 54) = 1.67$, $p = .20$). Results of repeated measure

ANOVAs and means and standard deviations can be found in Tables 27 and 38. When planned comparisons were completed, as hypothesized and previously stated individuals without mental health service usage had higher RBANS scores at admission than those who used mental health services in adolescence. However, contrary to hypotheses, differences existed between groups after one year of treatment. Individuals without mental health service usage in adolescence had higher RBANS scores ($M$ = 81.60) than for individuals who did not use services in adolescence ($M$=75.71), $t$ (73) = 1.64, p = .05.

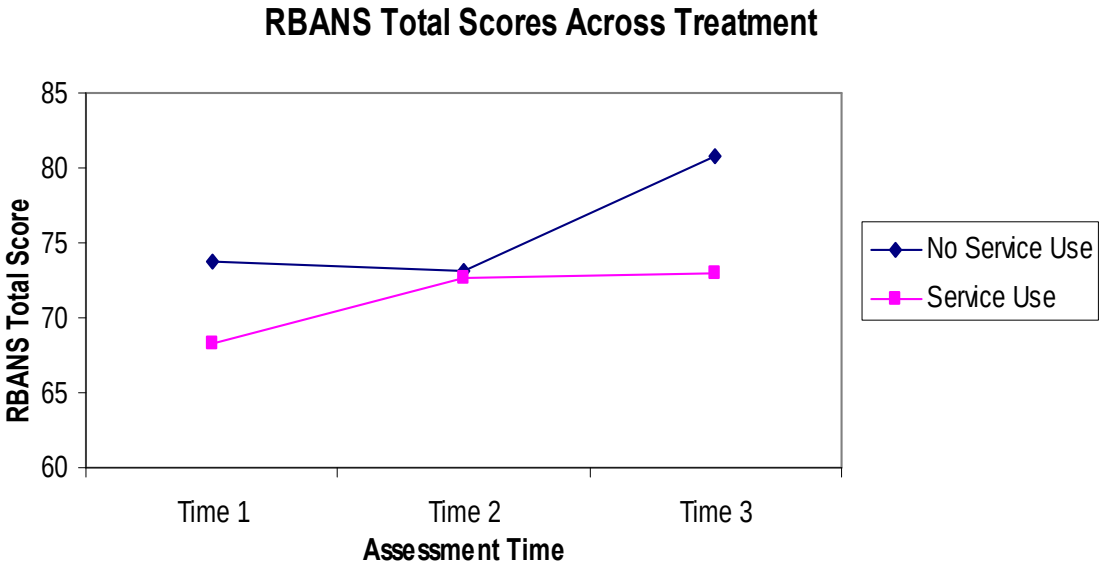


Figure 3.8 Time Main Effect and Interaction Between Service Usage Groups on RBANS Total Scores Across Treatment

When 4 (APP Severity Level) x 3 (assessment time) repeated measures ANOVAs are conducted using APP severity levels, no interactions, assessment time main effects, or APP severity level main effects are found for the following neurocognition measures: WCST Correct, WCST Perseverative Errors, WCST Random Errors, WCST Consolidation Index, NAB Screener Total score, RCFT Copy, RCFT Recognition, Trails A and B, and COWAT/FAS (all $F$s < 2.66, all $p$s > .06). Contrary to hypotheses,

increases in neurocognitive functioning over treatment as measured by the previously mentioned measures are not found when analyses included APP severity levels. Also, contrary to hypotheses those with more severe levels of APP do not demonstrate poorer neurocognitive functioning on these measures at any assessment time. However, as hypothesized differences do not remain amongst the groups after one year of treatment. Results of repeated measure ANOVAs utilizing APP severity levels and means and standard deviations can be found in Tables 44 - 59.

There is an interaction between assessment time and APP severity level as they relate to RAVLT scores ($F(4, 16) = 3.88$, $p = .02$, $Mse = 2.11$). No individuals in the low APP severity group completed RAVLT assessments and therefore are not included in analyses. RAVLT performance for individuals with no APP does not change from admission to six months, however, performance increases from six to twelve months. For individuals in the medium APP severity group, RAVLT performance does not change during treatment, whereas for those in the high APP severity group RAVLT performance increases from admission to six months but decreases from six to twelve months (which was equivalent to performance at admission) (LSD minimum mean difference = 2.27). RAVLT performance at admission is equal for the no APP group and medium APP group and for the medium and high APP groups, however contrary to hypotheses individuals in the high APP severity group demonstrate better performance than those in the no APP group on the RAVLT at admission. At six months, contrary to hypotheses those in the high APP severity group demonstrate the highest performance on the RAVLT, followed by those in the medium APP severity group. As hypothesized, these differences in RAVLT performance do not remain after one year of treatment. There is no main effect

for RAVLT over time ($F(2, 16) = .15$, $p = .86$) or for APP severity level ($F(2, 8) = 1.06$, $p = .39$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 45, 50.

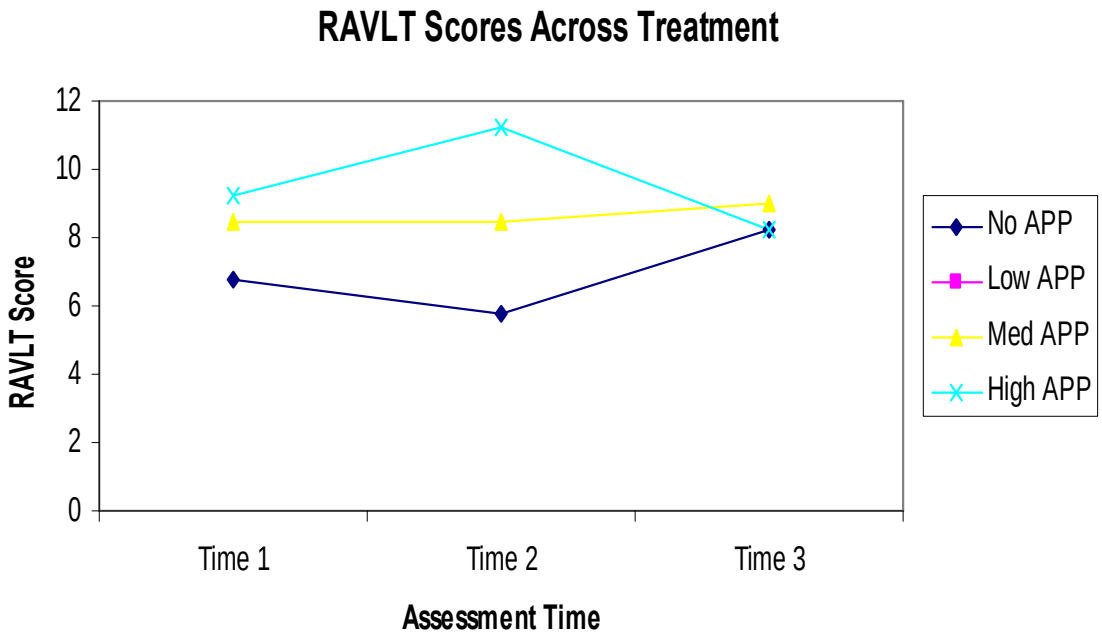


Figure 3.9 Interaction Between APP Severity Levels on RAVLT Scores Across Treatment

There is no interaction between assessment time and APP severity levels as they relate to RCFT Immediate Memory scores ($F(6, 56) = 1.76$, $p = .12$, $Mse = 175.91$). There is an overall main effect for RCFT Immediate Memory scores over time ($F(2, 56) = 5.66$, $p = .01$), with no significant difference on scores from admission to six months and partial support for hypotheses as there are improvements in performance from six to twelve months. While performance for all APP severity groups remains the same from admission to six months, improvements in RCFT Immediate Memory scores from six to twelve months only occur for those in the low and high APP severity levels (LSD minimum mean difference = 6.70). A main effect for APP severity level is not found

($F(3, 28) = 1.27$, $p = .31$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 46, 57.

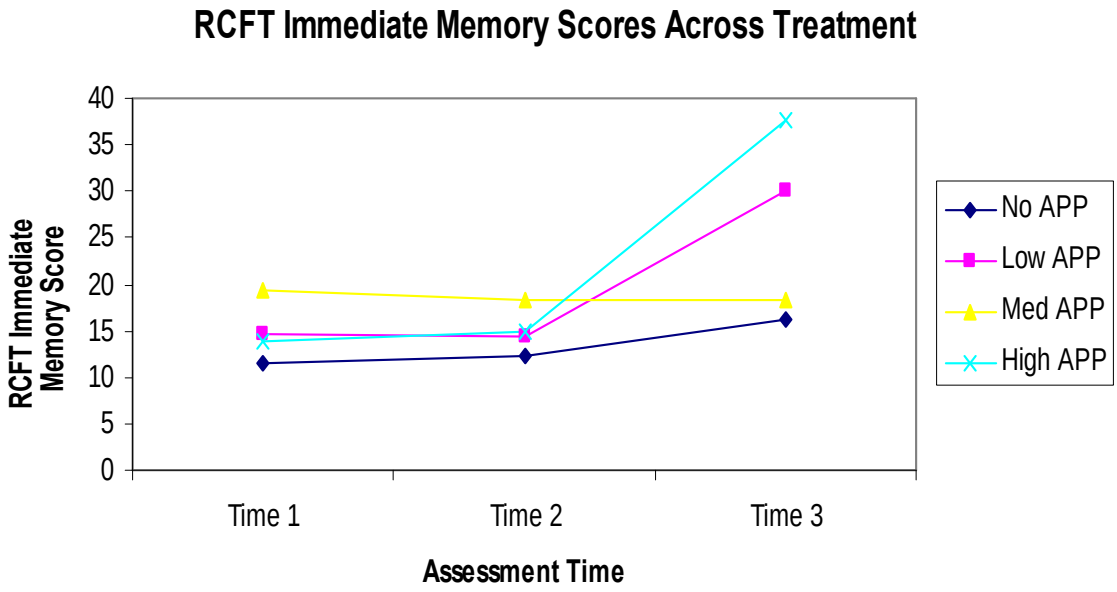


Figure 3.10 Time Main Effect for APP Severity Levels on RCFT Immediate Memory Scores Across Treatment

There is no interaction between assessment time and APP severity levels as they relate to RCFT Delayed Memory scores ($F(6, 56) = 2.14$, $p = .06$, $Mse = 27.06$). There is an overall main effect for RCFT Delayed Memory scores over time and partial support for hypotheses ($F(2, 56) = 6.23$, $p < .01$), with no significant difference on scores from admission to six months and improvements in performance from six to twelve months. This pattern of performance is only descriptive for no APP and high APP severity groups (LSD minimum mean difference = 2.63). A main effect for APP severity level is not found ($F(3, 28) = .55$, $p = .65$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 46, 58.

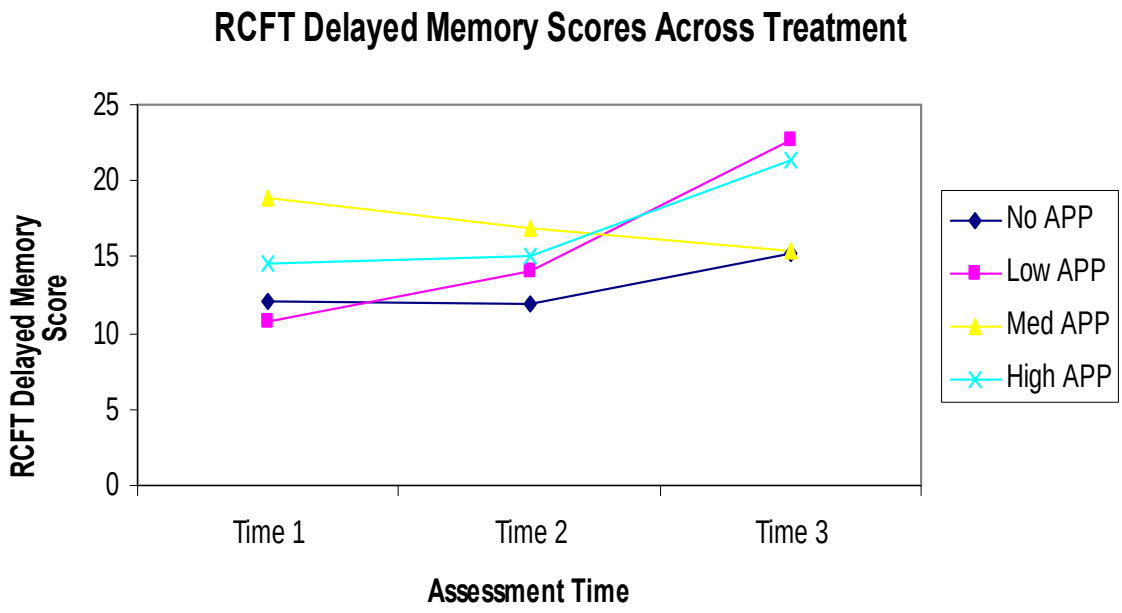


Figure 3.11 Time Main Effect for APP Severity Levels on RCFT Delayed Memory Scores Across Treatment

There is an interaction between assessment time and APP severity level as they relate to RBANS total scores ($F(6, 104) = 2.40$, $p = .03$, $Mse = 49.84$). RBANS performance for individuals with no or low APP does not change from admission to six months, however performance increases from six to twelve months. For individuals in the medium APP severity group, RBANS performance does not change during treatment, whereas for those in the high APP severity group RBANS performance increases from admission to six and twelve months (which were equivalent to each other) (LSD minimum mean difference = 5.34). RBANS performance at admission is equal for the no, low, and medium APP groups; however as hypothesized, individuals in the high APP severity group have lower RBANS total scores than those in the no APP group at admission. At six months, RBANS performance is equivalent for all APP severity

groups. After one year of treatment, contrary to hypotheses, those in the no and low APP severity groups have higher RBANS total scores than those in the medium and high APP severity groups and those in the high APP severity group have higher RBANS total scores than those in the medium APP severity group. There is an overall main effect for RBANS total score over time ($F(2, 104) = 6.37$, $p < .01$) with RBANS performance remaining the same from admission to six months but improving by one year of treatment. However, this main effect is only descriptive for individuals in the no and low APP severity groups. There is not a main effect for APP severity level ($F(3, 52) = .80$, $p = .50$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 45, 55.

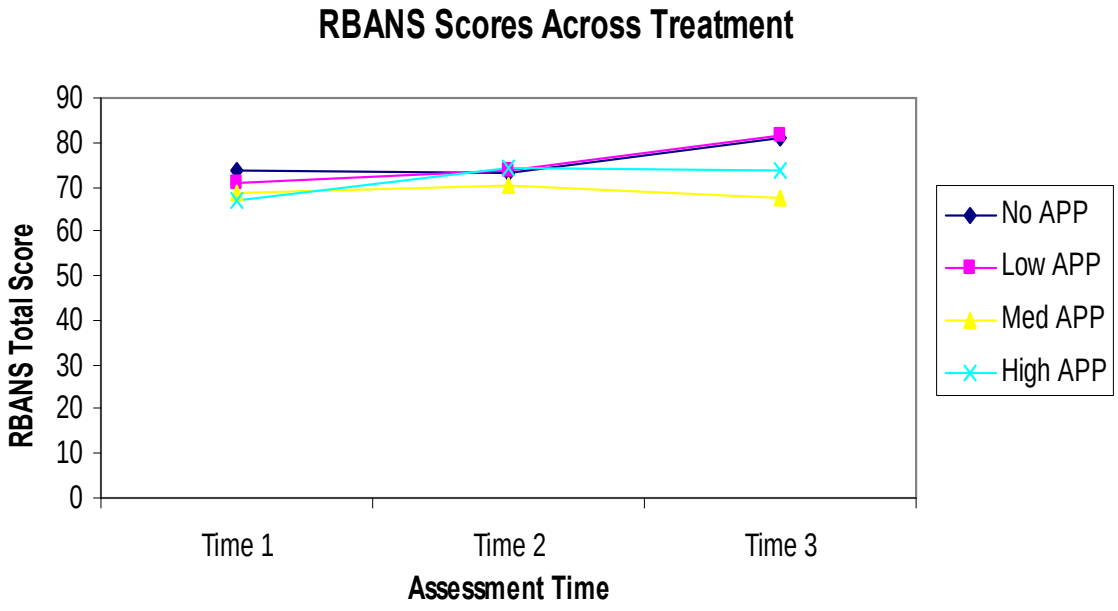


Figure 3.12 Time Main Effect and Interaction Between APP Severity Levels on RBANS Total Scores Across Treatment

In summary, results of analyses between those who used mental health services prior to age 18 and those who did not use services and neurocognitive functioning at

admission and over the course of treatment suggest that improvements in neurocognitive functioning are evident over the course of treatment on WCST Random Errors, for individuals who did not use services prior to age 18 on the RAVLT, for individuals who did use services in adolescence on RCFT Immediate Memory, for both groups on RCFT Delayed Memory, for individuals that used services in adolescence on Trails A, for those who used services on adolescence on COWAT/FAS, and for both groups on RBANS total. Results of analyses between assessment time and APP severity level indicate improvements in neurocognitive functioning occur over the course of treatment on the RAVLT for those without APP, for those with low or high APP on RCFT Immediate Memory, for those with none or high APP on RCFT Delayed Memory, and for those in the none, low, or high groups on RBANS total performance.

When analyses are conducted between those who used services in adolescence and those who did not use services in adolescence, as hypothesized no differences exist between groups after one year of psychiatric rehabilitation on the following measures: WCST Correct, WCST Perseverative Errors, WCST Random Errors, WCST Consolidation Index, RCFT Copy, RCFT Recognition, RCT Immediate and Delayed Memory, NAB total, RAVLT, and Trails A and B performance. Contrary to hypotheses, individuals who used mental health services in adolescence demonstrate better performance on the COWAT/FAS after one year of treatment than individuals who did not user services in adolescence. However, individuals who did not use services in adolescence demonstrate poorer performance on the RBANS total after one year of treatment than those who did use mental health services in adolescence.

Finally, when analyses are conducted utilizing APP severity level, as hypothesized no differences exist between groups after one year of psychiatric rehabilitation on the following measures: WCST Correct, WCST Perseverative Errors, WCST Random Errors, WCST Consolidation Index, RCFT Copy, RCFT Recognition, RCT Immediate and Delayed Memory, NAB total, RAVLT, and Trails A and B performance. Contrary to hypotheses, individuals with high APP demonstrate better performance on the RAVLT at admission and six months, however as hypothesized this difference does not remain after one year of treatment. As hypothesized, those individuals with high APP demonstrate poorer performance on the RBANS total at admission. However, contrary to hypotheses difference remain between the groups at twelve months and those without APP or low APP perform better on the RBANS than those in the medium or high APP severity groups.

*Social Cognitive Functioning Across Treatment*

It is anticipated that individuals with and without mental health service usage in adolescence demonstrate an increase in functioning, a decrease in external locus of control, and a increase in internal locus of control. Furthermore, when different levels of adolescent psychiatric pathology are considered, it is hypothesized as APP becomes more severe functioning decreases, however any differences will not remain between groups after one year of treatment. A 2 (service use) x 3 (assessment time) repeated measure ANOVA was completed for each measure.

There is not interaction between assessment time and service use as they relate to Hinting scores over time ($F(2, 102) = .21$, $p = .81$, $Mse = 6.32$) (Table 61, 63). As

hypothesized, there is a main effect for Hinting scores over time ($F(2, 102) = 8.32$, $p < .001$), with improvement on scores from admission to six months and one year (which were equivalent to each other) (LSD minimum mean difference = .98). This pattern was descriptive for both those with and without mental health service usage in adolescence. A main effect for service use is not found ($F(1, 51) = .01$, $p = .93$).


Figure 3.13 Time Main Effect for Service Usage Groups on Hinting Task Scores Across Treatment

There is not an interaction between service use and assessment time as they relate to FKK Internal Locus of Control ($F(2, 50) = .80$, $p = .46$, $Mse = 21.14$). Contrary to hypotheses, there is no main effect for FKK Internal Locus of Control scores over time and internal locus of control does not increase over treatment for either group ($F(2, 50) = .27$, $p = .77$). There is also not a main effect for service use ($F(1, 25) = .06$, $p = .82$). There is not an interaction between service use and assessment time as they relate to FKK Self Concept scores ($F(2, 50) = .71$, $p = .50$, $Mse = 12.23$). Contrary to hypotheses, there is no main effect for FKK Self Concept, a subscale of FKK Internal Locus of Control, scores over time ($F(2, 50) = 1.14$, $p = .33$). There is not a main effect for service use

($F(1, 25) = .33$, $p = .57$). There is not an interaction of assessment time and service use as they relate to FKK Self Efficacy scores ($F(2, 50) = .48$, $p = .62$, $Mse = 44.46$). Contrary to hypotheses, there is no main effect for FKK Self Efficacy scores over time ($F(2, 50) = .11$, $p = .90$). There is no main effect for service use ($F(1, 25) = .25$, $p = .62$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 60, and 64 - 66.

There is not an interaction between assessment time and service use as they relate to FKK Powerful Others ($F(2, 50) = .90$, $p = .41$, $Mse = 18.42$). Contrary to hypotheses that performance on this subscale of FKK External Locus of Control would decrease over time, there is no main effect for FKK Powerful Others scores over time ($F(2, 50) = 1.04$, $p = .36$). There is also no main effect for service use ($F(1, 25) = .33$, $p = .57$).

There is an interaction of assessment time and service use as they relate to FKK Chance scores ($F(2, 50) = 5.29$, $p = .01$, $Mse = 19.93$). Partially supporting hypotheses, the pattern of this interaction is that FKK Chance scores remained the same across treatment for those without mental health service usage in adolescence, whereas as hypothesized FKK Chance scores were highest (more external locus of control) at admission than at 6 months to one year (which were equivalent to each other) for those who used mental health services in adolescence (LSD minimum mean difference = 3.47). While FKK Chance scores are equivalent to one another at admission for those with and without mental health service usage in adolescence, contrary to the hypothesis those without mental health service usage in adolescence have higher FKK Chance scores at six and twelve months than those who used mental health services in adolescence. Planned comparisons also found this result at six months, $t(46) = 1.87$, p = .03, and at

one year, *t* (34) = 1.72, p = .05. There is a main effect for overall FKK Chance score over time ($F(2, 50) = 4.66$, $p = .01$), as hypothesized FKK Chance scores are higher at admission than at six to twelve months of rehabilitation (which were equivalent to each other) (LSD minimum mean difference = 2.46). This pattern is only descriptive for those who used mental health services in adolescence. There is no overall main effect for service use ($F(1, 25) = 1.13$, $p = .30$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 60, 67 - 68.

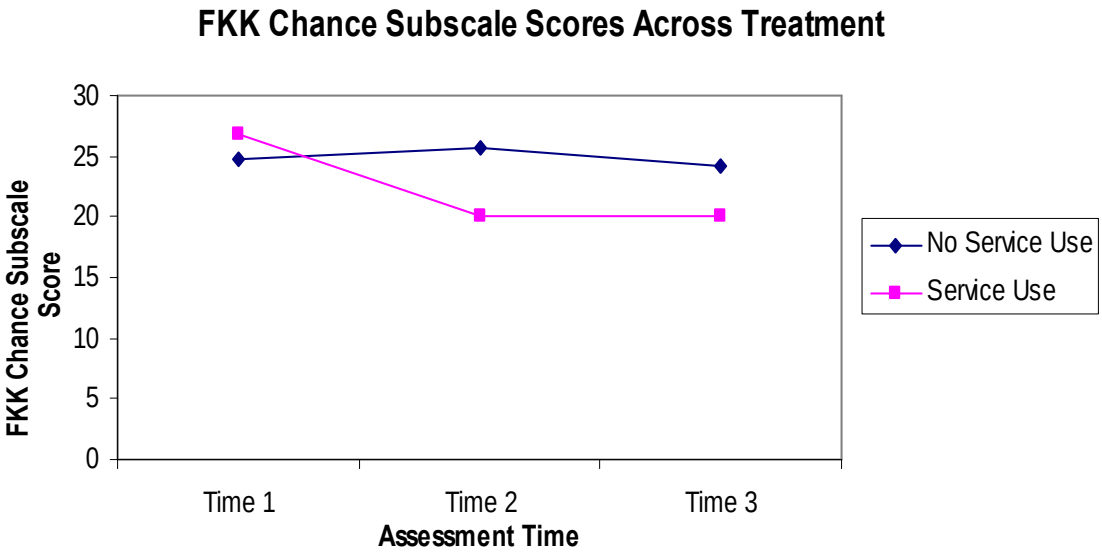


Figure 3.14 Time Main Effect and Interaction Between Service Usage Groups on FKK Chance Subscale Scores Across Treatment

There is an interaction of assessment time and service use as they relate to FKK External Locus of Control score over time ($F(2, 50) = 3.87$, $p = .03$, $Mse = 51.98$). Contrary to the hypothesis, the pattern of this interaction is that FKK External Locus of Control scores remain the same across treatment for those who did not use mental health services in adolescence, whereas as hypothesized FKK Chance scores are highest at admission than at 6 months to one year (which are equivalent to each other) for those

who did use mental health services in adolescence (LSD minimum mean difference = 5.61). While FKK External Locus of Control scores are equivalent to one another at admission for those with and without mental health service usage prior to age 18, contrary to the hypothesis those without service usage in adolscence had higher FKK External Locus of Control scores at six and twelve months than those with APP. Planned comparisons only found this difference at six months, $t$ (46) = 1.90, p = .03. There is a main effect for overall FKK External Locus of Control score over time ($F$(2, 50) = 3.77, $p$ = .03), as hypothesized FKK External Locus of Control scores are higher at admission than at six to twelve months of rehabilitation (which are equivalent to each other) (LSD minimum mean difference = 3.97). This pattern is only descriptive for those who used mental health services in adolescence. There is no overall main effect for service use ($F$(1, 25) = .74, $p$ = .40). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 60 and 69.

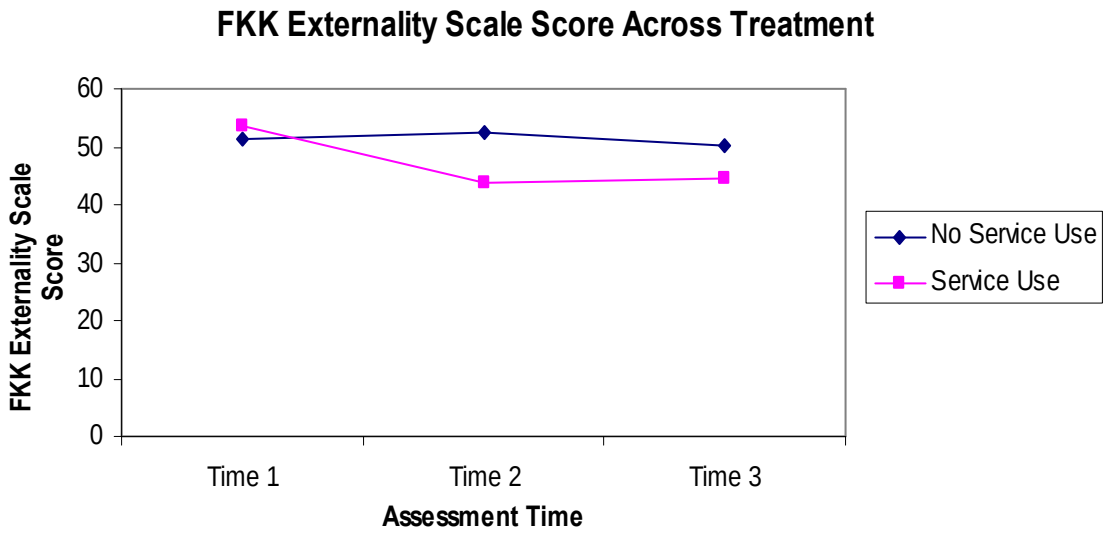


Figure 3.15 Time Main Effect and Interaction Between Service Usage Groups on FKK Externality Scale Scores Across Treatment

There is not an interaction of assessment time and service use as they relate to IPSAQ Internal Positive score ($F(2, 30) = 2.85$, $p = .07$, $Mse = 5.67$). There is no main effect for IPSAQ Internal Positive scores over time ($F(2, 30) = .39$, $p = .68$) or for service use ($F(1, 15) = 2.15$, $p = .16$). There is no interaction between assessment time and service use as they relate to IPSAQ Personal Positive scores over time ($F(2, 30) = .93$, $p = .41$, $Mse = 2.25$). There is a main effect for IPSAQ Personal Positive scores over time ($F(2, 30) = 4.00$, $p = .03$), with no significant difference in scores from admission to six months and one year (which are equivalent to each other), however scores at 12 months are significantly less than at admission (LSD minimum mean difference = 1.0). This result indicates at one year individuals are less likely to attribute positive events to themselves than at admission. However, this pattern is descriptive for neither group and is therefore misleading as a general description. A main effect for service use is not found ($F(1, 15) = .51$, $p = .49$).


Figure 3.16 Time Main Effect for Service Usage Groups on IPSAQ Personal Positive Scale Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to IPSAQ Situational Positive ($F(2, 30) = 2.18$, $p = .13$, $Mse = 5.05$). There is no main effect for IPSAQ Situational Positive scores over time ($F(2, 30) = 2.32$, $p = .12$) or for service use ($F(1, 15) = 4.02$, $p = .06$). However, planned comparisons found contrary to hypothesis IPSAQ Situational Positive scores are higher for individuals without service usage in adolescence after one year of treatment ($M = 5.07$) than for individuals without service usage in adolescence ($M$=3.55), $t$ (23) = 1.68, p = .05. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 62, and 70 - 72.

There is an interaction between assessment time and service use as they relate to IPSAQ Internal Negative scores ($F(2, 30) = 3.41$, $p = .05$, $Mse = 5.97$). As hypothesized, the pattern of this interaction is that IPSAQ Internal Negative scores are highest at admission and six months (which are equivalent to each another (LSD minimum mean difference = 2.42) and decreases at twelve months for those without mental health service usage in adolescence This result indicates that individuals are more likely to attribute negative events to people or themselves after one year of treatment than at admission or six months. However, contrary to hypotheses, for those with mental health service usage in adolescence scores remain the same across treatment. While IPSAQ Internal Negative scores are equivalent to each other for those with and without mental health service usage in adolescence at admission and six months, contrary to hypotheses at twelve months those with mental health service usage in adolescence have higher IPSAQ Internal Negative scores than those individuals who did not use services in adolescence, $t$ (23) = -

2.18, p = .02.. There is no overall main effect for IPSAQ Internal Negative scores over time ($F(2, 30) = .39$, $p = .68$) or for service use ($F(1, 15) = 1.41$, $p = .25$).

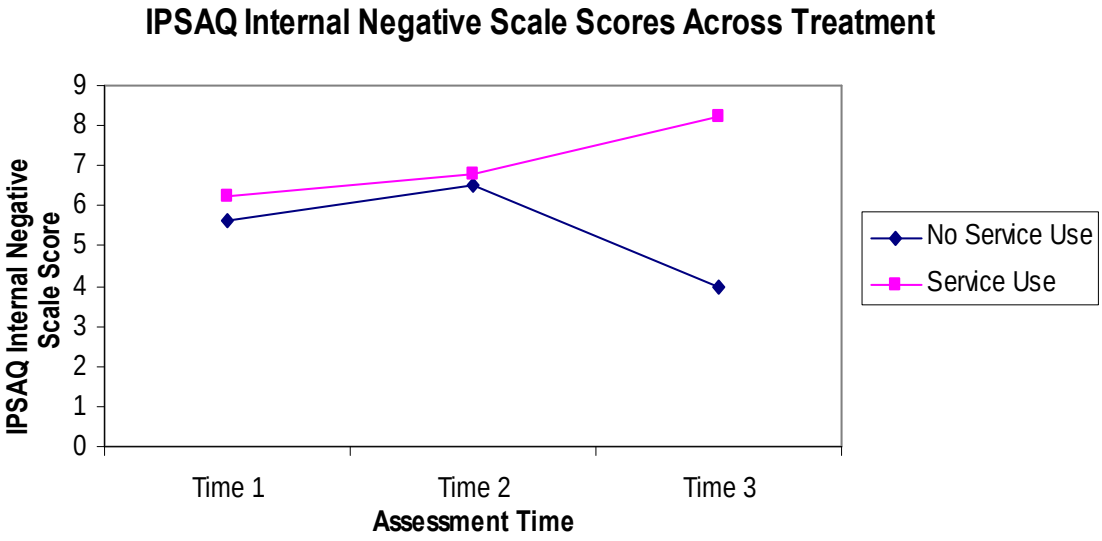


Figure 3.17 Interaction Between Service Usage Groups on IPSAQ Internal Negative Scale Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to IPSAQ Personal Negative scores ($F(2, 30) = .47$, $p = .63$, $Mse = 5.01$). There is no main effect for IPSAQ Personal Negative scores over time ($F(2, 30) = .33$, $p = .72$) or for service use ($F(1, 15) = .63$, $p = .44$). There is not an interaction between assessment time and service use as they relate to IPSAQ Situational Negative scores ($F(2, 30) = 2.14$, $p = .14$, $Mse = 5.18$). There is no main effect for IPSAQ Situational Negative scores over time ($F(2, 30) = .45$, $p = .64$) or for service use ($F(1, 15) = .69$, $p = .42$). When planned comparisons were completed, contrary to hypothesis IPSAQ Situational Negative scores were lower for individuals with service usage in adolescence ($M = 3.27$) than for individuals who did not use services in adolescence ($M=6.21$), $t\ (23) = 3.16$, $p < .01$.

Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 62, and 73 - 75.

There is not an interaction of assessment time and service use as they relate to CST Social Support scores ($F(2, 40) = .74$, $p = .48$, $Mse = 44.41$). There is a main effect for overall CST Social Support scores over time ($F(2, 40) = 4.83$, $p = .01$). As hypothesized CST Social Support scores are higher after one year of treatment than at admission or six months (which are equivalent to each other) (LSD minimum mean difference = 4.06). However, this pattern is only descriptive for individuals who used services in adolescence and is misleading. There is no main effect for service use ($F(1, 20) = .21$, $p = .65$).

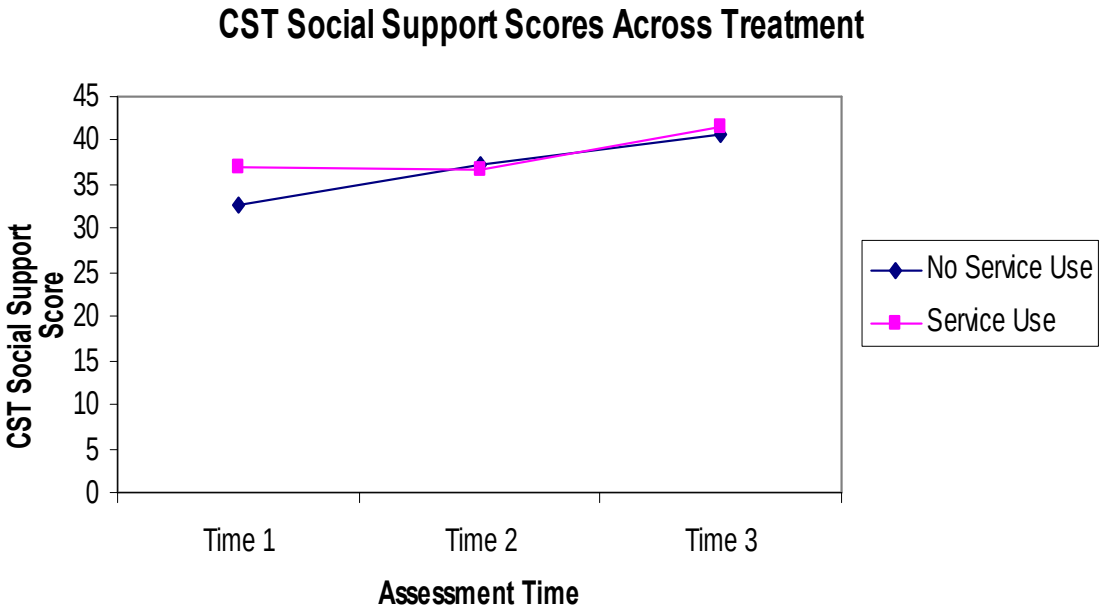


Figure 3.18 Time Main Effect for Service Usage Groups on CST Social Support Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to CST Self-Controlling scores ($F(2, 40) = .24$, p = .79, Mse = 31.86). There is no main effect for CST Self-Controlling scores over time ($F(2, 40) = .14$, $p = .87$). There is a

main effect for service use ($F(1, 20) = 7.05$, $p = .02$). Contrary to hypotheses, those individuals without mental health service usage in adolescence have overall higher CST Self-Controlling scores than individuals with mental health service usage in adolescence and this pattern is consistent across assessment times. However, when planned comparisons were completed individuals without mental health service usage in adolescence only demonstrate higher CST Self-Controlling scores after one year of treatment, $t(35) = 1.77$, p = .04.

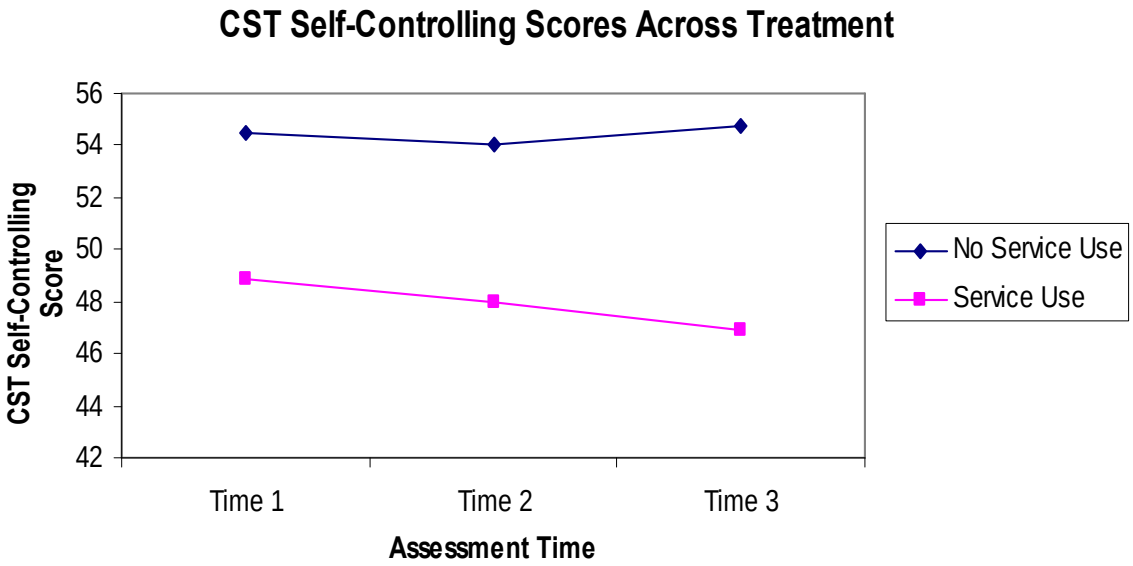


Figure 3.19 Service Usage Group Main Effect for Service Usage Groups on CST Self-Controlling Scores Across Treatment

There is not an interaction of assessment time and service use as they relate to CST Escape Avoidance scores ($F(2, 40) = 1.92$, $p = .16$, $Mse = 35.23$). There is no main effect for CST Escape Avoidance scores over time ($F(2, 40) = 1.74$, $p = .19$) or for service use ($F(1, 20) = .13$, $p = .72$). Also, there is not an interaction between assessment time and service use as they relate to CST Planful Problem Solving scores ($F(2, 40) = .57$, $p = .57$, $Mse = 40.89$). There is no main effect for CST Planful Problem Solving

scores over time ($F(2, 40) = .47$, $p = .63$) or for service use ($F(1, 20) = 1.16$, $p = .29$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 61, 76 - 79.

When 4 (APP Severity Level) x 3 (assessment time) repeated measures ANOVAs are conducted no interactions, assessment time main effects, or APP severity level main effects are found for the following social cognition measures: FKK Internal Locus of Control, FKK Self Concept, FKK Self Efficacy, FKK Powerful Others, IPSAQ Internal Positive, IPSAQ Personal Positive, IPSAQ Personal Negative, IPSAQ Situational Negative, CST Social Support, CST Escape Avoidance, and CST Planful Problem Solving (all $F$s < 2.71, all $p$s > .06) (Tables 80 ï 99).

There is no interaction between assessment time and APP severity level as they relate to Hinting Task scores ($F(6, 98) = .90$, $p = .50$, $Mse = 6.26$) (Table 81, 83). There is a main effect for Hinting scores over time as hypothesized ($F(2, 98) = 5.87$, $p < .01$), with improvement on scores from admission to six months and one year (which are equivalent to each other) (LSD minimum mean difference = .97). This pattern is descriptive for those with no APP. A main effect for APP severity level is not found ($F(3, 49) = .80$, $p = .50$).

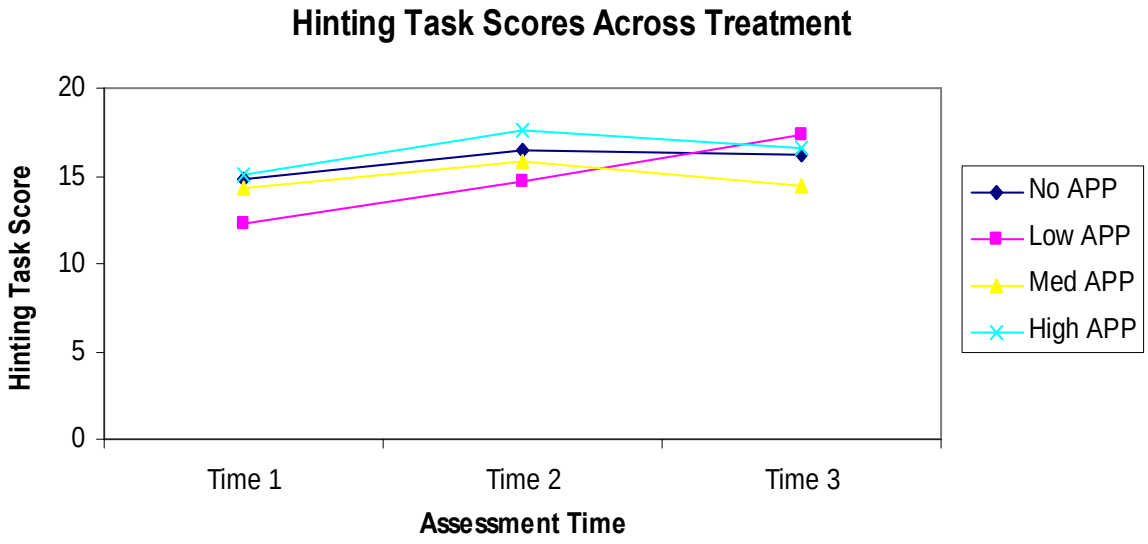


Figure 3.20 Time Main Effect for APP Severity Levels on Hinting Task Scores Across Treatment

There is an interaction between assessment time and APP severity level as they relate to FKK Chance score ($F(6, 46) = 2.88$, $p = .02$, $Mse = 19.09$). Although contrary to hypotheses FKK Chance scores remain the same across treatment for those without APP, as hypothesized FKK Chance scores are highest (more external locus of control) at admission than at 6 months to one year (which are equivalent to each other) for those with low and medium APP (LSD minimum mean difference = 3.47). For individuals in the high APP group, FKK Chance scores remain the same from admission to six months and from six months to one year, but scores at one year are lower than at admission as hypothesized. While FKK Chance scores are equivalent to one another at admission amongst the groups, those without APP have higher FKK Chance scores at six months than those in the low and medium APP groups. Individuals in the high APP group have higher FKK Chance scores at six months than those in the low and medium APP groups.

However, there is partial support for hypotheses as those individuals with more severe symptomatology have higher FKK Chance scores (more external locus of control) at six months than those with medium APP. At one year, FKK Chance scores for those in the low, medium, and high APP severity groups are equivalent while those in the no APP group have higher FKK Chance scores than those in the low and high APP groups. There is a main effect for overall FKK Chance score over time ($F(2, 46) = 7.81$, $p = .001$). As hypothesized FKK Chance scores are higher at admission than at six to twelve months of rehabilitation (which are equivalent to each other) (LSD minimum mean difference = 2.40). This pattern is only descriptive for those with low APP. There is no overall main effect for APP severity level ($F(3, 23) = .35$, $p = .79$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 80, 84 - 89.

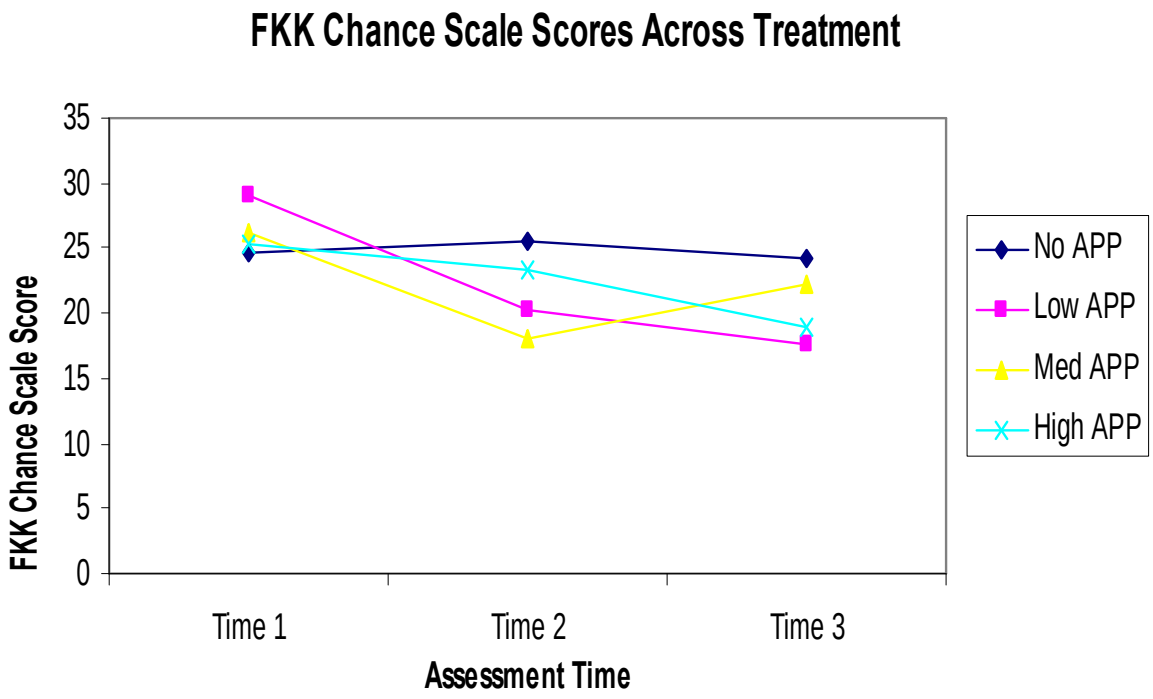


Figure 3.21 Time Main Effect and Interaction between APP Severity Levels on FKK Chance Scores Across Treatment

There is an interaction between assessment time and APP severity level as they relate to FKK External Locus of Control score ($F(6, 46) = 2.30$, $p = .05$, $Mse = 50.17$). Although, the pattern of this interaction is that FKK External Locus of Control scores remain the same across treatment for those without APP, partial support for hypotheses is demonstrated as FKK Chance scores are highest at admission than at 6 months to one year (which are equivalent to each other) for those with low or medium APP (LSD minimum mean difference = 7.79). For individuals with high APP, FKK External Locus of Control scores at one year are lower than at admission or six months (which are equivalent to each other). This result still supports hypothesizes that those in the high APP group demonstrate a decrease in external locus of control after one year of treatment. While FKK External Locus of Control scores are equivalent to one another at admission and one year for those with and without APP, contrary to the hypothesis those without APP have higher FKK External Locus of Control scores at six months than those with low or medium APP. However, partial support for hypotheses is found as individuals in the high APP group have higher FKK External Locus of Control scores at six months than individuals with low or medium APP. There is a main effect for overall FKK External Locus of Control score over time ($F(2, 46) = 5.47$, $p = .01$). As hypothesized FKK External Locus of Control scores are higher at admission than at six to twelve months of rehabilitation (which are equivalent to each other) (LSD minimum mean difference = 3.90). This pattern is only descriptive for those with low or medium APP. There is no overall main effect for APP severity level ($F(3, 23) = .29$, $p = .83$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 80 and 89.

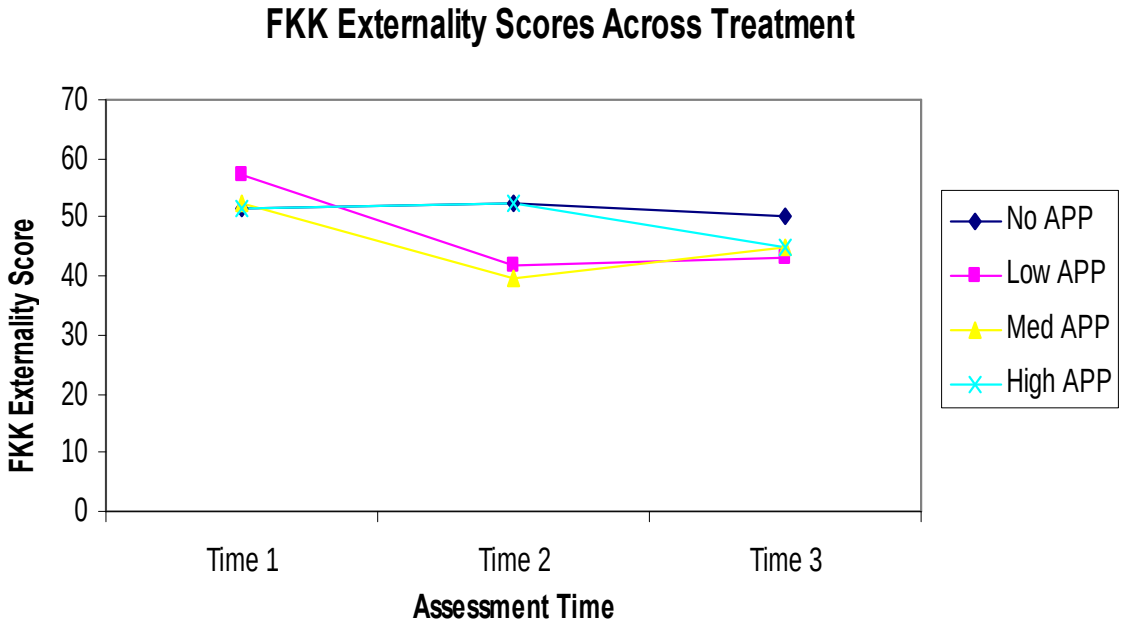


Figure 3.22 Time Main Effect and Interaction between APP Severity Levels on FKK Externality Scores Across Treatment

There is not an interaction between assessment time and APP severity level as they relate to IPSAQ Situational Positive scores ($F(6, 26) = 1.77$, $p = .15$, $Mse = 4.74$). There is no main effect for IPSAQ Situational Positive scores over time ($F(2, 26) = 1.05$, $p = .37$). There is a main effect for APP severity level ($F(1, 13) = 4.23$, $p = .03$). Overall IPSAQ Situational Positive scores, attributing positive events to situational factors, are highest for those without APP and with high APP (which are equivalent to each other) than for individuals in medium APP groups. Individuals in the low APP groups have the lowest overall IPSAQ Situational Positive scores (LSD minimum mean difference = 1.40). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 82 and 92.

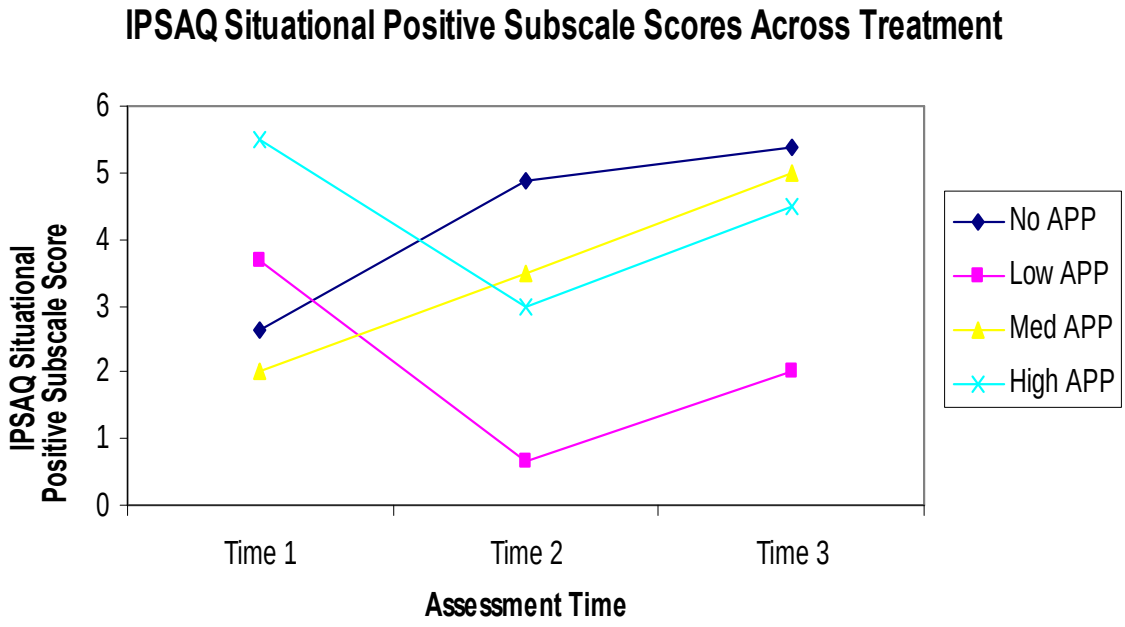


Figure 3.23 APP Severity Levels Main Effect on IPSAQ Situational Positive Subscale Scores Across Treatment

There is an interaction between assessment time and APP severity level as they relate to IPSAQ Internal Negative scores ($F(6, 26) = 3.21$, $p = .02$, $Mse = 4.85$). The pattern of this interaction is that IPSAQ Internal Negative scores remain the same across treatment for those with no APP and medium APP (LSD minimum mean difference = 3.15). IPSAQ Internal Negative scores for those in the low APP group remain the same from admission and six months but increase by one year. For individuals with high APP, scores increase from admission to six and twelve months (which are equivalent to each other), indicating as treatment progresses those in the high APP severity group are more likely to attribute negative events to themselves or others than at admission. While IPSAQ Internal Negative scores are equivalent to each other for those with and without APP at admission, at six months those with no APP have higher scores than those in the low APP group. Those in the medium and high APP groups have higher scores at sixth

months than those in the low APP group. Contrary to hypotheses, by one year of treatment, those in the low, medium, and high APP groups have higher scores than those in the no APP group. There is no overall main effect for IPSAQ Internal Negative scores over time ($F(2, 26) = 1.20$, p = .32) or for APP severity level ($F(3, 13) = .66$, $p = .59$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 82 and 93.

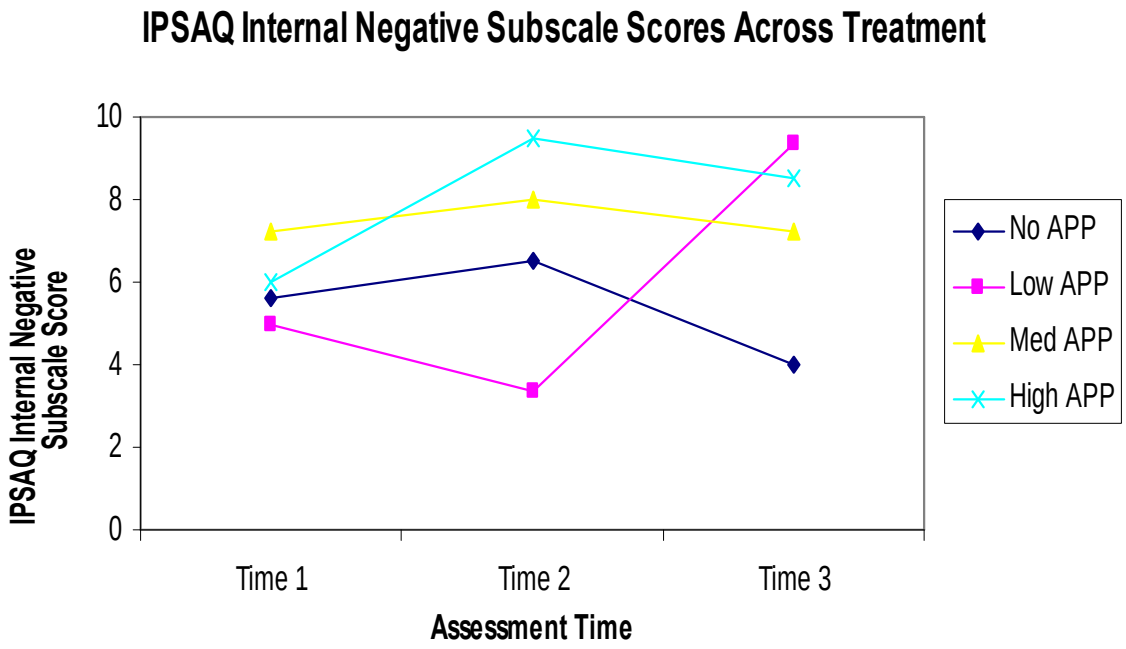


Figure 3.24 Interaction between APP Severity Levels on IPSAQ Internal Negative Subscale Scores Across Treatment

There is not an interaction between assessment time and APP severity as they relate to CST Self-Controlling scores ($F(6, 36) = 1.81$, $p = .13$, $Mse = 27.52$). There is no main effect for CST Self-Controlling scores over time ($F(2, 36) = .48$, $p = .62$). There is a main effect for APP severity level ($F(3, 18) = 3.39$, $p = .04$). Those individuals without APP have overall higher CST Self-Controlling scores than individuals with low, medium, and high APP. Contrary to hypotheses, those with high APP have lower overall CST

Self-Controlling scores, indicating these individuals may utilize other coping strategies. However, this pattern is not consistent across treatment times except for after one year of treatment (Tables 81 and 97).

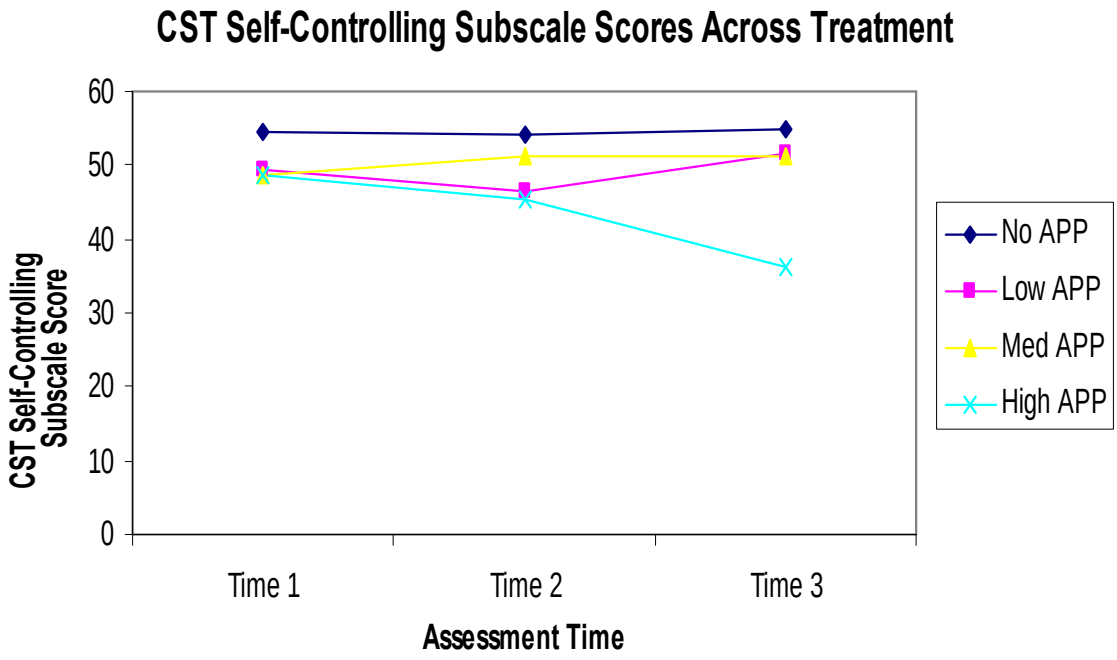


Figure 3.25 APP Severity Levels Main Effect on CST Self-Controlling Subscale Scores Across Treatment

In summary, results of analyses between those who used mental health services prior to age 18 and those who did not use services and socialcognitive functioning over the course of treatment suggest that improvements in sociocognitive functioning are evident for both groups over the course of treatment on the Hinting Task and for those with mental health service usage on CST Social Support. Contrary to hypotheses, there is not a decrease in FKK Powerful Others (a subscale of FKK External Locus of Control) over treatment. Furthermore, contrary to hypotheses there is not an increase in FKK Internal Locus of Control or FKK Self Concept or FKK Self Efficacy (both subscales of FKK Internal Locus of Control) over the course of treatment. As hypothesized, FKK

External Locus of Control and FKK Chance, a subscale of FKK External Locus of Control, do decrease over treatment; however, this only occurred for those who used mental health services in adolescence. Additionally, IPSAQ Internal Negative scores, part of a personalizing bias, decrease across treatment for those without mental health service usage in adolescence; however, this remains constant across treatment for those who used mental health services in adolescence.

Results of analyses between assessment time and APP severity level indicate improvements in sociocognitive functioning are over the course of treatment on the Hinting Task. Contrary to hypotheses, there is not a decrease in FKK Powerful Others (a subscale of FKK External Locus of Control) over treatment. Furthermore, contrary to hypotheses there is not an increase in FKK Internal Locus of Control or FKK Self Concept or FKK Self Efficacy (both subscales of FKK Internal Locus of Control) over the course of treatment. As hypothesized, FKK External Locus of Control decrease over treatment, however this only occurs for those in the low, medium, and high groups. For FKK Chance, a subscale of FKK External Locus of Control, decreases over treatment only occur for those with low or medium APP. Additionally, IPSAQ Internal Negative scores, part of a personalizing bias, increase across treatment for those with low or high APP and remain constant across treatment for those with medium or no APP.

As hypothesized, when analyses are conducted between those without and without mental health service usage in adolescence, no differences exist between groups after one year of psychiatric rehabilitation on the following measures: Hinting Task, FKK Internal Locus of Control, FKK Self Concept, FKK Self Efficacy, FKK Powerful Others, IPSAQ Internal Positive, IPSAQ Situational Positive, IPSAQ Personal Negative, IPSAQ

Situational Negative, CST Social Support, CST Escape Avoidance, and CST Planful Problem Solving. Contrary to hypotheses, individuals without mental health service usage prior to age 18 demonstrate higher scores on the FKK Chance scale and FKK External Locus of Control measures after one year of treatment than those without mental health service usage in adolescence. Also, contrary to hypotheses those without mental health service usage demonstrate lower scores after one year of treatment on the IPSAQ Internal Negative and higher scores on the CST Social Support scale than those with APP.

Finally, as hypothesized, when analyses are conducted utilizing APP severity level, as hypothesized no differences exist between groups after one year of psychiatric rehabilitation on the following measures: Hinting Task, FKK Internal Locus of Control, FKK Self Concept, FKK Self Efficacy, FKK Powerful Others, FKK External Locus of Control, IPSAQ Internal Positive, IPSAQ Personal Positive, IPSAQ Personal Negative, IPSAQ Situational Negative, CST Social Support, CST Escape Avoidance, CST Self Controlling, and CST Planful Problem Solving. Contrary to hypotheses, individuals without APP demonstrate higher scores on the FKK Chance scale after one year of treatment than those with low or high APP. Also, contrary to hypotheses those without APP demonstrate lower IPSAQ Internal Negative scores after twelve months than individuals with low, medium, or high APP (which are all equivalent).

*Insight Over the Course of Treatment*

It is anticipated that adults with SMI who had mental health services before the age of 18 have more insight into their mental illness over the course of treatment than

those that did not have mental health services prior to the age of 18. Furthermore, it is predicted that difference in insight across treatment will not remain after one year of treatment. A 2 (service use) x 3 (time) repeated measure ANOVA with follow-up analyses using the LSD procedure (p = .05) was completed for each measure. Analyses utilizing 2 (service use) x 3 (assessment time) repeated measure ANOVAs and 4 (APP Severity Level) x 3 (assessment time) repeated measure ANOVAs were attempted for each SAIQ subscale. However, based on when this assessment was administered at CTP, no group based on these distinctions had more than 10 people and one group had as few as zero. Therefore, no repeated measures analyses were undertaken based on SAIQ subscales and only analyses of the Insight Scale and its subscales will be discussed below.

There is an interaction between assessment time and service use on Insight Scale total score ($F(2, 114) = 3.26$, $p = .04$, $Mse = 6.82$). Insight total score remain the same over treatment for those individuals who used mental health services in adolescence, whereas for those individuals who did not use services prior to age 18 Insight Total scores are highest at admission and six months (which are equivalent to each other) and decrease after one year of treatment (LSD minimum mean difference = 1.36). Partial support for hypotheses is found, as those who did not use mental health services prior to age 18 have higher Insight Total scores at admission and six months and scores become equivalent for both groups after one year of treatment. However, contrary to hypotheses, those that had contact with mental health services before age 18 do not receive higher Insight Total scores at admission than those who did not use services prior to age 18. There is no main effect for Insight Total scores over time ($F(2, 114) = 2.37$, $p = .10$).

There is a significant main effect for service use ($F(1, 57) = 5.47$, $p = .02$). Individuals who did not use mental health services in adolescence have higher overall Insight Total scores across treatment than individuals who did use mental health services in adolescence; however, this pattern is only descriptive for both groups at admission and six months (LSD minimum mean difference = .96). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 100 and 104.

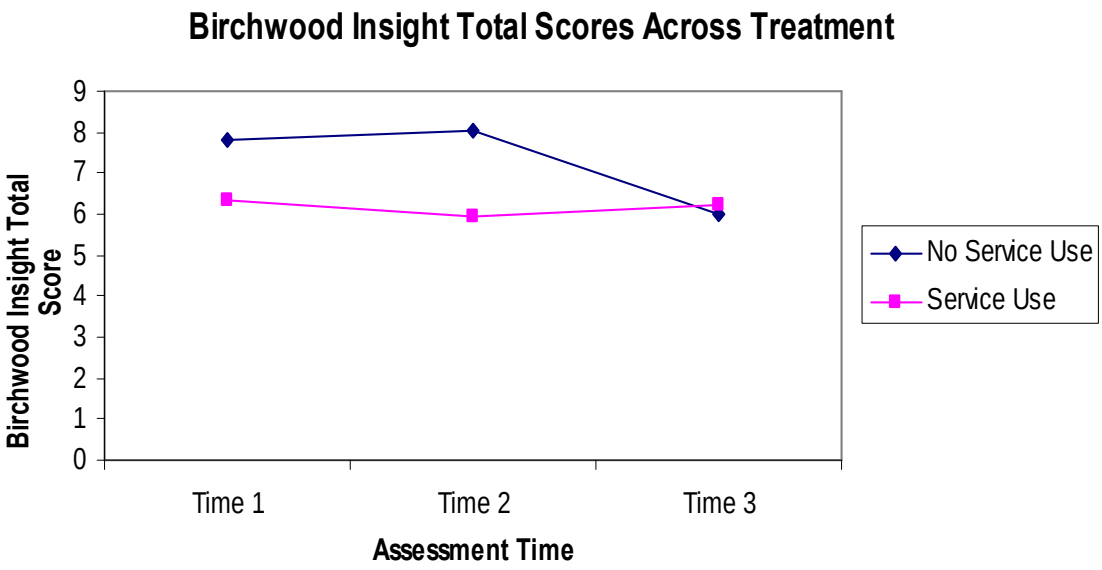


Figure 3.26 Service Main Effect and Interaction between Service Usage Groups on Birchwood Insight Total Scores Across Treatment

There is an interaction between assessment time and service use on Insight Relabel scale score ($F(2, 114) = 3.98$, $p = .02$, $Mse = .97$). Insight Relabel scale scores are highest at admission and six months (which are equivalent to each other) and decrease at one year for individuals without mental health service usage in adolescence, whereas for those individuals with mental health service usage in adolescence Insight Relabel scale scores remain the same over treatment (LSD minimum mean difference = .51). Contrary to hypotheses, no differences are found between individuals with and without

mental health service usage in adolescence on Insight Relabel scale scores at admission, and six months. As hypothesized, no differences are found between groups after twelve months. There is no main effect for Insight Relabel scale scores over time ($F(2, 114) = 2.40$, $p = .10$) or for service use ($F(1, 57) = .52$, $p = .48$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 100 and 101.

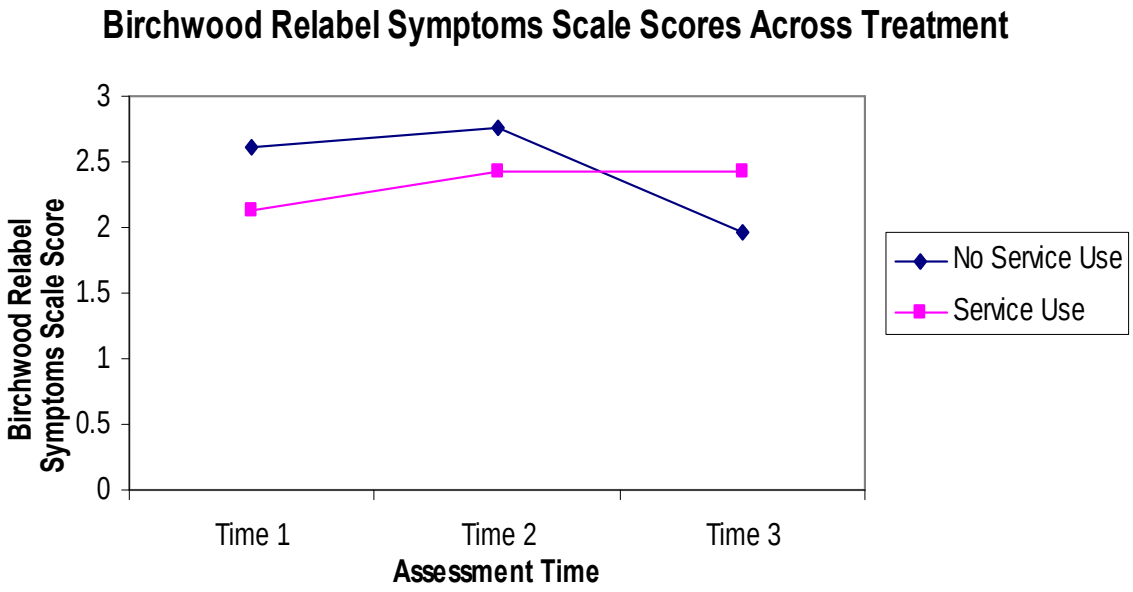


Figure 3.27 Interaction between Service Usage Groups on Birchwood Relabel Symptoms Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to Insight Awareness scale scores ($F(2, 114) = 2.52$, $p = .09$, $Mse = 1.25$). There is no main effect for Insight Awareness scale scores over time ($F(2, 114) = 1.37$, $p = .26$). Contrary to hypotheses, individuals with mental health service usage in adolescence do not have higher IS Awareness scores at admission than those without mental health service usage in adolescence. There is a main effect for service use ($F(1, 57) = 8.42$, $p = .01$). Individuals without mental health service usage in adolescence have higher overall

Insight Awareness scale scores across treatment than individuals with mental health service usage in adolescence, however this pattern is only descriptive for both groups at admission and six months (LSD minimum mean difference = .42). When planned comparisons were completed, Insight Awareness scores were lower for individuals with service usage in adolescence ($M$ = 1.93) than for individuals who did not use services in adolescence ($M$ = 2.41), $t$ (125) = 2.16, p = .02. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 100 and 102.

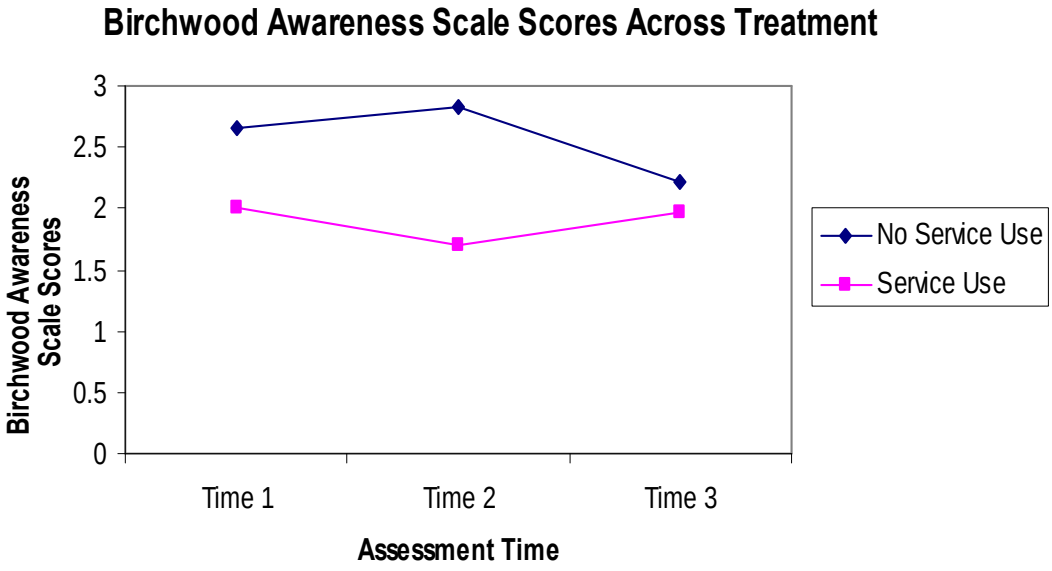


Figure 3.28 Service Usage Group Main Effect on Birchwood Relabel Symptoms Scores Across Treatment

There is not an interaction of assessment time and service use as they relate to Insight Need for Treatment scale scores ($F$(2, 114) = 1.96, $p$ = .15, $Mse$ = 1.12). There is a main effect for overall Insight Need for Treatment scale scores over time ($F$(2, 114) = 3.22, $p$ = .04). Overall Insight Need for Treatment scale scores remain the same from admission to six months and from six months to one year of treatment, however overall scores after one year of treatment are lower than at admission (LSD minimum mean

difference = .39). However, this pattern is descriptive for neither group and is therefore misleading. There is no main effect for service use ($F(1, 57) = 2.77$, $p = .10$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 100 and 103.

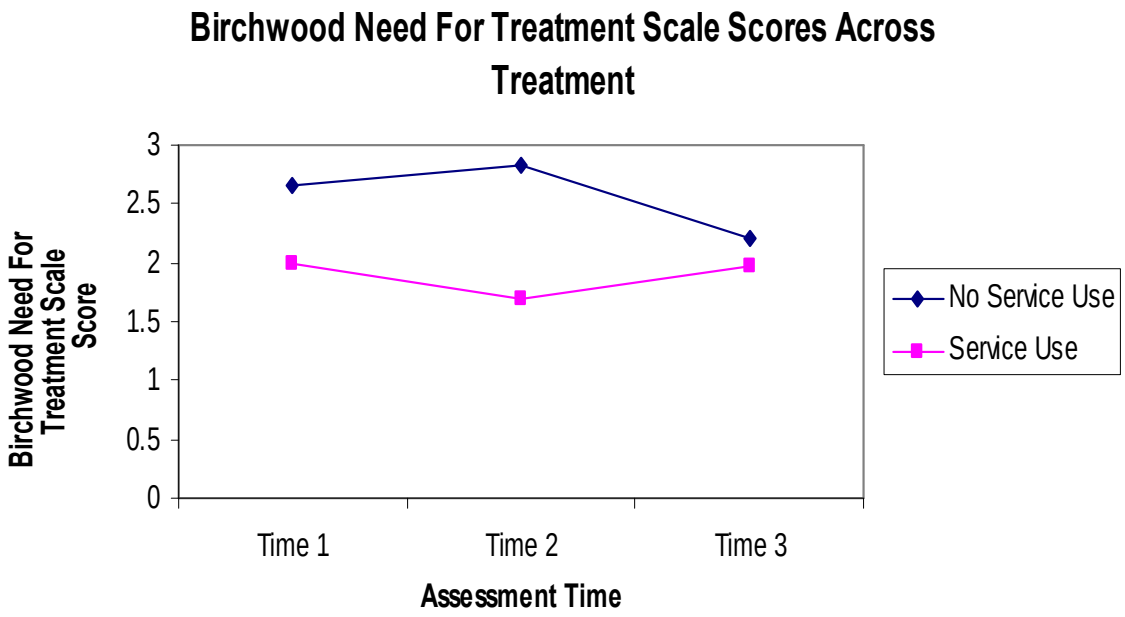


Figure 3.29 Time Main Effect for Service Usage Groups on Birchwood Need For Treatment Scores Across Treatment

In addition, 4 (APP Severity Level) x 3 (assessment time) repeated measure ANOVAs were conducted for each insight measure. There is an interaction between assessment time and APP severity level on Insight Scale total score ($F(6, 110) = 3.38$, $p = .004$, $Mse = 6.31$). Insight total score remain the same over treatment for those individuals with high APP, whereas for those individuals without APP Insight Total scores remain the same from admission to six months and decrease after one year of treatment to scores consistent with those at admission (LSD minimum mean difference = 1.85). Insight total scores for individuals with low APP decrease from admission to six

and twelve months (LSD minimum mean difference = 1.85). Insight scores for individuals with medium APP increase from admission to six and twelve months (which are equivalent to each other). At admission, those with medium APP have lower Insight total scores than those without APP or low APP. After six months, individuals without APP have the highest Insight totals (all other groups have scores equivalent to each other). As hypothesized, after one year of psychiatric rehabilitation all groups have equivalent Insight total scores. There is no main effect for Insight Total scores over time ($F(2, 110) = 1.98$, $p = .14$). There is not a significant main effect for APP severity level ($F(3, 55) = .43$, $p = .73$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 105 and 109.

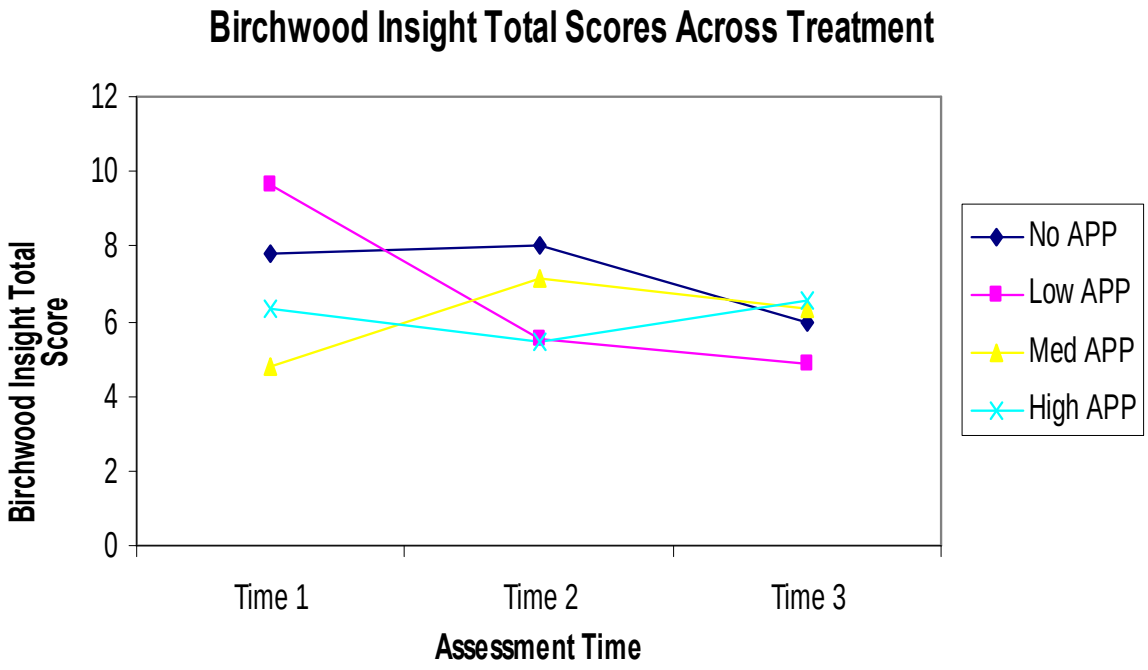


Figure 3.30 Interaction between APP Severity Levels on Birchwood Insight Total Scores Across Treatment

There is an interaction between assessment time and APP severity level on Insight Relabel scale score ($F(6, 110) = 2.90$, $p = .01$, $Mse = .93$). Insight Relabel scale scores

are highest at admission and six months (which are equivalent to each other) and decrease at one year for individuals without APP, whereas for those individuals with high APP Insight Relabel scale scores remain the same over treatment (LSD minimum mean difference = .71). Insight Relabel scale scores for individuals with low APP are highest at admission, contrary to hypotheses, and decrease from six to twelve months (which are equivalent to each other). At admission, individuals in the low APP group have higher scores than those in the medium APP group. As hypothesized, no differences are found between individuals without APP and various severities of APP on Insight Relabel scale scores at six and twelve months. There is no main effect for Insight Relabel scale scores over time ($F(2, 110) = .91$, $p = .41$) or for APP severity level ($F(3, 55) = .43$, $p = .73$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 105 and 106.

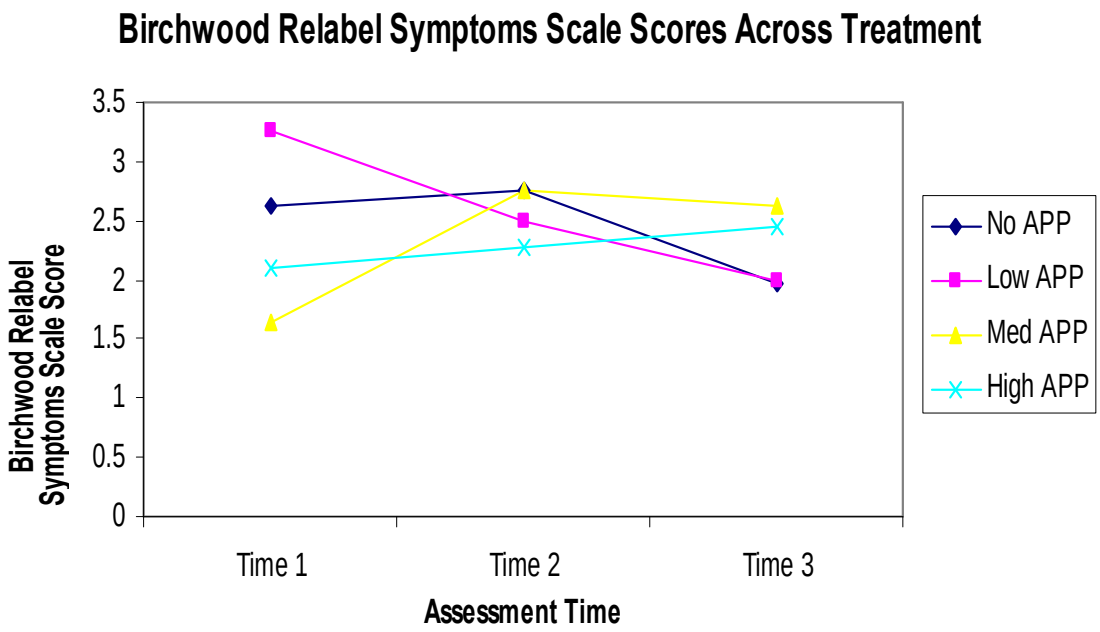


Figure 3.31 Interaction between APP Severity Levels on Birchwood Relabel Symptoms Scale Scores Across Treatment

There is an interaction between assessment time and APP severity level as they relate to Insight Awareness scale scores ($F(6, 110) = 2.48$, $p = .03$, $Mse = 1.20$). Insight Awareness scores remain the same across treatment for those without APP and individuals in the medium and high APP group. Insight Awareness scores for individuals with low APP are higher at admission than at six to twelve months (which are equivalent to each other) (LSD minimum mean difference = .81). At admission, contrary to hypotheses, those with low APP have higher Insight Awareness scores than those with medium or high APP. At six months, those without APP have higher Insight Awareness scores than individuals with low or high APP. As hypothesized, by one year of treatment all groups have equivalent Insight Awareness scores. There is no main effect for Insight Awareness scale scores over time ($F(2, 110) = 2.16$, $p = .12$). There is a main effect for APP severity level ($F(3, 55) = 2.89$, $p = .04$). Individuals without APP have higher overall Insight Awareness scale scores across treatment than individuals with each severity of APP, whereas individuals with low or high APP (which are equivalent to each other) have higher overall Insight Awareness scores than individuals with medium APP. However this pattern is not descriptive for any assessment time and is therefore misleading (LSD minimum mean difference = .61). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 105 and 107.

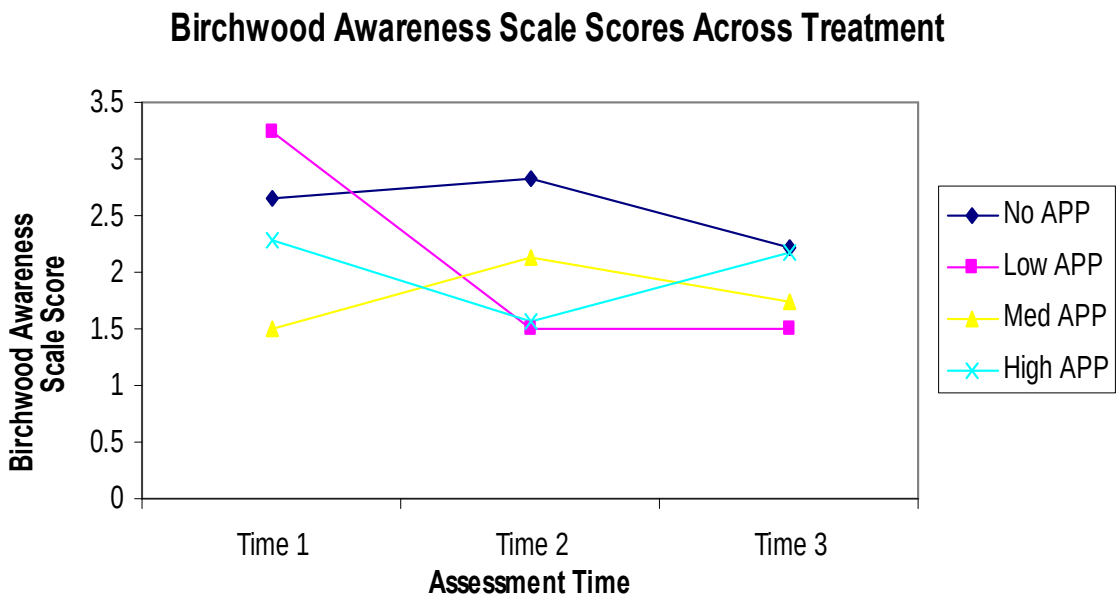


Figure 3.32 APP Severity Level Main Effect and Interaction between APP Severity Levels on Birchwood Awareness Scale Scores Across Treatment

There is not an interaction of assessment time and APP severity level as they relate to Insight Need for Treatment scale scores ($F(6, 110) = 1.79$, $p = .11$, $Mse = 1.10$). There is a main effect for overall Insight Need for Treatment scale scores over time ($F(2, 110) = 3.14$, $p = .04$). Overall Insight Need for Treatment scale scores are highest at admission and decrease at six months and from six months to one year of treatment (LSD minimum mean difference = .39). However, this pattern is not completely descriptive for any group APP at all assessment times and is therefore misleading. There is no main effect for APP severity level ($F(3, 55) = .91$, $p = .44$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 105 and 109.

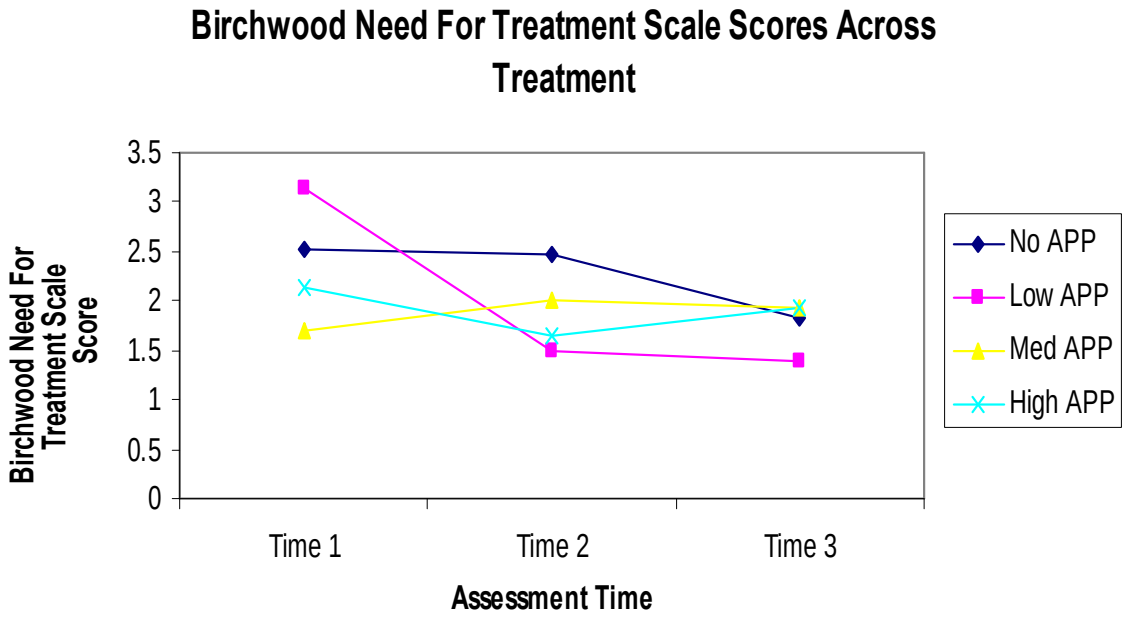


Figure 3.33 Time Main Effect for APP Severity Levels on Birchwood Need For Treatment Scale Scores Across Treatment

In summary, results of analyses on insight measures at admission and over the course of treatment suggest that hypothesized improvements in insight did not occur over the course of treatment for the all of the CTP population. Contrary to the hypothesis those adults who used mental health services in adolescence do not endorse differing Insight Totals or ability to relabel symptoms scores over the course of treatment. Furthermore, individuals without mental health service usage in adolescence endorse lower Insight Total scores and their ability to relabel symptoms as part of their illness decreases over the course of treatment. Furthermore, in general the CTP participants endorse lower Insight Need For Treatment scores across treatment. While differences do not exist after one year of treatment between those with and without service usage in adolescence on insight measures, this suggests neither groupsô insight changed more than the others after participating in psychiatric rehabilitation.

When results of analyses on insight measures at admission and over the course of treatment utilize APP severity levels, results suggest that contrary to the hypothesis only individuals with low APP endorse increases in Insight Totals over the course of treatment. Insight Totals for individuals with no or low APP decrease over treatment while Insight Total scores remain the same across treatment for those with high APP. As hypothesized, ability to relabel symptoms increases over treatment for those with medium APP but remains the same for those with high APP. In contrast, individuals with no or low APP experience decreases in Insight Relabel scores across treatment. Insight Awareness scores remain the same across treatment for those with no, medium, or high APP while it decreases for those with low APP. Furthermore, insight into need for treatment decreases across treatment for individuals with no, low, or high APP but remains stable across treatment for those with medium APP. However, as hypothesized, there are no differences between those with no, low, medium, and high APP on Insight measures after one year of psychiatric rehabilitation.

*Behavioral Functioning Across Treatment*

It is hypothesized that as a result of psychiatric rehabilitation, there will be an increase in behavioral functioning for all CTP participants over the course of psychiatric rehabilitation. Although differences across treatment are hypothesized, it is predicted that differences will not remain after one year. A 2 (service use) x 3 (assessment time) repeated measure ANOVA was completed for each measure. There is not an interaction between assessment time and service use as they relate to NOSIE Daily Schedule Competence scores, $F(2, 188) = .57$, $p = .57$, $Mse = 14.53$. As hypothesized, the 2

(service) x 3 (time) repeated measures ANOVA reveals a significant main effect for time on the NOSIE Daily Schedule Competence scale scores, $F$ (2, 188) = 26.86, $p$ < .001 indicating that, overall, improvements in NOSIE Daily Schedule Competence occur with treatment for both individuals with and without mental health service usage in adolescence (LSD minimum mean difference = 1.10). There is no main effect for service use, $F$(1, 94) = 2.54, $p$ = .11 (Tables 110 and 111). Planned comparisons indicate after six months of treatment NOSIE Daily Schedule Competence scores were lower for individuals with service usage in adolescence ($M$ = 32.65) than for individuals who did not use services in adolescence ($M$=34.83), $t$ (115) = 1.84, p = .03.

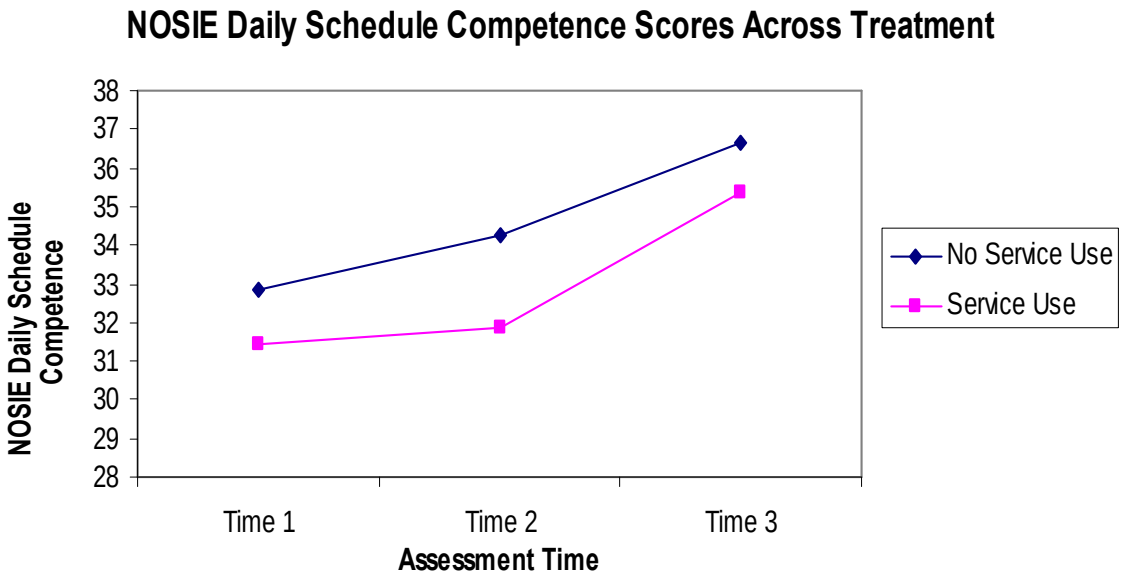


Figure 3.34 Time Main Effect for Service Usage Groups on NOSIE Daily Schedule Competence Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to NOSIE Social Interest scores, $F$(2, 188) = 1.30, $p$ = .28, $Mse$ = 14.73. As hypothesized, repeated measures ANOVA reveal a significant main effect for time on the NOSIE Social Interest scale scores, $F$ (2, 188) = 39.51, $p$ < .001 indicating that, overall,

improvements in NOSIE Social Interest scores occur with treatment for both individuals with and without mental health service usage in adolescence (LSD minimum mean difference = 1.10). There is no main effect for service use, $F(1, 94) = .06$, $p = .80$ (Tables 110 and 111).

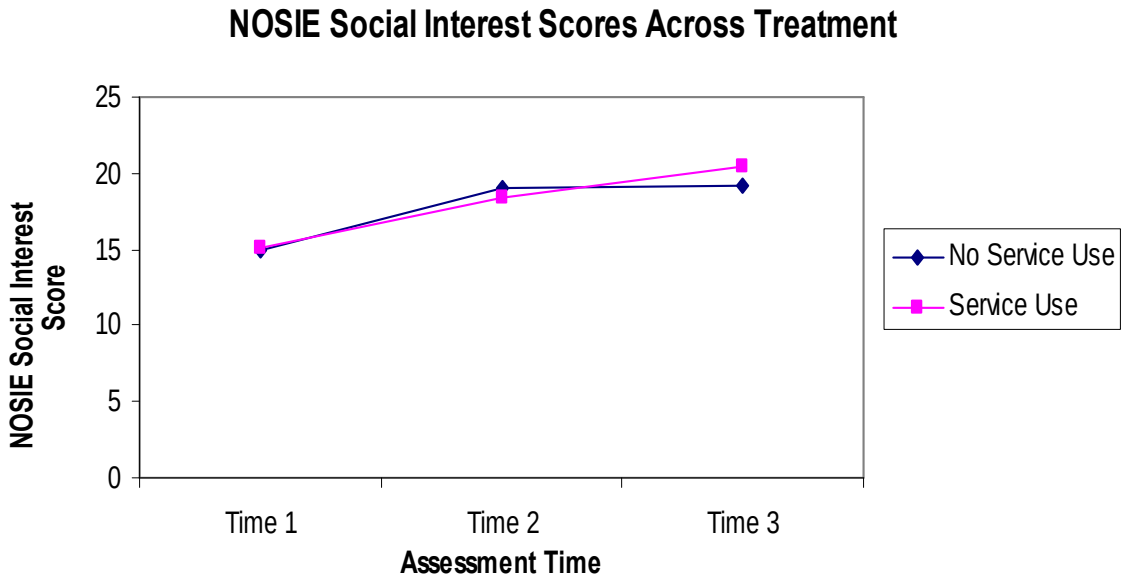


Figure 3.35 Time Main Effect for Service Usage Groups on NOSIE Social Interest Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to NOSIE Neatness scores, $F(2, 188) = .33$, $p = .72$, $Mse = 8.19$. As hypothesized, analyses reveal a significant main effect for time on the NOSIE Neatness scale scores, $F(2, 188) = 20.89$, $p < .001$ indicating that, overall, improvements in NOSIE Neatness scores occur with treatment for both individuals with and without mental health service usage in adolescence (LSD minimum mean difference = .82). There is no main effect for service use, $F(1, 94) = 1.20$, $p = .28$. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 110 and 111.

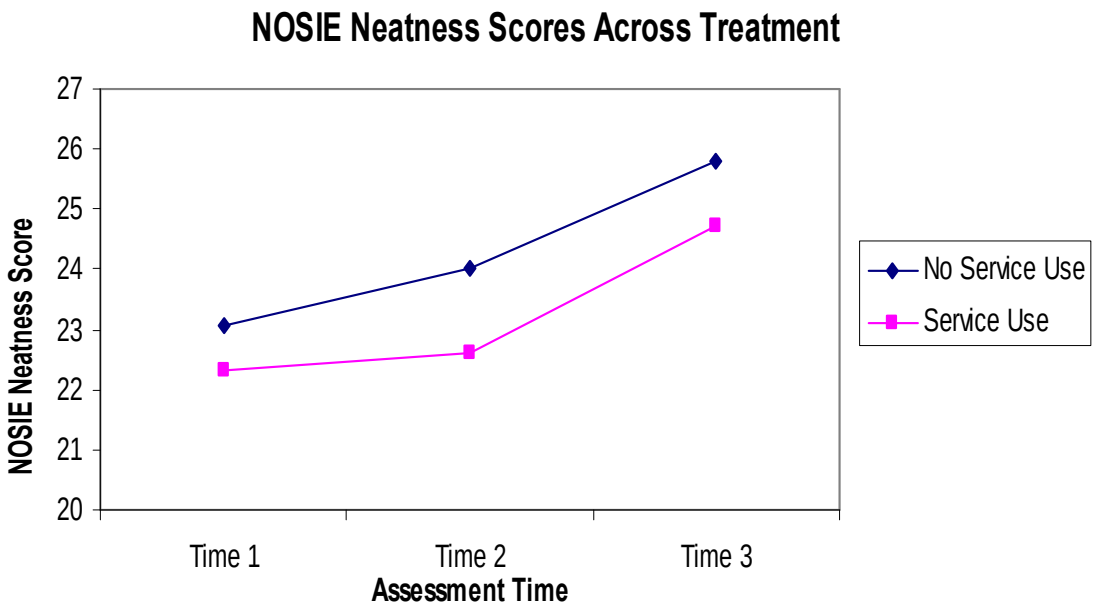


Figure 3.36 Time Main Effect for Service Usage Groups on NOSIE Neatness Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to NOSIE Irritability scores, F(2, 188) = .15, p = .86, Mse = 16.27. Analyses reveal a significant main effect for time on the NOSIE Irritability scale scores, *F (*2, 188) = 3.78, *p* = .03 indicating partial support for hypotheses. NOSIE Irritability scores increase from admission to six months and, as hypothesized, scores decrease from six months to one year of treatment for individuals with and without mental health service usage during adolescence (LSD minimum mean difference = 1.15). There is no main effect for service use, *F*(1, 94) = 1.38, *p* = .24. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 110 and 111.

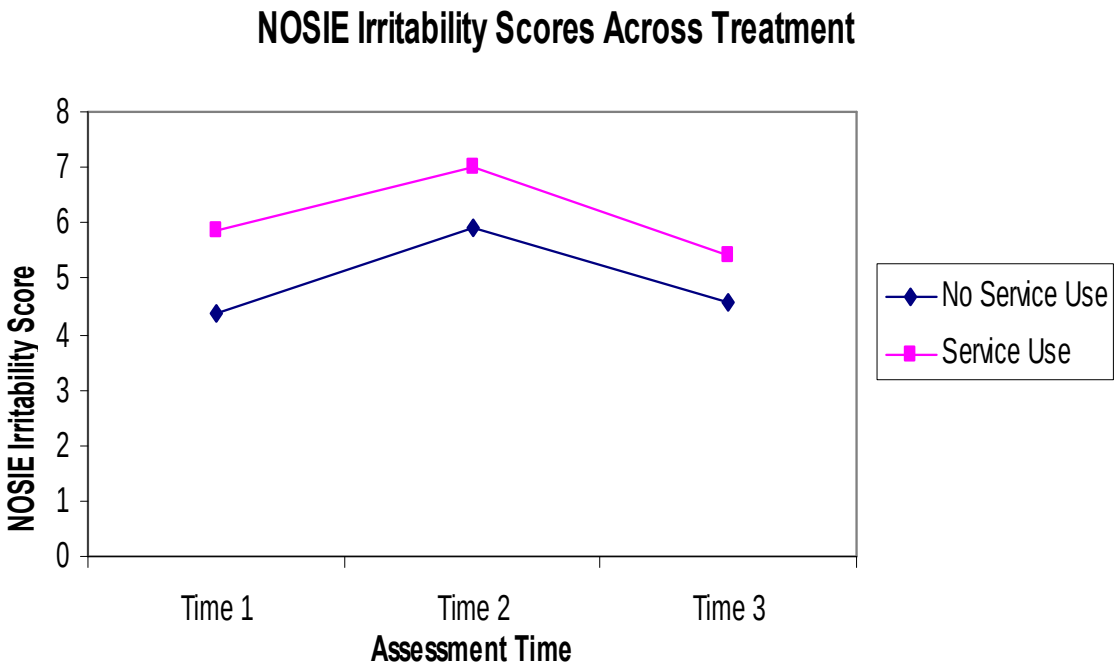


Figure 3.37 Time Main Effect for Service Usage Groups on NOSIE Irritability Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to NOSIE Psychoticism scores, $F(2, 188) = .96$, $p = .38$, $Mse = 3.56$. Contrary to hypotheses, results reveal a significant main effect for time on the NOSIE Psychoticism scale scores, $F(2, 188) = 7.47$, $p = .001$ indicating that, overall, NOSIE Psychoticism scores increase from admission to six months and one year of treatment (LSD minimum mean difference = .54). There is no main effect for service use, $F(1, 94) = .87$, $p = .35$ (Tables 110, 111).

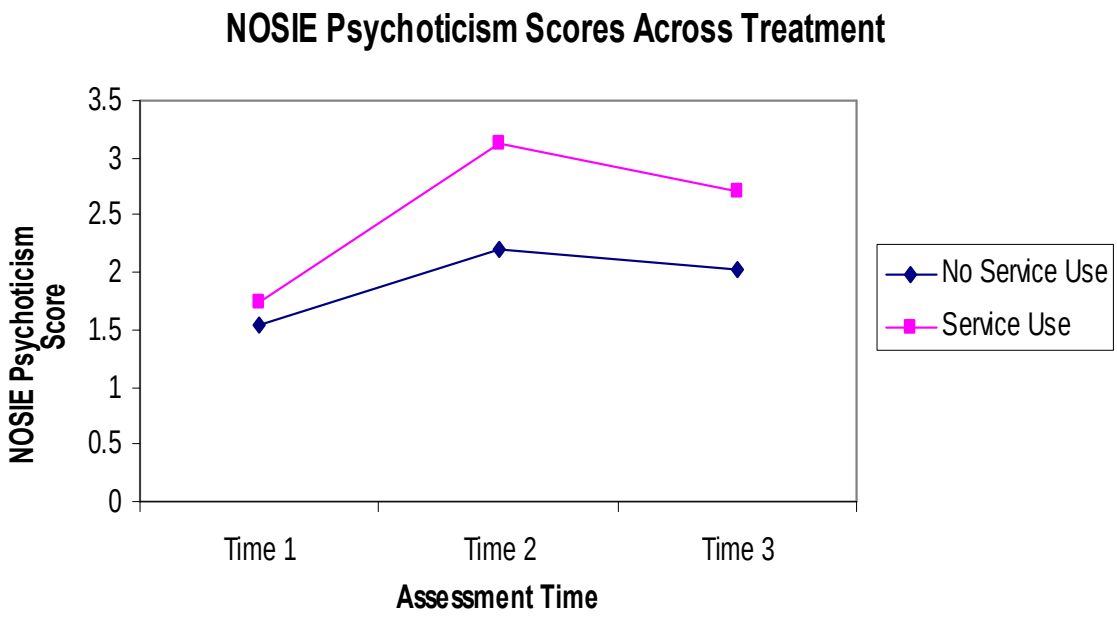


Figure 3.38 Time Main Effect for Service Usage Groups on NOSIE Psychoticism Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to NOSIE Motor Retardation scores, $F(2, 188) = .34$, $p = .72$, $Mse = 7.03$. As hypothesized, results reveal a significant main effect for time on the NOSIE Motor Retardation scale scores, $F(2, 188) = 15.93$, $p < .001$ indicating that, overall, NOSIE Motor Retardation scores are not significantly different from admission to six months, however scores decrease by one year of treatment (LSD minimum mean difference = .76). There is no main effect for service use, $F(1, 94) = 1.50$, $p = .22$. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 110 and 111.

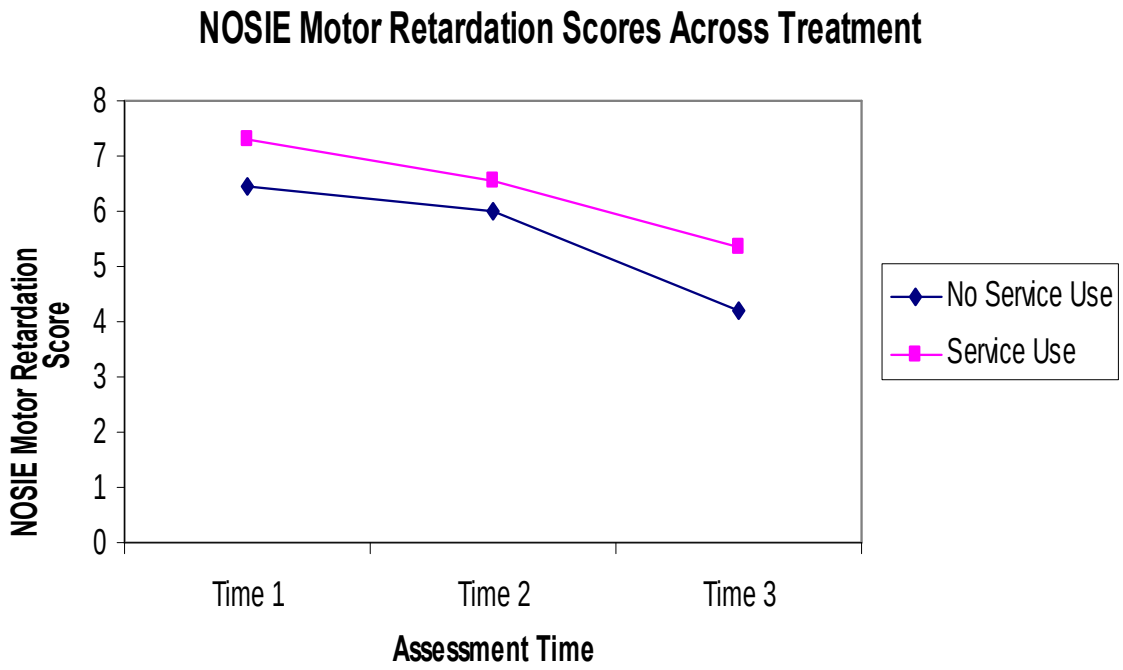


Figure 3.39 Time Main Effect for Service Usage Groups on NOSIE Motor Retardation Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to NOSIE Total Assets scores, $F(2, 188) = .21$, $p = .81$, $Mse = 206.89$. As hypothesized, results reveal a significant main effect for time on the NOSIE Total Assets scores, $F(2, 188) = 21.68$, $p < .001$ indicating that, overall, improvements in NOSIE Total Assets scores occur with treatment for both individuals with and without mental health service usage in adolescence (LSD minimum mean difference = 4.11). There is no main effect for service use, $F(1, 94) = 1.97$, $p = .16$ (Tables 110 and 111).

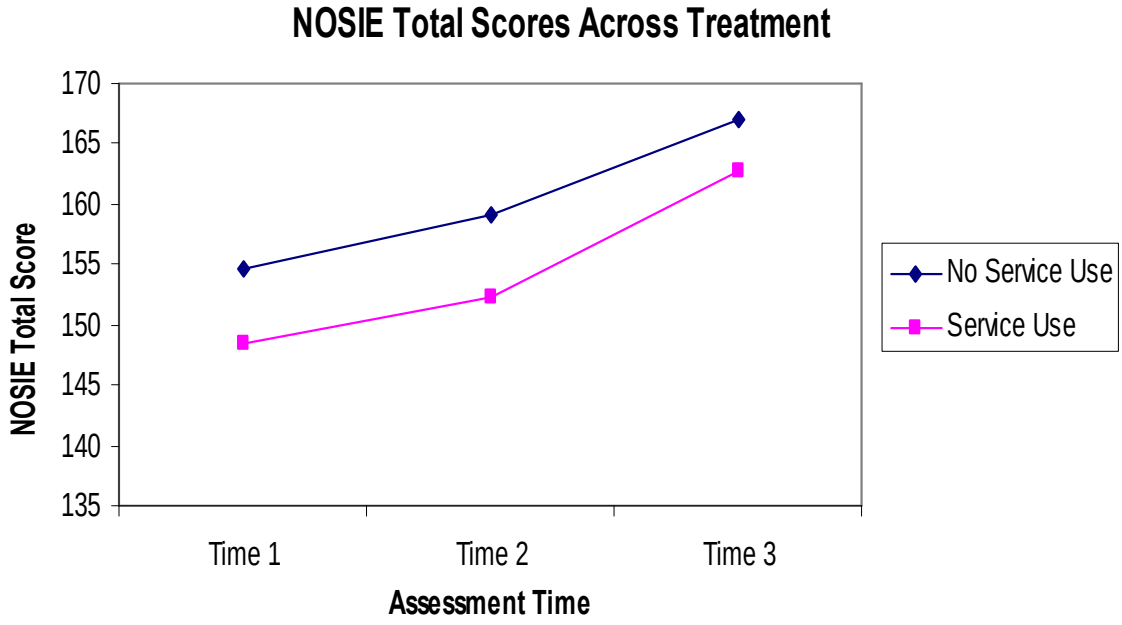


Figure 3.40 Time Main Effect for Service Usage Groups on NOSIE Total Scores Across Treatment

Results were also analyzed using a 4 (APP Severity Level) x 3 (assessment time) repeated measure ANOVA for each NOSIE measure. Results indicate there is not an interaction between assessment time and APP severity level as they relate to NOSIE Daily Schedule Competence scores, $F(6, 184) = .85$, $p = .54$, $Mse = 14.54$. As hypothesized, the 4 (APP severity level) x 3 (time) repeated measures ANOVA reveals a significant main effect for time on the NOSIE Daily Schedule Competence scale scores, $F(2, 184) = 23.33$, $p < .001$ indicating that, overall, improvements in NOSIE Daily Schedule Competence occur with treatment (LSD minimum mean difference = 1.09) (Tables 112, 113). This pattern is descriptive for all groups except individuals with high APP, for which scores decrease from admission to six months but are highest at one year. There is no main effect for APP severity level, $F(3, 92) = 1.10$, $p = .35$.

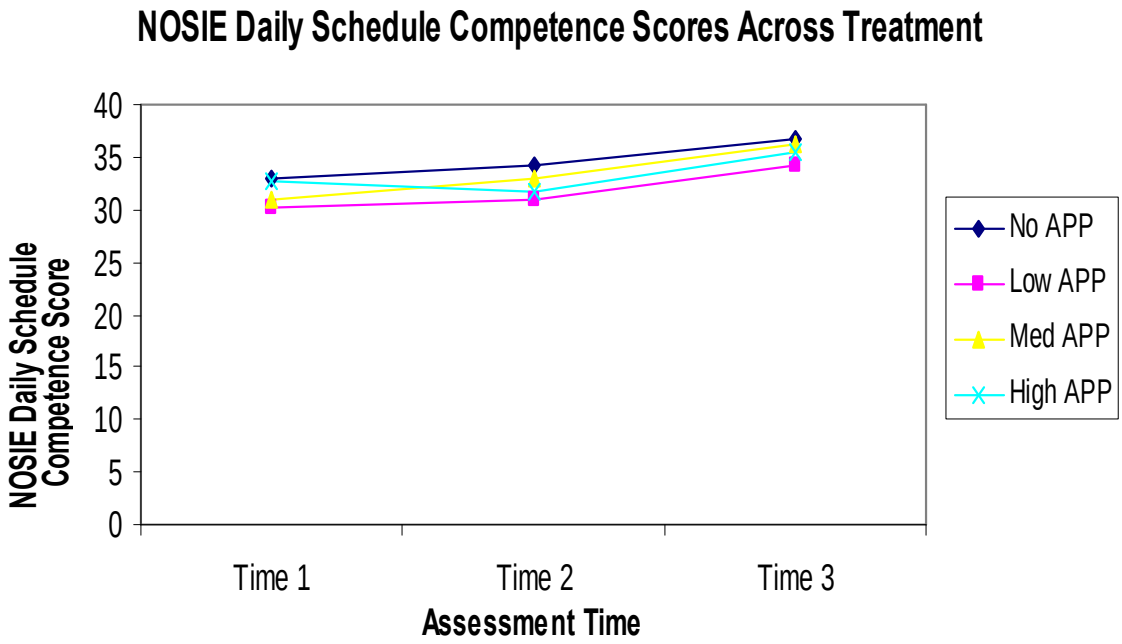


Figure 3.41 Time Main Effect for APP Severity Levels on NOSIE Daily Schedule Competence Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to NOSIE Social Interest scores, $F(6, 184) = 1.83$, $p = .10$, $Mse = 14.40$. As hypothesized, results reveal a significant main effect for time on the NOSIE Social Interest scale scores, $F(2, 184) = 36.58$, $p < .001$ indicating that, overall, improvements in NOSIE Social Interest scores occur with treatment (LSD minimum mean difference = 1.08). There is no main effect for APP severity level, $F(3, 92) = .73$, $p = .54$. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 112 and 113.

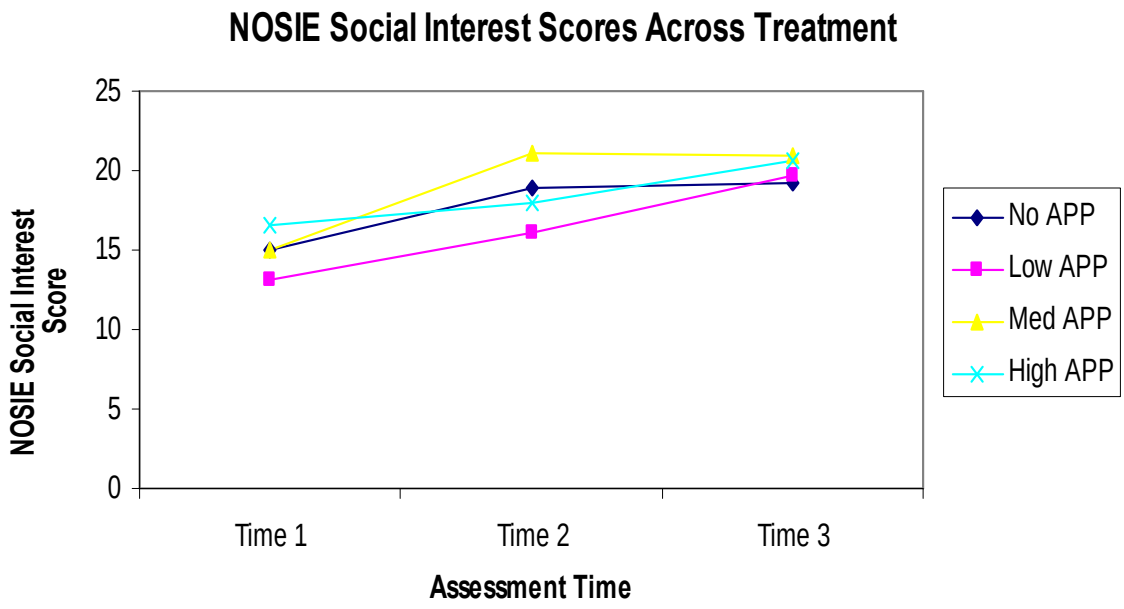


Figure 3.42 Time Main Effect for APP Severity Levels on NOSIE Social Interest Scores Across Treatment

There is an interaction between assessment time and APP severity level as they relate to NOSIE Neatness scores, $F(6, 184) = 3.14$, $p = .01$, $Mse = 7.62$. For individuals without APP, NOSIE neatness scores remain the same from admission to six months but improve from six months to one year, whereas for individuals with low or medium APP scores continue to improve throughout treatment (LSD minimum mean difference = 1.58). For individuals with high APP, scores decrease from admission to six months but improve from six months to one year of treatment. At admission, individuals with high APP have the highest NOSIE neatness scores followed by those without APP. At six months, individuals without APP have higher scores than those with low or high APP. As hypothesized, after one year of treatment all groups have equivalent NOSIE neatness scores. As hypothesized, results reveal a significant main effect for time on the NOSIE Neatness scale scores, $F(2, 184) = 19.85$, $p < .001$ indicating that, overall, scores remain the same from admission to six months but improvements in NOSIE Neatness scores

occur from six months to one year (LSD minimum mean difference = .79). However, this pattern is only descriptive for those without APP and is therefore misleading. There is no main effect for APP severity level, $F(3, 92) = .73$, $p = .54$. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 112 and 113.

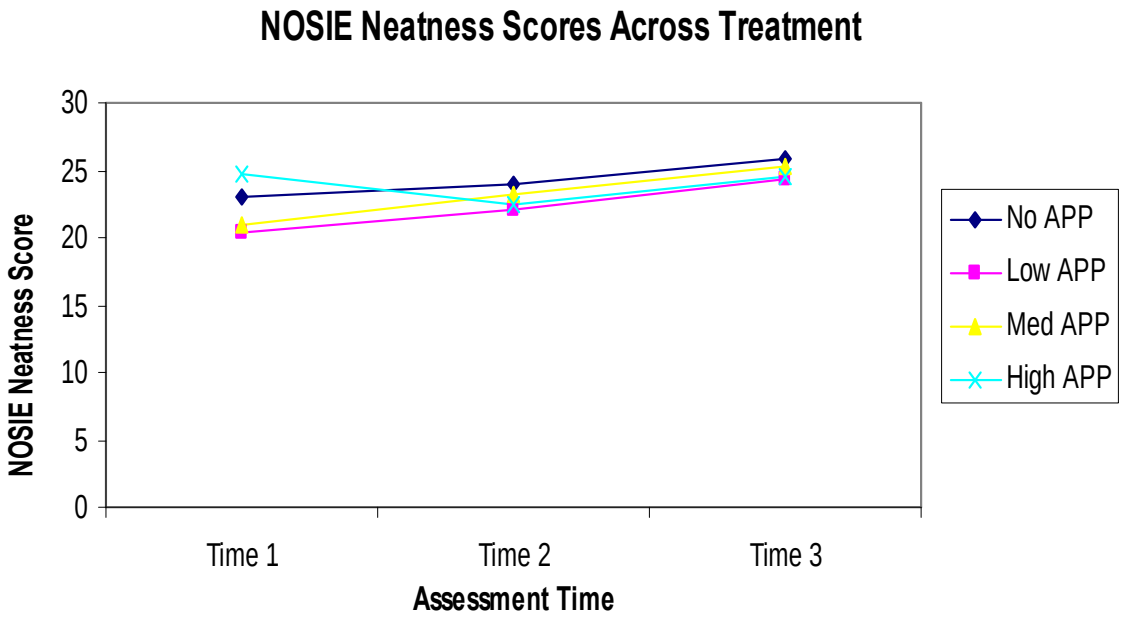


Figure 3.43 Time Main Effect and Interaction between APP Severity Levels on NOSIE Neatness Scores Across Treatment

There is not an interaction between assessment time and APP severity level as they relate to NOSIE Irritability scores, $F(6, 184) = .40$, $p = .88$, $Mse = 16.44$. As hypothesized, results reveal a significant main effect for time on the NOSIE Irritability scale scores, $F(2, 184) = 3.40$, $p = .04$ indicating that, overall, NOSIE Irritability scores increase from admission to six months and decrease from six months to one year of treatment (LSD minimum mean difference = 1.16) (Tables 112, 113). This pattern is descriptive for all groups except the high APP group, for which NOSIE Irritability scores

remain the same across treatment. There is no main effect for APP severity level, $F(3, 92) = 1.30$, $p = .28$.

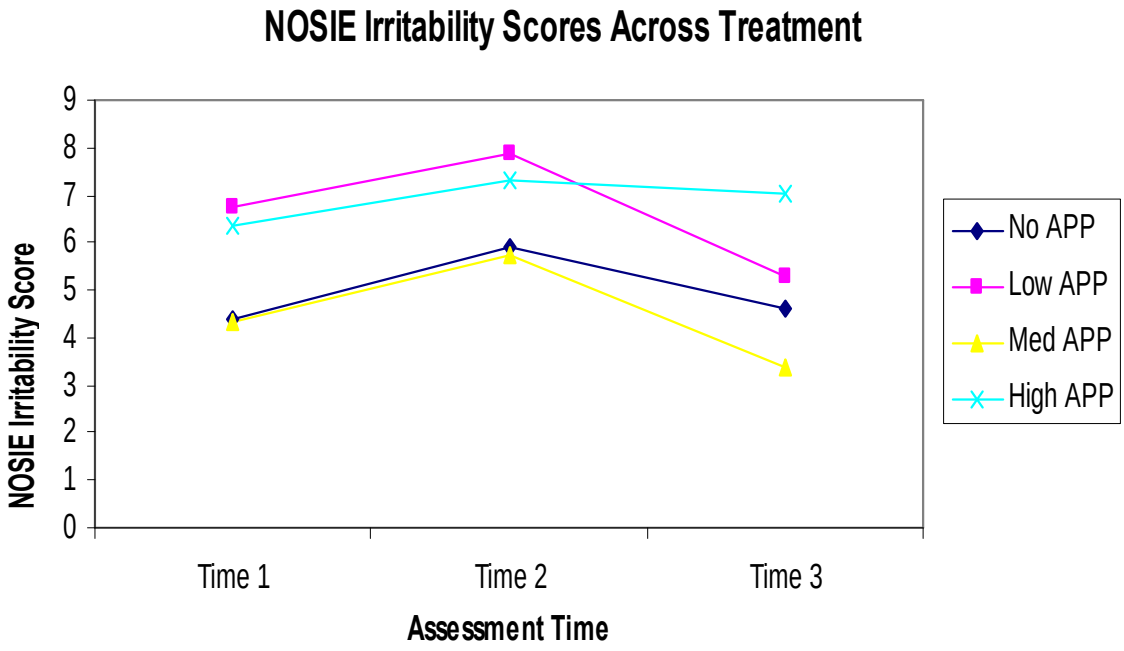


Figure 3.44 Time Main Effect for APP Severity Levels on NOSIE Irritability Scores Across Treatment

There is not an interaction between assessment time and APP severity level as they relate to NOSIE Psychoticism scores, $F(6, 184) = 1.58$, $p = .16$, $Mse = 3.49$. Analyses reveal a significant main effect for time on the NOSIE Psychoticism scale scores, $F(2, 184) = 8.07$, $p < .001$ indicating that, overall, NOSIE Psychoticism scores increase from admission to six months and one year of treatment (which are equivalent to each other) (LSD minimum mean difference = .53). However, this pattern is only descriptive for those with low APP (Tables 112, 113). There is no main effect for APP severity level, $F(3, 92) = .36$, $p = .78$.

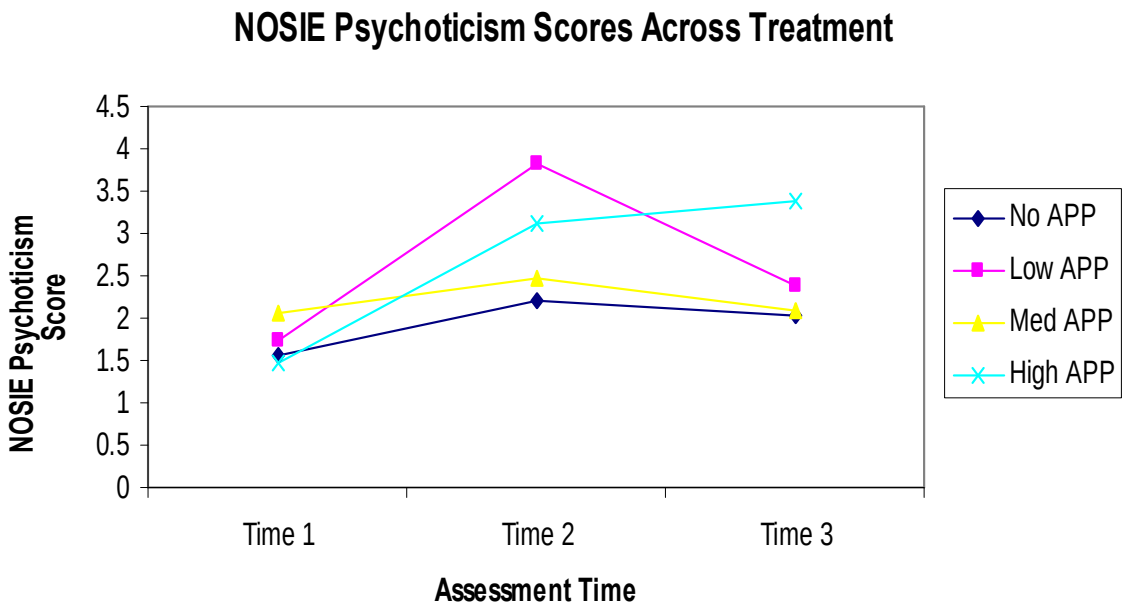


Figure 3.45 Time Main Effect for APP Severity Levels on NOSIE Psychoticism Scores Across Treatment

There is not an interaction between assessment time and APP severity level as they relate to NOSIE Motor Retardation scores, $F(6, 184) = 2.03$, $p = .06$, $Mse = 6.76$. Results reveal a significant main effect for time on the NOSIE Motor Retardation scale scores, $F(2, 184) = 13.55$, $p < .001$ indicating that, overall, NOSIE Motor Retardation scores are not significantly different from admission to six months, however as hypothesized scores decrease across treatment (LSD minimum mean difference = .74). However, this pattern is only descriptive for individuals with high APP and is misleading. There is no main effect for APP severity level, $F(3, 92) = 1.63$, $p = .19$. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 112 and 113. One tailed planned comparisons indicate contrary to hypotheses NOSIE Motor Retardation scores were higher for individuals with service usage in adolescence ($M = 5.35$) than for individuals who did not use services in adolescence ($M=4.18$), $t(94) = -1.66$, $p = .05$.

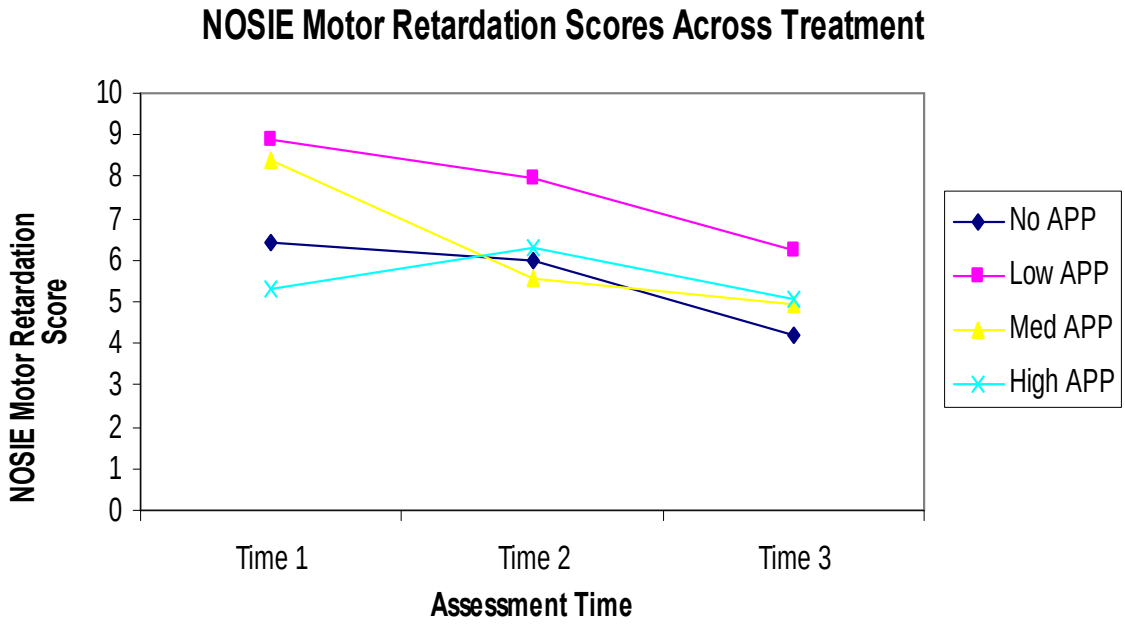


Figure 3.46 Time Main Effect for APP Severity Levels on NOSIE Motor Retardation Scores Across Treatment

There is an interaction between assessment time and APP severity level as they relate to NOSIE Total Assets scores, $F(6, 184) = 2.20$, $p = .05$, $Mse = 197.68$. NOSIE Total Assets scores increase across treatment for individuals with low or medium APP (LSD minimum mean difference = 8.04). For individuals without APP, scores do not change from admission to six months and from six months to one year, at which time scores are greater than at admission (Table 112, 113). NOSIE Total Assets score for individuals with high APP do not change from admission to six months but increase from six months to one year (which is equivalent to scores at admission). At admission, NOSIE Total Assets scores are equivalent for those without APP and those with high APP. However, those without APP or with high APP have higher NOSIE Total Assets than individuals with low or medium APP. At six months, individuals without APP or medium APP have higher scores than those with low or high APP. As hypothesized,

after one year of treatment no differences between groups exist on NOSIE Total Assets. As hypothesized, the 4 (APP severity level) x 3 (time) repeated measures ANOVA reveal a significant main effect for time on the NOSIE Total Assets scores, $F$ (2, 184) = 22.23, $p$ < .001 indicating that, overall, improvements in NOSIE Total Assets scores occur with treatment (LSD minimum mean difference = 4.02). There is no main effect for APP severity level, $F(3, 92) = 1.48$, $p = .23$. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 112 and 113.

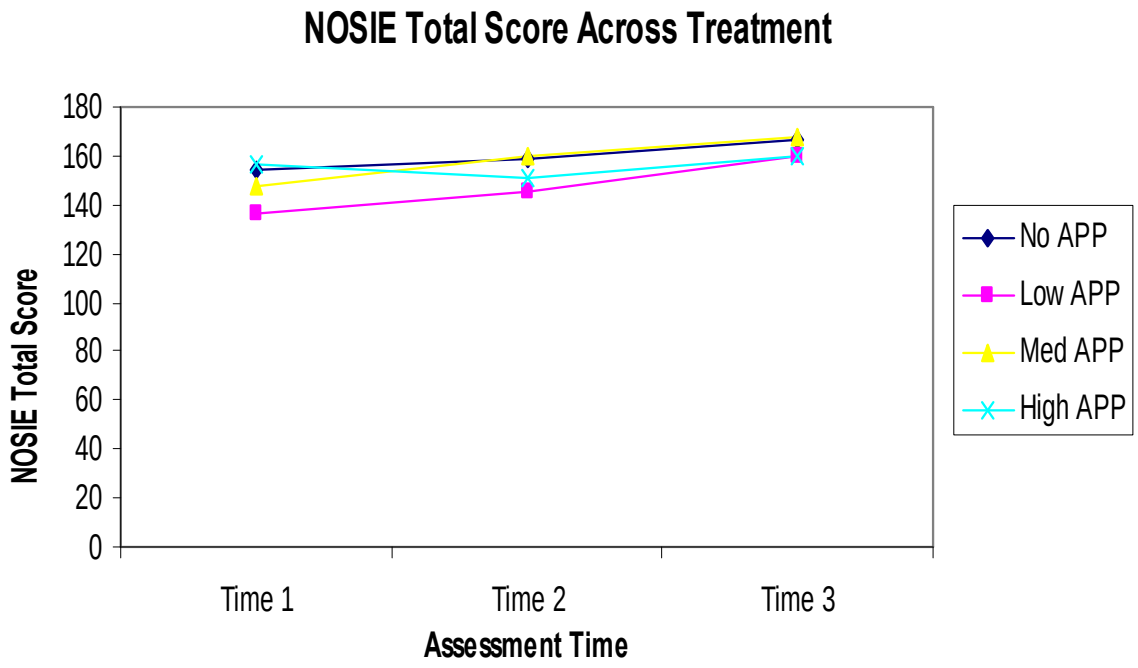


Figure 3.47 Time Main Effect for APP Severity Levels on NOSIE Total Scores Across Treatment

Overall, these results suggest that improvements in behavioral functioning do occur across treatment on almost all NOSIE subscales and NOSIE Total Assets for those with and without mental health service usage. However, partial support for hypotheses is found for NOSIE Irritability and NOSIE Psychoticism. When service use is utilized in analyses, all participantsô NOSIE Irritability scores contrary to hypotheses increase from

admission to six months but, as hypothesized, do decrease by 12 months of treatment. Furthermore, contrary to hypotheses NOSIE Psychoticism scores for all participants continued to increase over the course of treatment. When results are analyzed with regards to APP severity level, the above results are again found. However, NOSIE Motor Retardation scores improve for all APP severity levels. Finally as predicted, no differences exist on NOSIE measures amongst groups after one year of psychiatric rehabilitation.

*Symptomatology Across Treatment*

It is hypothesized that as a result of psychiatric rehabilitation, improvements will occur in symptomatology across treatment. While differences may exist amongst groups at admission or six months, it is predicted that individuals who used mental health services in adolescence demonstrate higher symptomatology after one year of treatment. However, when different levels of APP are used in analyses, it is predicted that as APP becomes more severe there will be more severe symptomatology. A 2 (service use) x 3 (assessment time) repeated measure ANOVA and a 4 (APP Severity Level) x 3 (assessment time) repeated measure ANOVA was completed for each measure.

There is not an interaction between assessment time and service use as they relate to BPRS Total scores, $F(2, 128) = .86$, $p = .43$, $Mse = 97.89$. There is no main effect for BPRS Total scores over time ($F(2, 128) = 1.23$, $p = .30$) or for service use ($F(1, 64) = .23$, $p = .64$) (Table 114, 116).

There is an interaction between assessment time and service use on BPRS Psychotic Disorganization Factor score, $F(2, 128) = 3.17$, $p = .05$, $Mse = 3.87$. BPRS

Psychotic Disorganization Factor scores remain stable over treatment except for those who used mental health services in adolescence whose score at one year of treatment are lower than at admission as hypothesized (LSD minimum mean difference = .96). Individuals with mental health service usage in adolescence have higher BPRS Psychotic Disorganization Factor scores at admission than individuals without mental health service usage in adolescence. However, contrary to hypotheses this difference does not persist at 6 months to one year of treatment. There is no main effect for BPRS Psychotic Disorganization Factor scores over time ($F(2, 128) = 2.16$, $p = .32$) or for service use ($F(1, 64) = 1.20$, $p = .28$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 114 and 117.

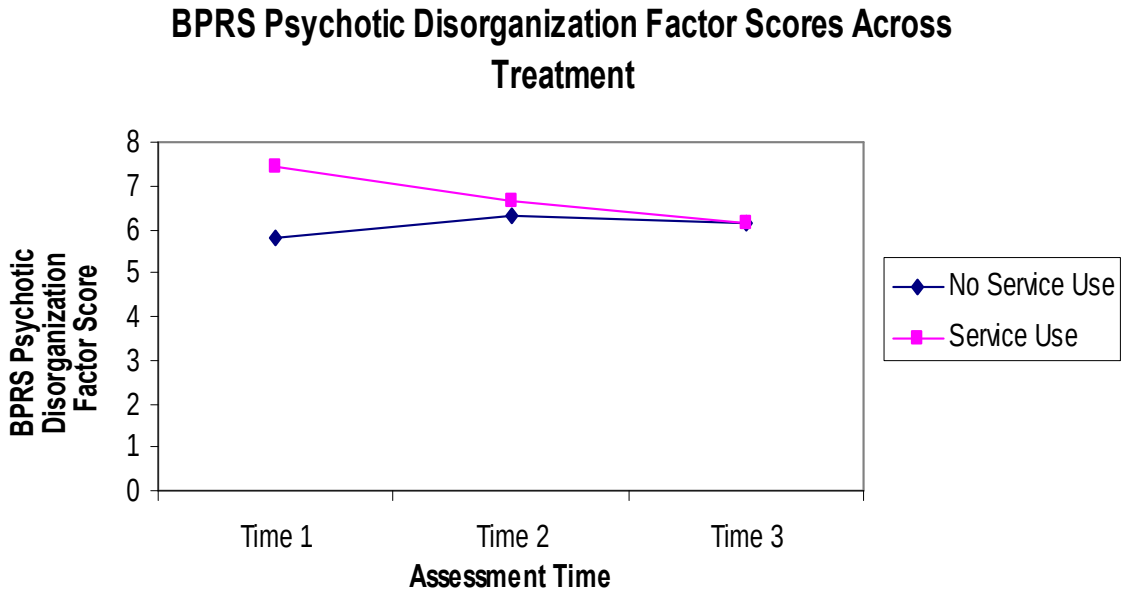


Figure 3.48 Interaction Between Service Usage Groups on BPRS Psychotic Disorganization Factor Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to BPRS Hallucination/Delusions Factor scores, $F(2, 134) = .85$, $p = .43$, $Mse = 7.97$.

There is no main effect for BPRS Hallucinations/Delusions Factor scores over time ($F$(2, 134) = .82, $p$ = .44) or for service use ($F$(1, 67) = .47, $p$ = .50) (Tables 114, 118). Also, there is not an interaction between assessment time and service use as they relate to BPRS Paranoia Factor scores, $F$(2, 134) = .05, $p$ = .95, $Mse$ = 6.88. There is no main effect for BPRS Paranoia Factor scores over time ($F$(2, 134) = .04, $p$ = .96) or for service use ($F$(1, 67) = 1.75, $p$ = .19) (Tables 114, 119).

There is not an interaction between assessment time and service use as they relate to BPRS Emotional Blunting Factor scores, $F$(2, 134) = .19, $p$ = .83, $Mse$ = 4.41. There is no main effect for BPRS Emotional Blunting Factor scores over time ($F$(2, 134) = 1.03, $p$ = .36) or for service use (F(1, 67) = 1.20, $p$ = .28). However, planned comparisons indicate BPRS Emotional Blunting Factor scores are higher at six months of treatment for individuals with service usage in adolescence ($M$ = 6.17) than for individuals who did not use services in adolescence ($M$ =5.22), $t$ (119) = -1.85, p = .03.

In addition, there is not an interaction between assessment time and service use as they relate to BPRS Anxiety/Depression Factor scores, $F$(2, 134) = .27, $p$ = .77, $Mse$ = 6.82. There is no main effect for BPRS Anxiety/Depression Factor scores over time ($F$(2, 134) = .50, $p$ = .61) or for service use ($F$(1, 67) = .64, $p$ = .43). However, planned comparisons indicate BPRS Anxiety/Depression Factor scores are higher at six months of treatment for individuals with service usage in adolescence ($M$ = 9.20) than for individuals who did not use services in adolescence ($M$ =7.82), $t$ (118) = -2.09, p = .02.

Finally there is not an interaction between assessment time and service use as they relate to BPRS Agitation/Elation Factor scores, $F$(2, 134) = 1.08, $p$ = .34, $Mse$ = 1.51. There is no main effect for BPRS Agitation/Elation Factor scores over time ($F$(2, 134) =

.06, $p$ = .94) or for service use ($F$(1, 67) = .02, $p$ = .90). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 114, 120 - 122.

Because isolated differences between groups on individual BPRS items are found at admission, those analyses are repeated here to determine whether there is a consistent pattern over time on any particular BPRS items. No interactions, assessment time main effects, or service use main effects are found for the following BPRS items: Somatic Concern, Anxiety, Depression, Guilt, Hostility, Elevated Mood, Grandiosity, Suspiciousness, Disorientation, Conceptual Disorganization, Blunted Affect, Emotional Withdrawal, Tension, Uncooperativeness, Excitement, Distractibility, Motor Hyperactivity, and Mannerisms and Posturing (all $F$s < 3.71, all $p$s > .06).

However, planned comparisons indicate several differences between individuals who used services in adolescence and those without a history of adolescent service usage. Results indicate BPRS Depression item scores are higher at six months of treatment for individuals with service usage in adolescence ($M$ = 2.28) than for individuals who did not use services in adolescence ($M$ =1.85), $t$ (119) = -1.89, p = .03. Results also indicate BPRS Guilt item scores are higher at six months of treatment for individuals with service usage in adolescence ($M$ = 2.10) than for individuals who did not use services in adolescence ($M$ =1.55), $t$ (118) = -2.49, p < .01. Additionally, planned comparisons indicate BPRS Hostility item scores are higher at six months of treatment for individuals with service usage in adolescence ($M$ = 2.81) than for individuals who did not use services in adolescence ($M$ = 2.32), $t$ (119) = -1.89, p = .04. As previously stated, t-tests at admission found a difference between groups on BPRS Grandiosity item scores. This result is also found after one year of treatment, when again results indicate scores are

lower for individuals with service usage in adolescence ($M$ = 1.57) than for individuals who did not use services in adolescence ($M$ = 2.26), $t$ (77) = 1.71, p = .05. Results indicate BPRS Blunted Affect item scores are higher at six months of treatment for individuals with service usage in adolescence ($M$ = 2.77) than for individuals who did not use services in adolescence ($M$ = 2.32), $t$ (119) = -1.91, p = .03. Analyses also indicate BPRS Tension item scores are lower after one year of treatment for individuals with service usage in adolescence ($M$ = 1.33) than for individuals who did not use services in adolescence ($M$ = 1.76), $t$ (77) = 2.07, p = .02. Finally, results indicate BPRS Motor Hyperactivity item scores are lower after one year of treatment for individuals with service usage in adolescence ($M$ = 1.18) than for individuals who did not use services in adolescence ($M$ = 1.51), $t$ (77) = 1.72, p = .05. The previously stated results obtained from planned comparisons indicate analyses utilizing ANOVAs over the course of treatment sometimes did not have enough power to detect significant differences amongst the groups.

There is not an interaction between assessment time and service use as they relate to BPRS Suicidality scores, $F$(2, 136) = .14, $p$ = .87, $Mse$ = .64. There is no main effect for BPRS Suicidality scores over time ($F$(2, 136) = .55, $p$ = .58). As hypothesized, there is a main effect for service use ($F$(1, 68) = 6.62, $p$ = .01), with individuals with mental health service usage in adolescence receiving higher overall BPRS Suicidality scores than those without mental health service usage in adolescence at all assessment times (Table 124). When planned comparisons were completed, results indicate BPRS Suicidality item scores are higher at six months of treatment for individuals with service usage in adolescence ($M$ = 1.73) than for individuals who did not use services in adolescence ($M$ =

1.16), *t* (119) = -3.35, p < .001. Additionally, after one year of treatment results indicate contrary to hypothesis BPRS Suicidality item scores remain higher for individuals with service usage in adolescence (*M* = 2.28) than for individuals who did not use services in adolescence (*M* = 1.85), *t* (77) = -.87, p = .01.

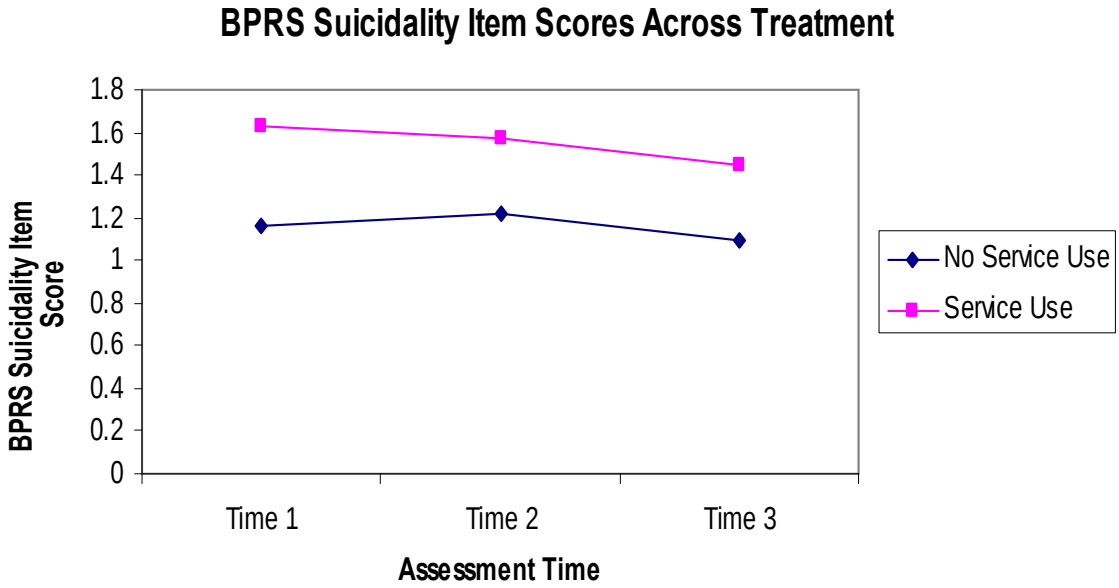


Figure 3.49 Service Usage Group Main Effect on BPRS Suicidality Item Scores Across Treatment

There is an interaction between assessment time and service use on BPRS Hallucinations item score, *F*(2, 136) = 3.97, *p* = .02, *Mse* = 1.87. BPRS Hallucination items scores remain stable over treatment for those without mental health service usage in adolescence, whereas BPRS Hallucination items scores, contrary to hypotheses, decrease over treatment for those with mental health service usage in adolescence (LSD minimum mean difference = .59). As hypothesized, individuals with mental health service usage in adolescence have higher BPRS Hallucination item scores at admission than individuals without mental health service usage in adolescence; however, contrary to hypotheses, this difference does not persist at 6 months to one year of treatment. There is no main effect

for BPRS Hallucination item scores over time ($F(2, 136) = .08$, $p = .93$) or for service use ($F(1, 68) = .61$, $p = .44$). Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 124.

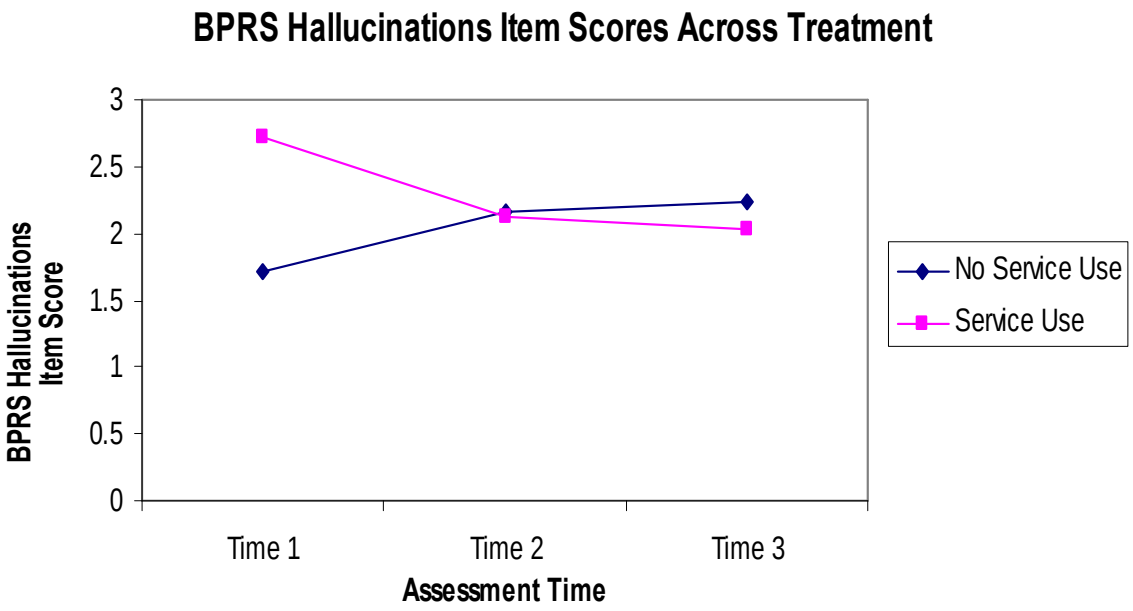


Figure 3.50 Interaction Between Service Usage Groups on BPRS Hallucinations Item Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to BPRS Unusual Thought Content item scores, $F(2, 134) = .51$, $p = .60$, $Mse = 1.57$. There is a main effect for assessment time, $F(2, 134) = 4.14$, $p = .02$. Scores remain the same from admission to six months, and from six months to one year, however as hypothesized scores after one year of treatment generally decrease from scores at admission. However, this pattern is only descriptive for individuals who used mental health service use in adolescence. There is no main effect for service use, F(1, 67) = .57, p = .45 (Table 124).

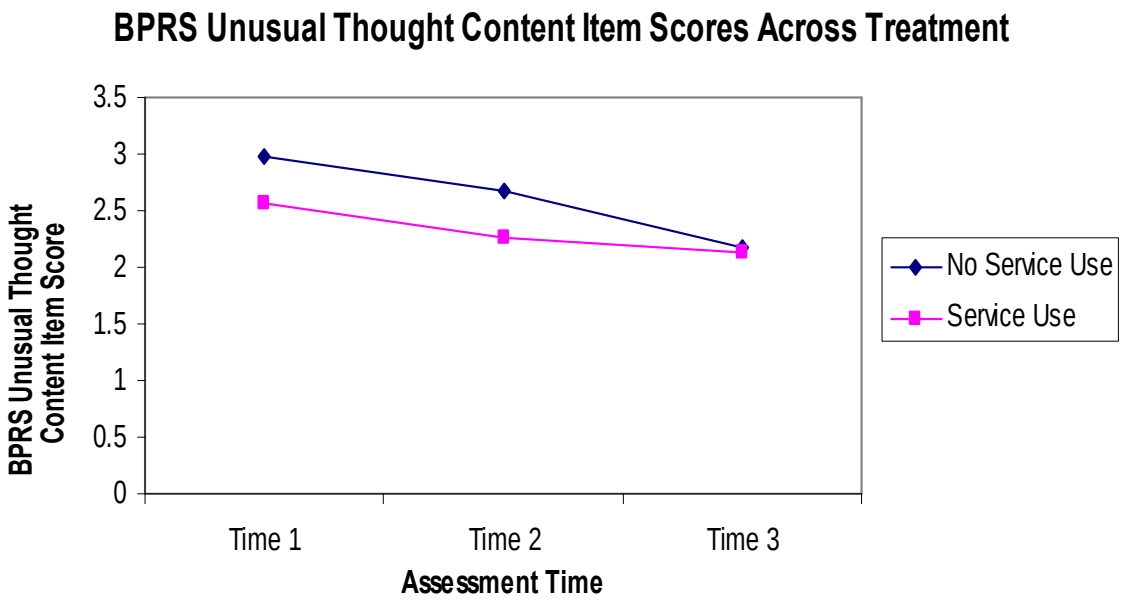


Figure 3.51 Time Main Effect for Service Usage Groups on BPRS Unusual Thought Content Item Scores Across Treatment

There is an interaction between assessment time and service use on BPRS Bizarre Behavior item score, $F(2, 136) = 3.24$, $p = .04$, $Mse = 1.22$. BPRS Bizarre Behavior items scores remain stable over treatment for those with and without mental health service usage in adolescence; however BPRS Bizarre Behavior items scores at one year are less than scores at admission for those who used mental health services in adolescence (LSD minimum mean difference = .52). Individuals who used mental health services in adolescence have higher BPRS Bizarre Behavior item scores at admission than individuals without mental health service usage in adolescence; however, contrary to hypotheses, this difference does not persist at 6 months to one year of treatment. There is no main effect for BPRS Bizarre Behavior item scores over time ($F(2, 136) = 1.00$, $p = .37$) or for service use ($F(1, 68) = 1.99$, $p = .16$) (Table 124).

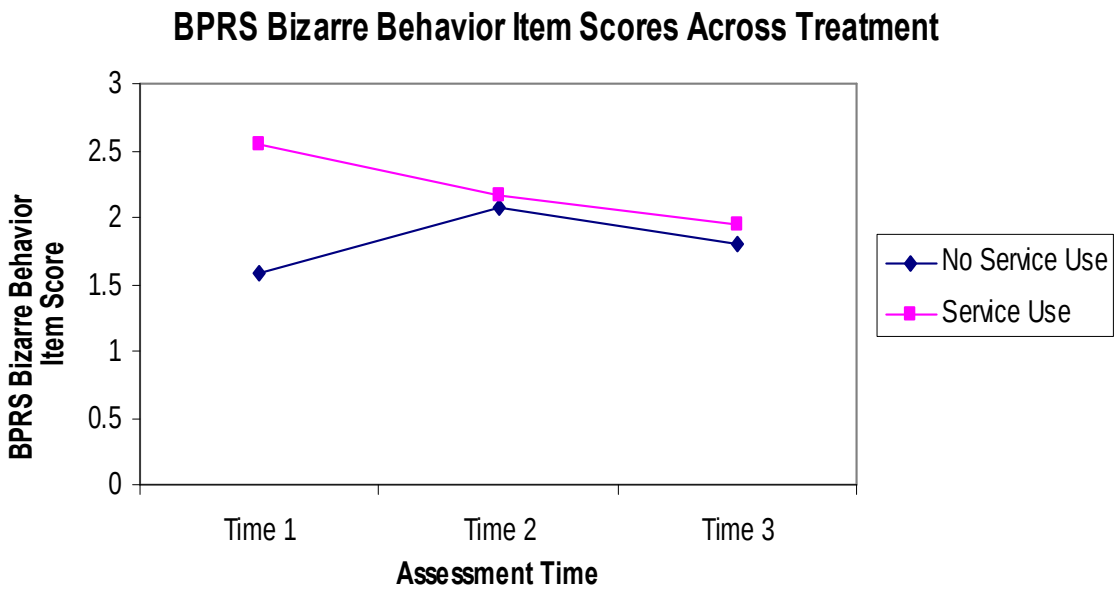


Figure 3.52 Interaction Between Service Usage Groups on BPRS Bizarre Behavior Item Scores Across Treatment

There is an interaction between assessment time and service use on BPRS Self Neglect item score, $F(2, 136) = 4.46$, $p = .01$, $Mse = .61$. As hypothesized, BPRS Self Neglect items scores remain stable from admission to six months and then decrease for individuals who used mental health services in adolescence. However, contrary to hypotheses, scores increase from admission to six and twelve months (which are equivalent to each other) for those without mental health service usage in adolescence (LSD minimum mean difference = .37). As hypothesized, individuals who used mental health services in adolescence have higher BPRS Self-Neglect item scores at admission than individuals without mental health service usage in adolescence; however, contrary to hypotheses, this difference does not persist at 6 months to one year of treatment. There is an overall main effect for BPRS Self Neglect item scores over time, $F(2, 136) = 5.68$, $p < .01$. Self Neglect items scores increase from admission to six months and then decrease

at one year of treatment (LSD minimum mean difference = .26). However, this pattern is not descriptive for those with or without mental health service usage in adolescence and is therefore misleading. There is no main effect for service use, $F(1, 68) = .07$, $p = .80$. Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 124.

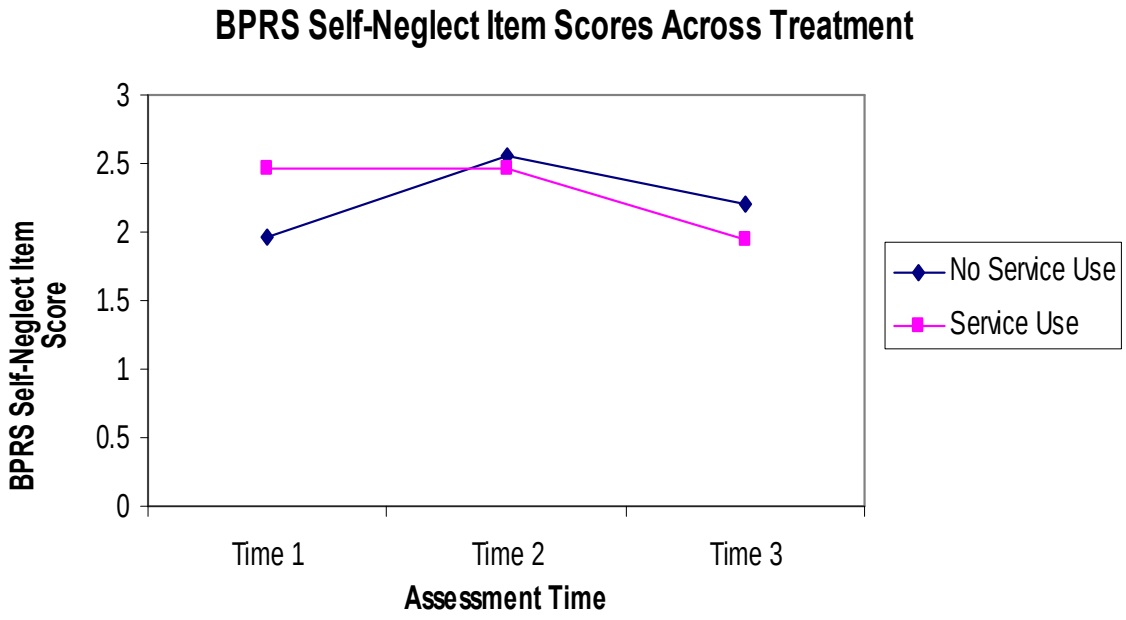


Figure 3.53 Time Main Effect and Interaction Between Service Usage Groups on BPRS Self-Neglect Item Scores Across Treatment

There is not an interaction between assessment time and service use as they relate to BPRS Motor Retardation item scores, $F(2, 134) = .11$, $p = .90$, $Mse = .61$. There is a main effect for assessment time, $F(2, 134) = 4.65$, $p = .01$. Scores decrease from admission to six months and one year (which are equivalent to each other) for individuals with and without mental health service usage in adolescence (LSD minimum mean difference = .26). There is no main effect for service use, $F(1, 67) = .77$, $p = .38$ (Table 124).

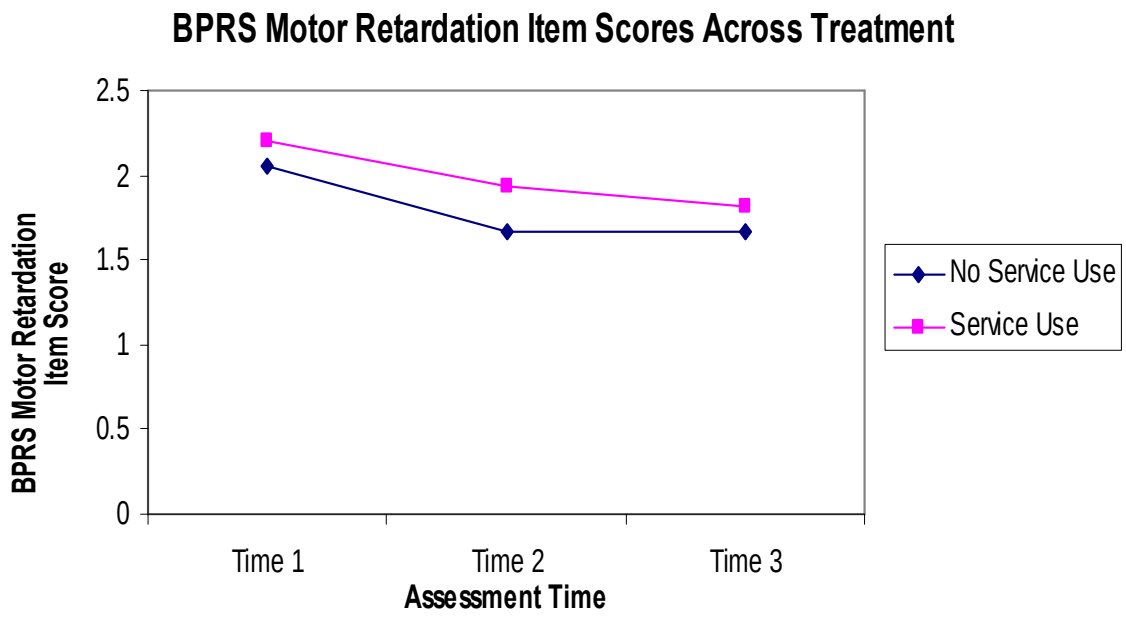


Figure 3.54 Time Main Effect for Service Usage Groups on BPRS Motor Retardation Item Scores Across Treatment

When 4 (APP Severity Level) x 3 (assessment time) repeated measures ANOVAs were conducted using APP severity levels, no interactions, assessment time main effects, or APP severity level main effects are found for the following assessments: BPRS Total, BPRS Psychotic Disorganization Factor, BPRS Hallucinations/Delusions Factor, BPRS Paranoia Factor, BPRS Emotional Blunting Factor, BPRS Anxiety/Depression Factor, BPRS Agitation/Elation Factor, BPRS Somatic Concern item, BPRS Anxiety item, BPRS Depression item, BPRS Guilt item, BPRS Hostility item, BPRS Elevated Mood item, BPRS Grandiosity item, BPRS Suspiciousness item, BPRS Hallucinations item, BPRS Unusual Thought Content item, BPRS Conceptual Disorganization item, BPRS Blunted Affect item, BPRS Emotional Withdrawal item, BPRS Tension item, BPRS Uncooperativeness item, BPRS Excitement item, BPRS Distractibility item, BPRS Motor

Hyperactivity item, and BPRS Mannerisms and Posturing item (all Fs < 2.51, all ps > .06).

Results of repeated measure ANOVAs and means and standard deviations can be found in Tables 115, 123, and 125. Again, there are several significant differences on BPRS items when analyses assess differences amongst APP severity levels. There is not an interaction between assessment time and APP severity level as they relate to BPRS Suicidality scores, $F(6, 132) = .51$, $p = .80$, $Mse = .64$. There is no main effect for BPRS Suicidality scores over time, $F(2, 132) = .89$, $p = .41$. There is a main effect for APP severity level, $F(3, 66) = 4.64$, $p = .01$, with individuals with each level of APP having equivalent overall BPRS Suicidality scores, however as hypothesized those with high APP have higher overall BPRS Suicidality scores than those with no or low APP. This pattern is descriptive for all assessment times (Table 125).

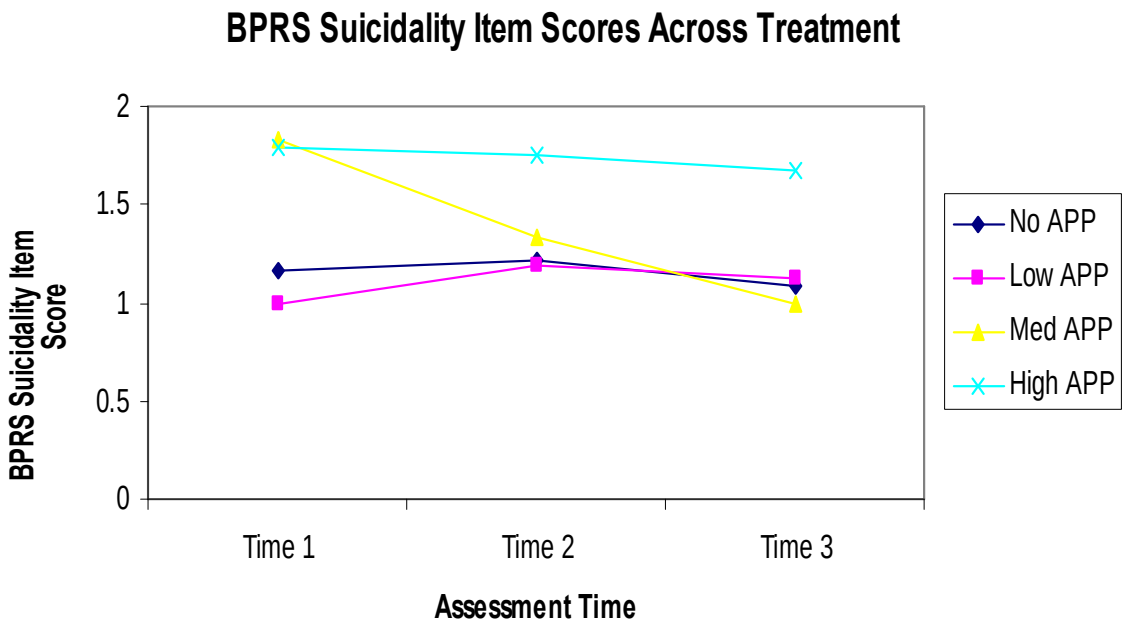


Figure 3.55 APP Severity Levels Main Effect on BPRS Suicidality Item Scores Across Treatment

There is an interaction between assessment time and APP severity level on BPRS Bizarre Behavior item score, $F(6, 132) = 2.19$, $p = .05$, $Mse = 1.20$. BPRS Bizarre Behavior items scores remain stable over treatment for those with no, low, and medium APP whereas for individuals with high APP Bizarre Behavior item scores at one year are, as hypothesized, less than scores at admission (LSD minimum mean difference = .73). Individuals without APP and with medium APP have lower BPRS Bizarre Behavior item scores at admission than those in the low and high APP groups (which are equivalent to each other). At six months, BPRS Bizarre Behavior item scores are equivalent for each group. After one year of treatment, contrary to hypotheses, Bizarre Behavior item scores are highest for individuals with low APP, with those with no, medium, and high APP receiving equivalent BPRS Bizarre Behavior scores. There is no main effect for BPRS Bizarre Behavior item scores over time ($F(2, 132) = .17$, $p = .84$) or for APP severity level ($F(3, 66) = 1.22$, $p = .31$). Means and standard deviations are in Tables 125.

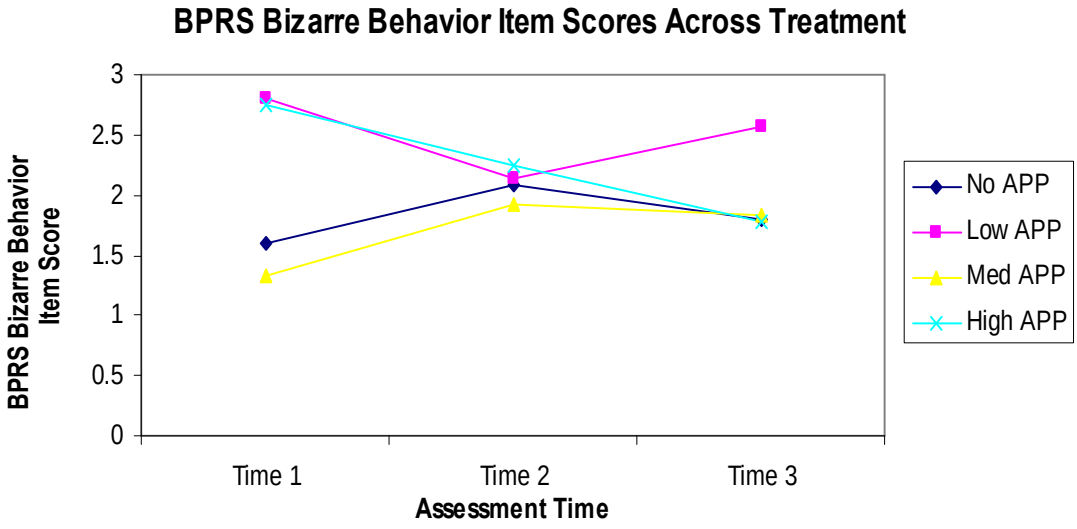


Figure 3.56 Interaction between APP Severity Levels on BPRS Bizarre Behavior Item Scores Across Treatment

There is an interaction between assessment time and APP severity level on BPRS Self Neglect item score, $F(6, 132) = 2.56$, $p = .02$, $Mse = .60$. BPRS Self Neglect items scores remain stable from admission to six months and then, as hypothesized, these scores decrease for individuals with high APP. Contrary to hypotheses, scores increase from admission to six months and remain the same from six to twelve months for those without APP (LSD minimum mean difference = .52). BPRS Self Neglect item scores remain the same across treatment for individuals with low or medium APP. No differences are found between groups on BPRS Self-Neglect item scores at admission or at six months, however as hypothesized individuals with high APP have lower BPRS Self Neglect scores than all other groups after one year or treatment. There is not an overall main effect for BPRS Self Neglect item scores over time ($F(2, 132) = 1.43$, $p = .24$) or for APP severity level ($F(3, 66) = .50$, $p = .68$) (Table 125).

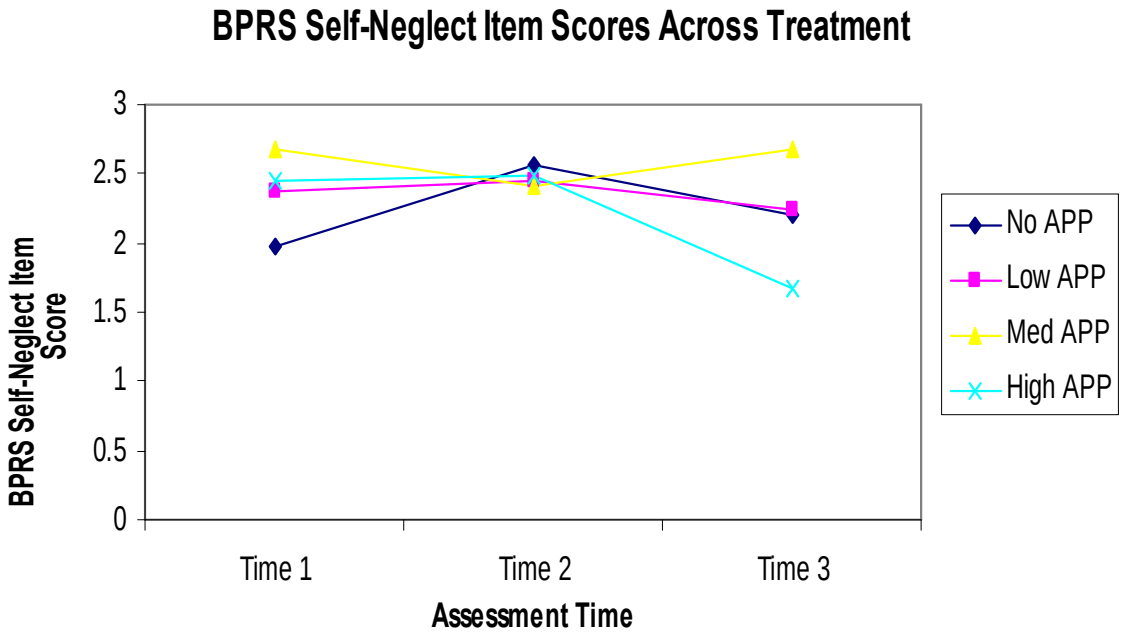


Figure 3.57 Interaction between APP Severity Levels on BPRS Self-Neglect Item Scores Across Treatment

There is not an interaction between assessment time and APP severity level as they relate to BPRS Disorientation item scores, $F(6, 130) = .58$, $p = .75$, $Mse = .41$. There is not a main effect for assessment time, $F(2, 130) = .31$, $p = .74$. There is an overall main effect for APP severity level, $F(3, 65) = 4.97$, $p < .01$. Overall, contrary to hypotheses individuals with low APP have higher BPRS Disorientation item scores than those with no, medium, or high APP at all assessment times (LSD minimum mean difference = .52) (Table 125).

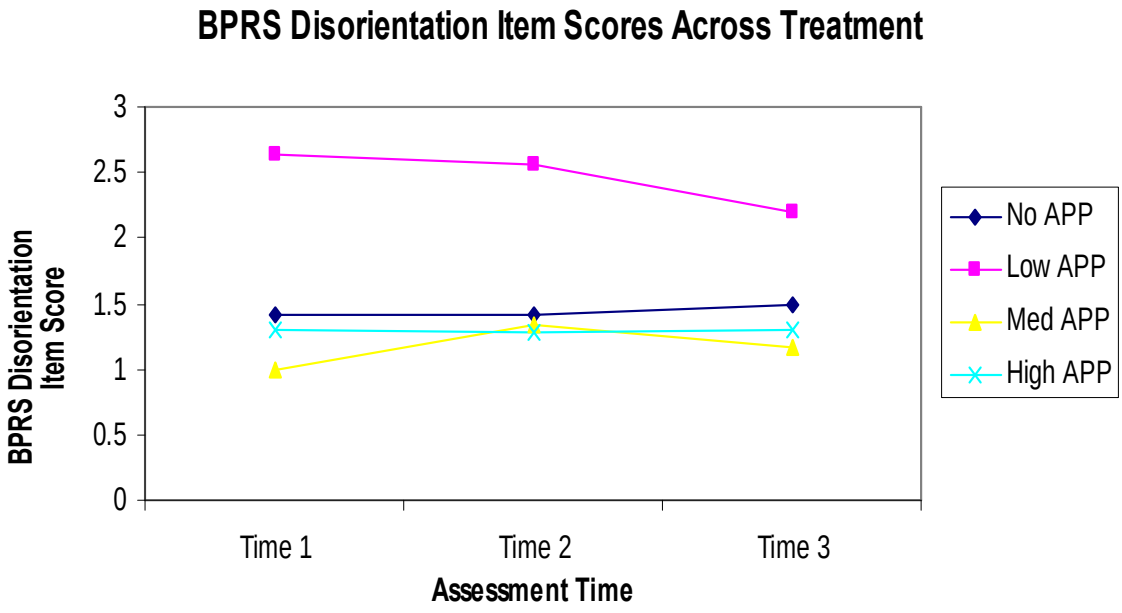


Figure 3.58 APP Severity Levels Main Effect on BPRS Disorientation Item Scores Across Treatment

There is not an interaction between assessment time and APP severity level as they relate to BPRS Motor Retardation item scores, $F(6, 130) = .34$, $p = .92$, $Mse = .62$. There is a main effect for assessment time, $F(2, 130) = 3.12$, $p = .05$. Scores remain the same from admission to six months and from six months to one year. However, as hypothesized scores at one year are lower than scores at admission (LSD minimum mean

difference = .27). However, this pattern is only descriptive for individuals with high APP and is therefore misleading. There is no main effect for APP severity level, $F(3, 65) = 1.04$, $p = .38$.

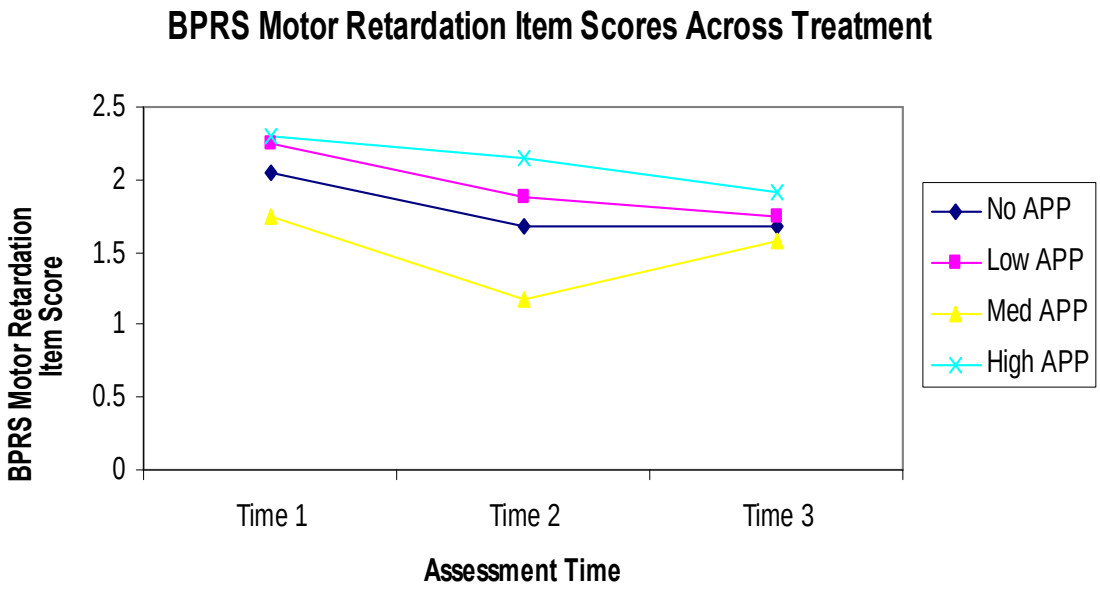


Figure 3.59 Time Main Effect for APP Severity Levels on BPRS Motor Retardation Item Scores Across Treatment

Overall, results of analyses using the BPRS total, BPRS factor scores, and BPRS items suggest that differences amongst groups exist for several symptomatology measures as they relate to assessment time and service use. Contrary to hypotheses, symptomatology for individuals with and without mental health service usage in adolescence does not improve over the course of treatment as measured by BPRS Total Assets, BPRS Hallucination/Delusions factor, BPRS Paranoia factor, BPRS Emotional Blunting factor, BPRS Anxiety/Depression factor, and BPRS Agitation/Elation factor. Partial support for hypotheses is found with the BPRS Psychotic Disorganization factor, as improvements across treatment are only descriptive for those who used mental health

services in adolescence. As hypothesized, individuals with mental health service usage in adolescence demonstrate more symptomatology at admission on the BPRS Psychotic Disorganization factor, however no other differences between groups at admission exist for other BPRS factor scores. In addition, contrary to hypotheses, individuals with mental health service usage in adolescence do not demonstrate more symptomatology after one year of treatment on the BPRS Total Assets score and BPRS factor scores. When BPRS items are analyzed across time, partial support for hypotheses is found. For individuals who used mental health services in adolescence, scores on BPRS Hallucinations/Delusion item, BPRS Unusual Thought Content item, BPRS Bizarre Behavior item, and BPRS Self-Neglect item improve by one year of treatment. However, scores on these same measures remain the same across treatment for those without mental health service usage in adolescence. However, as hypothesized, BPRS Motor Retardation scores improve over the course of treatment for those with and without mental health service usage in adolescence. As hypothesized, individuals who did use mental health services in adolescence demonstrate more symptomatology at admission on the BPRS Suicidality item, BPRS Hallucination/Delusions item, BPRS Bizarre Behavior item, and BPRS Self-Neglect item. However, by one year of treatment the only difference that remains between groups is that individuals who used mental health services in adolescence receive higher suicidality scores than those without mental health service usage in adolescence.

In summary, when analyses were conducted between APP severity level and BPRS total, BPRS factor scores, and BPRS items only significant differences emerge on individual BPRS items. Again, partial support for hypotheses is found. Improvement in

symptomatology across treatment is found only for those with high APP on BPRS Self-Neglect item, BPRS Bizarre Behavior item, and BPRS Motor Retardation item. As hypothesized, differences exist between the groups at various assessment times. As hypothesized, individuals with high APP demonstrate more symptomatology at admission on the BPRS Bizarre behavior item, however individuals with high APP demonstrate equivalent scores to those with low APP at admission. As hypothesized, individuals with high APP exhibit more symptomatology after one year of treatment on BPRS Suicidality item and BPRS Self-Neglect item. However, contrary to hypotheses individuals with low APP receive the highest BPRS Bizarre Behavior item and BPRS Disorientation item scores after one year of treatment and therefore demonstrate more symptomatology on these measures compared to those with high APP.

*Hypothesis 2*

*Outcome*

A pattern of differential outcome was hypothesized for those who used services during adolescence versus individuals who did not use services and for each APP severity level. Specifically, it is predicted that that discharge disposition differs between the two groups in that individuals with severe adolescent psychiatric pathology are discharged to a more restrictive setting. In addition, it is predicted that there is a greater rate of rehospitalization for those who used mental health services in adolescence than those without mental health services in adolescence. Furthermore, when analyses are conducted between the different APP severity groups, it is predicted that those

individuals in the medium and highest APP severity groups have a greater rate of rehospitalization than those in the low to no APP severity groups.

Also, it is predicted that those in the highest APP severity group have the greatest rate of rehospitalization, as these individuals may represent a subgroup experiencing more severe and refractory symptoms that can be potential barriers to living in the community for extended periods.

*Discharge Location*

It was predicted that people who used services during adolescence are discharged to more restrictive levels of care than those who did not use services. Chi square analyses reveal there is no significant relationship between the level of restrictiveness of discharge setting and service use in adolescence, $X^2$ (3) = 1.85, $p$ =0.60 (See Table 126).

It was also predicted that when APP severity level is examined, discharge disposition differs between the groups in that individuals with severe adolescent psychiatric pathology are discharged to a more restrictive setting than individuals in the no, low, or medium APP groups. Chi square analyses reveal there is no significant relationship between the level of restrictiveness of discharge setting and APP severity level, $X^2$ (9) = 5.86, $p$ =0.75 (See Table 127). Contrary to the hypothesis, those individuals with severe adolescent psychiatric pathology are not discharged to more restrictive settings than individuals with less severe adolescent pathology.

*Rehospitalization Rate*

Following discharge, CTP participants spent an average of 94.86% of days during the first six months after discharge in the community rather than in the hospital, 95.20% of days within the first year, 93.22% of days within eighteen months, and 93.20% of days

within the first two years after discharge. Ninety-three of the 123 people, or 75.6%, with rehospitalization data available are not rehospitalized from the time of discharge through the time the outcome data was collected. There are no significant differences between those who did or did not use services during adolescence on the percentage of days in the first six months after CTP discharge spent in the community ($F(1,122) = .03$, $p = 0.86$), the percentage of days in the first year after CTP discharge spent in the community ($F(1,109) = .22$, $p = 0.64$), the percentage of days within eighteen months after CTP discharge spent in the community ($F(1, 88) = .30$, $p = 0.58$), or the percentage of days within two years after CTP discharge spent in the community ($F(1, 73) = .02$, $p = 0.90$).

Furthermore, when APP severity level is examined, there are no significant differences between APP severity level on the percentage of days in the first six months after CTP discharge spent in the community ($F(3,122) = .72$, $p = 0.54$), the percentage of days in the first year after CTP discharge spent in the community ($F(3,109) = 1.02$, $p = 0.39$), the percentage of days within eighteen months after CTP discharge spent in the community ($F(3, 88) = .67$, $p = 0.58$), or the percentage of days within two years after CTP discharge spent in the community ($F(3, 73) = .55$, $p = 0.65$).

As described in the methods section, the rehospitalization data is skewed and could not be transformed or windsorized into an acceptable skewness range. This is largely a function of the large proportion of people who were never rehospitalized during the follow-up period. In order to substantiate the above results since the data used in the above analyses is skewed, categorical variables of ñrehospitalizedò and ñnot rehospitalizedò were created based on all or none cutoff levels. Chi square analysis reveals no significant relationship between whether or not someone used services in

adolescence and rehospitalization categorization, $X^2(1) = .62$, $p = .43$. Likewise, rehospitalization categorizations were made based on rehospitalization in six-month intervals following discharge. At six months post-discharge, there is not a significant relationship between service use and rehospitalization categorization, $X^2(1) = .62$, $p = .43$. At 12 months post-discharge, again no significant relationships between service use and rehospitalization categorization are found, $X^2(1) = .30$, $p = .59$. Again, at 18 months post-discharge, there remains no relationship between the two variables, $X^2(1) = .88$, $p = .35$. Finally, at 24 months post-discharge, there remains no relationship between the two variables, $X^2(1) = .05$, $p = .82$.

When APP severity level is examined, Chi square analysis again reveals no significant relationship between APP severity level and whether or not they are rehospitalized after discharge from CTP, $X^2(3) = 2.87$, $p = .41$. Likewise, rehospitalization categorizations for each APP severity level are made based on rehospitalization in six-month intervals following discharge. At six months post-discharge, there is not a significant relationship between the various APP severity levels and rehospitalization categorization, $X^2(3) = 3.32$, $p = .35$. At 12 months post-discharge, again no significant relationships between APP severity level and rehospitalization categorization are found, $X^2(3) = 4.03$, $p = .26$. Again, at 18 months post-discharge, there remains no relationship between the two variables, $X^2(3) = 4.21$, $p = .24$. Finally, at 24 months post-discharge, there remains no relationship between the two variables, $X^2(3) = 5.21$, $p = .16$.

In summary, results of analyses of outcome data with regard to service use indicate that at the time of discharge and during the follow-up period after discharge, no

differences between individuals who used services in adolescence and those who did not use services are evident. Moreover, no differences between APP severity groupings are noted. Contrary to all outcome hypotheses, there is no evidence that APP severity levels differ in terms of rehospitalization outcomes.

# CHAPTER 5 ï DISCUSSION

The primary purpose of this study was to assess the relationship of adolescent psychiatric pathology with insight before, during, and after treatment. In addition, a secondary relationship between adolescent psychiatric pathology and functioning in a variety of domains before, during, and after treatment were assessed. The participants with adolescent psychiatric pathology were compared to those without to determine if any differences existed. Also, when adolescent psychiatric pathology was separated into three separate groups by the amount and type of services utilized during adolescence, these three different levels of adolescent psychiatric pathology were also be compared to those without. Univariate and multivariate analyses were conducted within and between the two groups and four groups with respect to overall functioning using multiple measures described below. To date, only one study on this topic is known to exist (Wynne, 2009). Because of the paucity of research in this area, this study was highly exploratory in nature, giving a first look at the clinical correlates across treatment between individuals with and without adolescent psychiatric pathology. Furthermore, these clinical correlates across treatment in adulthood were also studied between individuals with various severities of adolescent psychiatric pathology.

Overall, there was mixed support for the hypotheses of the study. In summary results suggest individuals with service use during adolescence were found to be younger at admission to CTP, have slightly lower levels of education, and have an earlier age of onset and more previous hospitalizations, as expected. The results are consistent with earlier work (Herron, 1962) on the process reactive distinction in schizophrenia. The process reactive distinction analyzed the developmental sequence of schizophrenia

spectrum disorders. Specifically, research in this area is concerned with individualsô premorbid patterns, the timeline preceding the onset of the disorder, the precipitant(s) that may engender the onset of the disorder, and symptom presentation during the course of the disorder. Results from this study indicate those who used services in adolescence, as specifically the medium and high APP groups closely resemble the traditional psychopathology ñprocessò group from research in the 1950s-1980. Process type has been associated with an insidious onset, gradual emotional blunting, and withdrawing from daily activities. Research found individuals identified in the process group had poor performance in school, deterioration in functioning in a variety of domains including neurocognitive, hospitalization during adolescence, poor response to treatment, awareness of change in self, and a family history of mental illness. Individuals without mental health service usage in adolescence may represent the reactive type again from research in the 1950s-1980s. Reactive type is usually characterized by a sudden onset of the disorder after the person experiences a particular stressor, have an onset later in life, functioning within normal limits in most domains in life prior to onset, good academic performance in school, good response to treatment, and ñno sensation of changeò (Haas & Sweeney, 1992). While it is interesting to note analyses utilizing the service use prior to age 18 vs. no service use prior to age 18 found similar results to research using process-reactive distinctions, utilizing either of these promotes a dichotomous typology rather than analyzing adults with SMI on a continuum. Thus, further research utilizing APP severity levels may be able to further delineate differences in premorbid functioning, onset of illness, clinical correlates, and influence favorable treatment outcomes for each individual at all levels of the continuum.

A relationship between Axis I and Axis II diagnoses and service use was identified. Those diagnosed with Schizophrenia, Chronic/Undifferentiated Type, Schizoaffective Disorder, and ñotherò appear more likely to have used mental health services during adolescence than those diagnosed with Schizophrenia, Paranoid Type. Those diagnosed with Paranoid Personality Disorder appear less likely to have received services during adolescence than those diagnosed with Borderline Personality Disorder; whereas those diagnosed with Borderline Personality Disorder appear more likely to have received services during adolescence. Those who used services and did not use services were more likely to be diagnosed with ñotherò than to have a diagnosis of Borderline Personality Disorder. Those diagnosed with Borderline Personality Disorder appear more likely to have received services during adolescence than not whereas those without an Axis II diagnosis were more likely to have not used services during adolescence. The differences between groups corroborate previous findings and indicate that exploration of these differences in participant characteristics needs to continue to be explored in future studies. The finding that Axis I and Axis II diagnoses are associated with service use may be a sign those that receive mental health services during adolescence may be more likely to develop comorbid disorders that greatly influence their functioning in adulthood. This may also indicate that those individuals who did not receive services during adolescence were experiencing less severe symptomatology than those who received services and thus these individuals may not have been perceived as high risk or needing services during adolescence by mental health professionals. This finding may have important implications for screening tools used by mental health professionals serving adolescents transitioning into adulthood.

Contrary to all hypotheses, participants with service usage in adolescence do not significantly differ from those without at the time of admission, with respect to neurocognitive, social cognitive functioning, or insight. In addition, there do not appear to be substantial differences in neurocognitive functioning, social cognitive functioning, or insight at admission for the various APP severity levels. Overall, results of NOSIE analyses do not support hypotheses that those with service use in adolescence demonstrate poorer behavioral functioning upon admission than those without, nor were hypotheses supported that differences in behavioral functioning at admission existed between the different APP severity groups. Although a significant difference occurred on the NOSIE Motor Retardation subscale, results were opposite to hypothesized and the high APP severity group received lower scores than individuals in the low and medium APP severity groups.

It was anticipated that individuals with service usage in adolescence would have a higher level of symptomatology at admission than those without, and specifically those individuals with the most severe APP would demonstrate a higher level of symptomatology than those with less severe APP. Individuals with service usage in adolescence received higher suicidality and hopelessness scores at admission than those without. Indeed, as research has indicated, symptoms such as suicidality and depression may all influence or be manifestations or outcomes of various levels of insight (Amador et al., 1991; Amador et al., 1993; Amador et al., 1996; Caldwell & Gottesman, 1990; Lysaker et al., 2005; McGlashan et al., 1975). These results indicate future studies may utilize cluster analysis in order to study the unique differences amongst groups in

variables, as a consistent pattern of differences in performance was not found by the current study.

When analyses were conducted between APP severity levels two significant differences emerged. Again as hypothesized, those individuals with medium or high APP received higher suicidality scores on multiple measures than those without APP or in the low APP severity group. Individuals without service use in adolescence were rated as more uncooperative than individuals with various levels of APP severity, indicating that prior contact with services may actually aid in working with treatment providers upon rehospitalization.

Results of analyses between those who used mental health services prior to age 18 and those who did not use services and neurocognitive functioning over the course of treatment suggest that improvements in neurocognitive functioning are evident over the course of treatment on strategic planning and organized searching, for individuals without service use in adolescence on a measure of verbal memory, for individuals with service use in adolescence on a measure of visuocontructional ability and nonverbal memory, for both groups in nonverbal memory, for individuals with service use in adolescence on a task assessing attention and information processing, for those with service use in adolescence on verbal fluency and word generating ability, and for both groups on a neurocognitive screening assessment measuring overall cognitive functioning.

Results of analyses between assessment time and APP severity level indicate improvements in neurocognitive functioning are over the course of treatment on a task of verbal memory for those without APP, for those with low or high APP on a task of immediate nonverbal memory and visuocontructional ability, for those with none or high

APP on delayed nonverbal memory, and for those in the none, low, or high groups on a neurocognitive screener measuring overall cognitive functioning.

As hypothesized, when analyses were conducted between those without service usage before age 18 and those with service usage in adolescence, no differences existed between groups on most measures of neurocognitive functioning. Contrary to hypotheses, individuals with service usage in adolescence were better able to rapidly generate and organize verbal information after one year of treatment than those without service usage in adolescence. However, individuals without APP demonstrated poorer overall cognitive functioning after one year of treatment than those with APP.

Finally, as hypothesized, when analyses were conducted utilizing APP severity level, as hypothesized no differences existed between groups after one year of psychiatric rehabilitation on most neurocognitive measures. Contrary to hypotheses, individuals with high APP demonstrated better verbal memory performance at admission and six months, however as hypothesized this difference did not remain after one year of treatment. As hypothesized, those individuals with high APP demonstrated poorer overall cognitive functioning at admission. However, contrary to hypotheses differences remained between the groups at twelve months and those without APP or low APP performed better on a measure of overall cognitive functioning than those in the medium or high APP severity groups.

Improvements in sociocognitive functioning were also evident over the course of treatment on participantôs ability and facility of comprehension and interpretation of social limitations and for those with service usage prior to age 18 on social support coping cognitions. Contrary to hypotheses, there was not a decrease in participantôs

beliefs being effected by their beliefs that others are powerful, a component of external locus of control. Furthermore, contrary to hypotheses there was not an increase in internal locus of control, in individualôs self-concept of their own competence or participantôs self-efficacy (both components of internal locus of control) over the course of treatment. As hypothesized, overall external locus of control and the role of chance in determining oneôs fate, a subscale of external locus of control, did decrease over treatment. However, this only occurred for those with service usage in adolescence.

When social cognitive was assessed amongst the various APP severity groups results indicate improvements in sociocognitive functioning are inconsistent over the course of treatment on theory of mind abilities. As previously indicated, there was not a decrease in participantôs beliefs in powerful others over treatment. Furthermore, contrary to hypotheses there was not an increase in internal locus of control or participantôs self-concept or self-efficacy over the course of treatment amongst the various APP severity groups. As hypothesized, external locus of control decreased over treatment, however this only occurred for those in the low, medium, and high groups. For beliefs that chance controls oneôs fate, decreases over treatment only occurred for those with low or medium APP.

Contrary to the hypothesis those adults with service usage in adolescence did not endorse differing overall insight or ability to relabel symptoms scores over the course of treatment. However, as hypothesized, there were no differences between those with and without service usage in adolescence on any measure of insight after one year of psychiatric rehabilitation. Furthermore, individuals without service usage prior to age 18 endorsed lower overall insight total scores and their ability to relabel symptoms as part of

their illness decreased over the course of treatment. In general, the CTP participants endorsed lower insight into need for treatment scores across treatment, possibly indicating an increased desire to be discharged as length of stay increased.

When results of analyses on insight measures at admission and over the course of treatment utilize APP severity levels, results suggest that differences in insight across treatment existed between groups. However, contrary to hypotheses only individuals with low APP endorsed increases in total insight over the course of treatment. Total insight for individuals with no or low APP decreased over treatment while total insight scores remained the same across treatment for those with high APP. As hypothesized, ability to relabel symptoms increased over treatment for those with medium APP but remained the same for those with high APP. Individuals with no or low APP experienced decreased ability to relabel symptoms across treatment. Insight awareness scores remained the same across treatment for those with no, medium, or high APP while it decreased for those with low APP. Furthermore, insight into need for treatment again decreased across treatment for individuals with no, low, or high APP groups but remained stable across treatment for those with medium APP. However, as hypothesized, there were no differences between those with and without APP on insight measures after one year of psychiatric rehabilitation.

Overall, results suggest that improvements in behavioral functioning do occur across treatment in almost all domains measured within the current study for those with and without service usage in adolescence. However, partial support for hypotheses was found for irritability and psychoticism scores. When service use was utilized in analyses, all participantsô irritability scores increased from admission to six months but decreased

by 12 months of treatment. Furthermore, contrary to hypotheses psychoticism scores for all participants continued to increase over the course of treatment. When results were analyzed with regards to APP severity level, the above results were again found. However, motor retardation improved for all APP severity levels. However, as predicted, no differences existed amongst groups after one year of psychiatric rehabilitation.

Results also suggest that differences amongst groups exist for several symptomatology measures as they relate to assessment time and service use. Contrary to hypotheses, symptomatology for individuals with and without service usage in adolescence did not improve over the course of treatment. Partial support for hypotheses was found with the BPRS Psychotic Disorganization factor, as improvements across treatment were only descriptive for those with service usage in adolescence. As hypothesized, individuals with service usage prior to age 18 demonstrated more symptomatology at admission on the BPRS Psychotic Disorganization factor, however no other differences between groups at admission existed for other BPRS factor scores. Also contrary to hypotheses, individuals with service usage in adolescence did not demonstrate more symptomatology after one year of treatment. When specific symptomatology items were analyzed across time, partial support was found. For individuals with mental health service usage in adolescence, items assessing hallucinations/delusions, unusual thought content, bizarre behavior, and self-neglect improved by one year of treatment. However, on scores on these same measures remained the same across treatment for those without service usage in adolescence. However, as hypothesized, BPRS Motor Retardation scores improved over the course of treatment for those with and without service usage in adolescence. As hypothesized,

individuals with service usage in adolescence demonstrated more suicidality, hallucinations/delusions, bizarre behavior, and self-neglect. However, by one year of treatment the only difference that remained between groups was that individuals with service usage in adolescence received higher suicidality scores than those without service usage in adolescence.

Results also suggest that differences amongst groups exist for several symptomatology measures as they relate to assessment time and APP severity level. Again, partial support for hypotheses were found. Improvement in symptomatology across treatment was found only for those with high APP on items measuring self-neglect, bizarre behavior, and motor retardation. As hypothesized, differences existed between the groups at various assessment times. As hypothesized, individuals with high APP demonstrated more symptomatology at admission on items assessing bizarre behavior, however individuals with high APP demonstrated equivalent scores to those with low APP at admission. As hypothesized, individuals with high APP exhibited more suicidality and self-neglect. However, contrary to hypotheses individuals with low APP received the highest bizarre behavior and disorientation item ratings after one year of treatment.

Differences in level of discharge restrictiveness and rehospitalization rates were predicted for those with and without service usage in adolescence and for the various APP severity levels. Contrary to the hypothesis, those individuals with severe adolescent psychiatric pathology were not discharged to more restrictive settings than individuals with less severe adolescent pathology. There were no significant differences between those who did or did not use services during adolescence on the percentage of days spent

in the community in the first six, twelve, eighteen, and twenty-four months after CTP discharge. Furthermore, when APP severity level is examined, there are no significant differences between APP severity level on the percentage of days in the first six, twelve, eighteen, and twenty-four months after CTP discharge spent in the community.

Again, contrary to hypotheses, analyses revealed no significant relationship between whether or not someone used services in adolescence and rehospitalization categorization. Likewise, rehospitalization categorizations were made based on rehospitalization in six-month intervals following discharge. At six, twelve, eighteen, and twenty-four months post-discharge, there was not a significant relationship between service use and rehospitalization categorization.

When APP severity level was examined, analyses again revealed no significant relationship between whether or not someone used services in adolescence and whether or not they were rehospitalized after discharge from CTP at all assessment time periods. Thus, contrary to all outcome hypotheses, there is no evidence that with or with APP differ in terms of rehospitalization outcomes or discharge location restrictiveness.

Overall, similar discharge patterns between those with and without APP were found with discharges from CTP. Treatment teams may be aware of the social history of each person and it is likely that failure at previous discharge locations impact future discharge planning. Of note, several measures of symptomatology and behavioral functioning (i.e. those with service usage in adolescence were rated higher on items of self-neglect and suicidality) were unable to maintain adequate self-care or an appropriate level of care needed for some discharge locations. Based on past rates of rehospitalization, treatment teams may be more likely to discharge to locations seen as

transitional, or intermediate levels of care. Perhaps even more likely, discharges may be dictated by the community providers themselves based on prior working with participants from the program. Therefore, participants from CTP may only be accepted by a limited range of providers leading to the non-significant discharge findings.

The second part of the outcome hypothesis pertained to rate of rehospitalization. Results of this study cannot be used to fully substantiate nor disprove the notion that people with APP have higher rates of rehospitalization and that those with high APP may represent a more population with more treatment refractory symptoms. A possible confound was the community agencies for which rehospitalization data was available. Records were not available if individuals resided or were hospitalized in another state, if they did not use the local CMHC, or if they were rehospitalized anywhere else besides the state hospital. This may have significantly skewed the rehospitalization data that was available, therefore more qualitative analyses or case studies regarding rehospitalization rate for those with and without APP may be warranted to further evaluate this hypothesis.

The inconsistent pattern of results and partial support of hypotheses in this study may be explained by the nature of the population from which the sample was drawn. Because of the severity and chronicity of psychiatric disorder within the CTP population, some of the non-significant differences between groups can be attributable to the overall high level of impairment present in the population at CTP, thus creating a ñleveling effectò that may obscure some findings that would occur in other treatment environments. The CTP participants represent a particularly treatment-refractory population and differences in functioning between groups with various amount and types of service use during adolescence may be less apparent than they would be in a less severe or less

chronic psychiatric population with more variability. Discriminating between any groups within the CTP population may require not only the existence of differences, but substantial differences. That is not to say that there is not considerable heterogeneity within this group, but it may mean that fine, subtle differences between groups may be hard to detect, and these differences may or may not be meaningful. This conclusion is congruent with studies which have had difficulty detecting treatment effects between groups in the CTP setting (Spaulding, Reed, Sullivan, Richarson, & Weiler, 1999; Wynne, 2009). A similar study across treatment settings and/or populations may be warranted.

*Limitations of the Present Study*

The goal of identifying between a developmental conceptualization of insight based on contact with adolescent psychiatric pathology and various domains of functioning while hospitalized and outcomes in the community resulted in a myriad of findings. The lack of consistent patterns of differences between groups may be because of varied conceptualizations of the construct of insight, constitutes service use during adolescence, and the unknown quality of services received. One weakness of this study is that included measures of insight that do not reflect recent advances in multidimensional insight assessments. Furthermore, insight assessments may be influenced by practice effects, as participants are given the same self-report form over the course of treatment. Since this study utilized archival clinical data, only measures that are part of routine assessment at CTP were available. While poor cognitive functioning has been linked to insight (e.g., Amador et al., 1991; Frith, 1992; Lysaker et al., 1994;

Lysaker et al., 1995; McGlynn & Schacter, 1989; Prigatano & Schacter, 1991 as cited in Rusch and Corrigan, 2002) and this study found inconsistent results between groups on neurocognitive functioning. It may be that a more global measurement of insight reflecting current conceptualizations of insight, or a variable derived of various domains from assessments in other domains, would better capture the relationship between service use during adolescence and changes in insight and neurocognitive functioning across treatment.

The current archival database does not lend itself to pre-post analyses. Future studies may consider reformatting the archival database so as to have an admission data point and a discharge data point (or the assessment closest to discharge) as an approximation of pre- and post- rehabilitation functioning. Furthermore, the use of a flexible assessment battery with this clinical population meant there was an unusually large amount of missing data that prevented some use of appropriate statistical analyses. The amount of significant results was also close to that expected to occur by chance, thus lowering confidence in complete interpretation of results. For most analyses examining the between-group differences and within group difference there was enough power to detect differences. Effect size estimates were examined in addition to the statistical significance tests to determine there was enough power to detect all differences.

At any rate, this study explored the relationship between various domains of functioning during the course of psychiatric rehabilitation and service use, APP severity and insight such that future studies in this area can make more informed research hypotheses using stricter constraints in research design to circumvent problems related to possible confounds.

*Future Directions*

Areas of needed research have already been alluded to in the above discussion. Specifically, a replication or study similar to the one undertaken here, with more defined hypotheses and changes in assessment measures is needed to further clarify the characteristics of those with various amounts of service use during adolescence and the differences in several domains of functioning across treatment after the age of 18 and once discharged into the community. Likewise, a similar study in a broader population would allow for more generalizability of results. Finally, a study or a series of case studies examining different events and service use during adolescence, possibly a longitudinal study following subjects from adolescence to adulthood, is necessary to better understand why some people improve their insight across treatment and others do not given the different trajectories or trends in insight scores and other domains of functioning across treatment for the various severity levels of APP.

While the Birchwood Insight Scale is theoretically based on a multidimensional view of insight (David, 1990), this measure may not be indicative of current multidimensional conceptualizations of insight, or other conceptualizations such as the view that insight is the degree to which an individual agrees with their treatment provider, or insight as a coping mechanism. The current study sought to determine relationships between individualôs insight and domains of functioning, however a consistent pattern could not be established. Therefore, using measures of insight to identify correlates to clinical functioning, or insight across treatment, is unresolved until a relationship between the psychological construct of insight and other biopsychosocial

measures is better understood. Studies identifying correlates of insight to various clinical variables have not been conducted within a population whose historical use of services during adolescence has been investigated. Or, if they have, the effect of contact with mental health providers earlier in life on insight into treatment after the onset of illness has not been considered in analyses. Such a study might simply include different biopsychosocial measures within a population such as the one in this study to determine if the measures make distinctions or can predict different APP severity level groups across treatment.

In general, more empirical, as opposed to theoretical investigations, of the concepts found within the prodromal research and service use during adulthood are needed in order to prevent or decrease the revolving door phenomenon commonly found in mental health settings. The current study continues to take essential steps towards identifying the relationship between the access to and use of mental health services by adolescents and the subsequent clinical functioning of those individuals with an onset of mental illness later after transitioning into adulthood.

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# APPENDIX:

CTP Information Gathering Sheet pg. 1

Name:_____
ID number (please write down if you find they have more than 1 ID #):_____
Date(s) the file was looked at:_____
Clinical Assistant who checked file:_____

Please write down any information about mental health services the patient received before the age of 18 (therapy, medicine, services from other mental health practitioners such as social works, etc; being in-patient hospitalized, whether they were in adolescent services here at the regional center or in another state, etc):

Prior Therapy before the age of 18:

Medicine before the age of 18:

Services form other mental health providers (social workers, OT, psychiatrists, etc.):

Were they in-patient hospitalized before the age of 18?

Any other information that is useful for determining how many and what type of mental health services they received prior to the age of 18?

Is more information needed to determine the amount or type? If so, what do you feel is needed?

Was there any vague information that did not allow you to accurately rate the amount of previous mental health services? If so describe the information.

Table 1

*Demographic and Clinical Characteristics of Participants*

| Demographic and Clinical Variables | N | Mean (SD) or Percentage |
|---|---|---|
| Age (range: 18 to 71) | 308 | 37.91 (12.62) |
| Education, # of years in school (range: 6 to 20 years) | 283 | 12.23 (2.03) |
| Length of stay at CTP in days (range:57-2545) | 137 | 637.28 (452.97) |
| Age of onset (range: 4 to 63 ) | 248 | 19.92 (8.60) |
| Number of hospitalizations in lifetime (range: 0 to 105) | 298 | 9.69 (9.77) |
| Gender (n=317) | | |
| Male | 203 | 64.0% |
| Female | 114 | 36.0% |
| Race/Ethnicity (n=288) | | |
| Caucasian | 238 | 82.6% |
| African American | 30 | 10.4% |
| Hispanic | 6 | 2.1% |
| Native American | 4 | 1.4% |
| Asian American | 2 | 0.7% |
| Other | 8 | 2.8% |
| Marital Status (n=272) | | |
| Single | 171 | 62.9% |
| Married | 21 | 7.7% |
| Divorced | 69 | 25.4% |
| Widowed | 4 | 1.5% |
| Separated | 7 | 2.6% |
| Legal Status (n=280) | | |
| Mental Health Board Commitment (MHB) | 220 | 78.6% |
| Voluntary per guardian (VpG) | 34 | 12.1% |
| Not responsible by reason of insanity (NRRI) | 22 | 7.9% |
| Voluntary (V) | 4 | 1.4% |
| Primary Axis I Diagnosis (n=282) | | |
| Schizophrenia, Paranoid Type | 77 | 27.3% |
| Schizophrenia, Chronic/Undifferentiated Type | 66 | 23.4% |
| Schizoaffective | 78 | 27.7% |
| Bipolar | 35 | 12.4% |
| Psychotic Disorder NOS | 4 | 1.4% |
| Dementia / Organic Brain Disease | 4 | 1.4% |
| Impulse Control Disorder | 6 | 2.1% |
| Other | 12 | 4.3% |
| Axis II Diagnoses (n=284) | | |
| None | 105 | 37.0% |
| Borderline | 20 | 7.0% |
| Paranoid | 46 | 16.2% |
| Antisocial | 13 | 4.6% |
| Schizoid | 4 | 1.4% |
| Borderline Intellectual Functioning / Mild Mental Retardation | 19 | 6.7% |
| NOS | 30 | 10.6% |
| Other | 47 | 16.5% |

Table 2

*Demographic and Clinical Characteristics of Participants according to Service Use During Adolescence*

| Demographic and Clinical Variables | No Service Use | | Service Use | |
|---|---|---|---|---|
| | N | Mean (SD) or Percentage | N | Mean (SD) or Percentage |
| Age (range: 19 to 71) | 145 | 42.55 (12.35) | 163 | 33.77 (11.40) |
| Education, # of years in school (range: 6 to 20 years) | 134 | 12.84 (1.98) | 149 | 11.69 (1.92) |
| Length of stay at CTP in days (range:11-2545) | 72 | 581.39 (411.34) | 65 | 699.20 (490.81) |
| Age of onset (range: 4 to 63 ) | 118 | 24.20 (9.07) | 130 | 16.03 (5.92) |
| Number of hospitalizations in lifetime (range: 0 to 105) | 139 | 8.42 (7.47) | 159 | 10.81 (11.31) |
| Gender (n=317) | | | | |
| Male | 94 | 63.1% | 109 | 64.1% |
| Female | 53 | 35.6% | 61 | 35.9% |
| Race/Ethnicity (n=288) | | | | |
| Caucasian | 111 | 74.5% | 127 | 82.5% |
| African American | 15 | 10.1% | 15 | 9.7% |
| Hispanic | 1 | 0.7% | 5 | 3.2% |
| Native American | 2 | 1.3 | 2 | 1.3% |
| Asian American | 1 | 0.7% | 1 | 0.6% |
| Other | 4 | 2.7% | 4 | 2.6% |
| Marital Status (n=272) | | | | |
| Single | 75 | 58.6% | 96 | 66.7% |
| Married | 10 | 7.8% | 11 | 7.6% |
| Divorced | 34 | 26.6% | 35 | 24.3% |
| Widowed | 3 | 2.3% | 1 | 0.7% |
| Separated | 6 | 4.7% | 1 | 0.7% |
| Legal Status (n=280) | | | | |
| Mental Health Board Commitment (MHB) | 103 | 69.1% | 117 | 77.5% |
| Voluntary per guardian (VpG) | 12 | 8.1% | 22 | 14.6% |
| Not responsible by reason of insanity (NRRI) | 11 | 7.4% | 11 | 7.3% |
| Voluntary (V) | 3 | 2.0% | 1 | 0.7% |
| Primary Axis I Diagnosis (n=282) | | | | |
| Schizophrenia, Paranoid Type | 51 | 38.3% | 26 | 17.4% |
| Schizophrenia, Chronic/Undifferentiated Type | 23 | 17.3% | 43 | 28.9% |
| Schizoaffective | 35 | 26.3% | 43 | 28.9% |
| Bipolar | 15 | 11.3% | 20 | 13.4% |
| Psychotic Disorder NOS | 1 | 0.8% | 3 | 2.0% |
| Dementia / Organic Brain Disease | 2 | 1.5% | 2 | 1.3% |
| Impulse Control Disorder | 3 | 2.3% | 3 | 2.0% |
| Other | 3 | 2.3% | 9 | 6.1% |
| Axis II Diagnoses (n=284) | | | | |
| None | 58 | 43.3% | 47 | 31.3% |
| Borderline | 4 | 3.0% | 16 | 10.7% |
| Paranoid | 20 | 14.9% | 26 | 17.3% |
| Antisocial | 4 | 3.0% | 9 | 6.0% |
| Schizoid | 1 | 0.7% | 3 | 2.0% |
| Borderline Intellectual Functioning to Mild Mental Retardation | 6 | 4.4% | 13 | 8.1% |
| NOS | 14 | 10.4% | 16 | 10.7% |
| Other | 27 | 20.1% | 20 | 13.3% |

Table 3

*Demographic and Clinical Characteristics of Participants according to APP Severity Level*

| Demographic and Clinical Variables | No APP | | Low APP | | Med APP | | High APP | |
|---|---|---|---|---|---|---|---|---|
| | N | Mean (SD) or Percentage | N | Mean (SD) or Percentage | N | Mean (SD) or Percentage | N | Mean (SD) or Percentage |
| Age (range: 19 to 71) | 145 | 42.55 (12.35) | 23 | 40.04 (10.68) | 34 | 33.04 (10.23) | 106 | 32.64 (11.53) |
| Education, # of years in school (range: 6 to 20 years) | 134 | 12.84 (1.98) | 22 | 12.23 (1.77) | 31 | 11.87 (1.82) | 96 | 11.51 (1.97) |
| Length of stay at CTP in days (range:11-2545) | 72 | 581.39 (411.34) | 19 | 781.68 (633.89) | 17 | 698.18 (382.86) | 29 | 645.76 (448.31) |
| Age of onset (range: 4 to 63 ) | 118 | 24.20 (9.07) | 20 | 20.20 (6.41) | 31 | 17.68 (6.91) | 79 | 14.33 (4.60) |
| Number of hospitalizations in lifetime (range: 0 to 105) | 139 | 8.42 (7.47) | 22 | 11.00 (7.57) | 33 | 7.45 (6.32) | 104 | 11.83 (12.95) |
| Gender (n=317) | | | | | | | | |
| Male | 94 | 63.1% | 13 | 56.5% | 27 | 77.1% | 69 | 61.6% |
| Female | 53 | 35.6% | 10 | 43.5% | 8 | 22.9% | 43 | 38.4% |
| Race/Ethnicity (n=288) | | | | | | | | |
| Caucasian | 111 | 74.5% | 18 | 81.8% | 31 | 93.9% | 78 | 78.8% |
| African American | 15 | 10.1% | 1 | 4.5% | 1 | 3.0% | 13 | 13.1% |
| Hispanic | 1 | 0.7% | 1 | 4.5% | 1 | 3.0% | 3 | 3.0% |
| Native American | 2 | 1.3 | - | - | - | - | 2 | 2.0% |
| Asian American | 1 | 0.7% | 1 | 4.5% | - | - | - | - |
| Other | 4 | 2.7% | 1 | 4.5% | - | - | 3 | 3.0% |
| Marital Status (n=272) | | | | | | | | |
| Single | 75 | 58.6% | 11 | 55.0% | 19 | 61.3% | 66 | 71.0% |
| Married | 10 | 7.8% | 1 | 5.0% | 5 | 16.1% | 5 | 5.4% |
| Divorced | 34 | 26.6% | 8 | 40.03% | 6 | 19.4% | 21 | 22.6% |
| Widowed | 3 | 2.3% | - | - | 1 | 3.2% | - | - |
| Separated | 6 | 4.7% | - | - | - | - | 1 | 1.1% |
| Legal Status (n=280) | | | | | | | | |
| Mental Health Board Commitment (MHB) | 103 | 69.1% | 15 | 68.2% | 22 | 66.7% | 80 | 83.3% |
| Voluntary per guardian (VpG) | 12 | 8.1% | 6 | 27.3% | 9 | 27.3% | 7 | 7.3% |
| Not responsible by reason of insanity (NRRI) | 11 | 7.4% | 1 | 4.5% | 2 | 6.1% | 8 | 8.3% |
| Voluntary (V) | 3 | 2.0% | - | - | - | - | 1 | 1.0% |
| Primary Axis I Diagnosis (n=282) | | | | | | | | |
| Schizophrenia, Paranoid Type | 51 | 38.3% | 3 | 13.6% | 8 | 25.0% | 15 | 15.8% |
| Schizophrenia,Chronic/ Undifferentiated Type | 23 | 17.3% | 9 | 40.9% | 12 | 37.5% | 22 | 23.2% |
| Schizoaffective | 35 | 26.3% | 10 | 45.5% | 2 | 6.3% | 31 | 32.6% |
| Bipolar | 15 | 11.3% | - | - | 3 | 9.4% | 17 | 17.9% |
| Psychotic Disorder NOS | 1 | 0.8% | - | - | 1 | 3.1% | 2 | 2.1% |
| Dementia/Organic Brain Disease | 2 | 1.5% | - | - | - | - | 2 | 2.1% |
| Impulse Control Disorder | 3 | 2.3% | - | - | 2 | 5.9% | 1 | 1.1% |
| Other | 3 | 2.3% | - | - | 4 | 12.5% | 5 | 5.3% |
| Axis II Diagnoses (n=284) | | | | | | | | |
| None | 58 | 43.3% | 7 | 31.8% | 8 | 25.8% | 32 | 33.0% |
| Borderline | 4 | 3.0% | - | - | 2 | 6.5% | 14 | 14.4% |
| Paranoid | 20 | 14.9% | 6 | 27.3 | 9 | 29.0% | 11 | 11.3% |
| Antisocial | 4 | 3.0% | 2 | 9.1% | 1 | 3.2% | 6 | 6.2% |
| Schizoid | 1 | 0.7% | - | - | - | - | 3 | 3.1% |
| Borderline Intellectual Functioning ï Mild Mental Retardation | 6 | 4.4% | 1 | 4.5% | 3 | 9.7% | 9 | 9.3% |
| NOS | 14 | 10.4% | 2 | 9.1% | 2 | 6.5% | 12 | 12.4% |
| Other | 27 | 20.1% | 4 | 18.2% | 6 | 19.3% | 10 | 10.3% |

Table 4
*Relationship Between Axis I Diagnosis and Service Use (N=282)*

| Axis I Diagnosis | No Service | Service Use | Total |
|---|---|---|---|
| Schizophrenia, Paranoid Type | 51 | 26 | 77 |
| Schizophrenia, Chronic/Undifferentiated Type | 23 | 43 | 66 |
| Schizoaffective | 35 | 43 | 78 |
| Other[2] | 24 | 37 | 61 |
| Total | 133 | 149 | 282 |

[2] Other includes diagnoses such as, but not limited to, the following: Bipolar Disorder, Dementia, Psychotic Disorder NOS, Pervasive Developmental Disorder, Impulse Control Disorder, and Aspergerôs.

Table 5
*Relationship Between Axis II Diagnosis and Service Use (N=284)*

| Axis II Diagnosis | No Service | Service Use | Total |
|---|---|---|---|
| Borderline | 4 | 16 | 20 |
| Paranoid | 20 | 26 | 46 |
| Antisocial | 4 | 9 | 13 |
| Other[4] | 34 | 36 | 70 |
| NOS | 14 | 16 | 30 |
| No Axis II diagnosis (None) | 58 | 47 | 105 |
| Total | 134 | 150 | 284 |

[4] Other includes diagnoses such as, but not limited to, the following: Histrionic Personality Disorder, Schizoid, and Borderline Intellectual Functioning.

Table 6
*Relationship Between Race and Service Use (N=288)*

| Race | No Service | Service Use | Total |
|---|---|---|---|
| Caucasian | 111 | 127 | 238 |
| Non-white | 23 | 27 | 50 |
| Total | 134 | 154 | 288 |

Table 7
*Relationship Between Marital Status and Service Use (N=272)*

| Marital Status | No Service | Service Use | Total |
|---|---|---|---|
| Single | 75 | 96 | 171 |
| Married | 10 | 11 | 21 |
| Divorced | 34 | 35 | 69 |
| Widowed | 3 | 1 | 4 |
| Separated | 6 | 1 | 7 |
| Total | 128 | 144 | 272 |

Table 8
*Mean Scores and Standard Deviations for Demographic and Clinical Variables as a Function of Service Use*

| | No Service | | Service Use | |
|---|---|---|---|---|
| | M | SD | M | SD |
| Age* | 42.55 | 12.35 | 33.77 | 11.38 |
| Length of Stay | 581.39 | 411.34 | 699.20 | 490.81 |
| Years of Education* | 12.84 | 1.98 | 11.69 | 1.92 |
| Age of Onset* | 24.20 | 9.07 | 16.03 | 5.92 |
| Number of Previous Hospitalizations* | 8.42 | 7.47 | 10.81 | 11.31 |

* P<.05

Table 9

*Bivariate Correlations for Neurocognitive Variables*

| | 1a | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - RAVLT Trial 5 | - | | | | | | | | | | | | | |
| 2 ï NAB Total | .74 | - | | | | | | | | | | | | |
| 3 - COGLAB Total Correct | .10 | -a | - | | | | | | | | | | | |
| 4 - Card Sort Random Errors | -.41 ** | -.15 | -.41 ** | - | | | | | | | | | | |
| 5 - Card Sort Perseverative Errors | -.36 ** | -.05 | -.43 ** | .58 ** | - | | | | | | | | | |
| 6 ï Card Sort Consolidation Index | .23 | -1.0 ** | -.10 | -.13 | .12 | - | | | | | | | | |
| 7 - RCFT Copy | 1.0 ** | .24 | a | -.30 * | -.03 | .53 | - | | | | | | | |
| 8 - RCFT Immediate Memory | 1.0 **. | .55 ** | a | -.53 ** | -.42 ** | -.26 | .38 ** | - | | | | | | |
| 9 - RCFT Delayed Memory | . 1.0 ** | .66 ** | a | -.48 ** | -.40 ** | -.16 | .41 ** | .95 ** | - | | | | | |
| 10 - RCFT Recognition | -1.0 ** | .36 | a | -.29 * | -.17 | -.45 | -.05 | .48 ** | .50 ** | - | | | | |
| 11 - Trails A | .10 | -.54 ** | a | .22 | .29 * | -.25 | .01 | -.23 * | -.30 * | -.06 | - | | | |
| 12 -Trails B | -.45 | -.61 | a | .33 ** | .32 * | .20 | -.14 | -.32 ** | -.38 ** | -.03 | .54 ** | - | | |
| 13 ï COWAT/FAS | -.56 | .56 ** | a | -.38 ** | -.23 | -.17 | .35 ** | .37 ** | .34 ** | .08 | -.32 ** | -.27 ** | - | |
| 14 - RBANS Total | .30 | .53 * | a | -.31 * | -.22 | .06 | .48 ** | .52 ** | .55 ** | .25 * | -.15 | -.29 ** | .41 ** | - |

[a] Note: The RAVLT was phased out of regular use at CTP when the Rey Complex Figure Test and RBANS battery were added. As can be seen here, there were no participants with assessments from both time periods from which to compute correlations.

** Correlation is significant at the 0.01 level (1-tailed).

* Correlation is significant at the 0.05 level (1-tailed).

Table10
*Service Use by Neurocognitive Variables at Admission*
*One-Way Analyses of Variance (ANOVAs)*

| | | Univariate | | |
|---|---|---|---|---|
| Neurocognitive Variables | M(SD) | F | df | p |
| RAVLT | | | | |
| No Service | 8.07 (3.73) | .18 | 1, 55 | .68 |
| Service Use | 8.47 (3.30) | | | |
| NAB Total | | | | |
| No Service | 82.10 (17.06) | .53 | 1, 76 | .47 |
| Service Use | 79.08 (18.00) | | | |
| WCST Correct | | | | |
| No Service | 24.63 (2.01) | .09 | 1, 60 | .77 |
| Service Use | 24.75 (1.02) | | | |
| WCST Perseverative Errors | | | | |
| No Service | 22.13 (13.01) | .44 | 1, 106 | .51 |
| Service Use | 20.51 (12.26) | | | |
| WCST Random Errors | | | | |
| No Service | 23.58 (16.65) | .05 | 1, 106 | .83 |
| Service Use | 22.85 (18.27) | | | |
| WCST Consolidation Index | | | | |
| No Service | 3.46 (4.64) | .61 | 1, 60 | .44 |
| Service Use | 2.57 (4.31) | | | |
| RCFT Copy | | | | |
| No Service | 29.03 (7.21) | .04 | 1, 71 | .84 |
| Service Use | 29.33 (6.00) | | | |
| RCFT Immediate Memory | | | | |
| No Service | 12.76 (7.09) | .63 | 1, 71 | .43 |
| Service Use | 14.32 (9.60) | | | |
| RCFT Delayed Memory | | | | |
| No Service | 12.68 (6.68) | .34 | 1, 71 | .56 |
| Service Use | 13.80 (9.55) | | | |
| RCFT Recognition | | | | |
| No Service | 20.54 (6.16) | 3.33 | 1, 71 | .07 |
| Service Use | 18.17 (4.87) | | | |
| Trails A | | | | |
| No Service | 41.71 (14.59) | .11 | 1, 114 | .74 |
| Service Use | 42.99 (25.71) | | | |
| Trails B | | | | |
| No Service | 105.14 (47.61) | 2.65 | 1, 114 | .11 |
| Service Use | 125.24 (81.07) | | | |
| COWAT/FAS | | | | |
| No Service | 30.97 (11.19) | .66 | 1, 113 | .42 |
| Service Use | 29.32 (10.57) | | | |
| RBANS Total | | | | |
| No Service | 75.50 (16.89) | 3.13 | 1, 92 | .08 |
| Service Use | 69.74 (14.06) | | | |

Table 11
*APP Severity Level by Neurocognitive Variables at Admission*
*One-Way Analyses of Variance (ANOVAs)*

| | | Univariate | | |
|---|---|---|---|---|
| Neurocognitive Variables | M(SD) | F | df | p |
| RAVLT | | | | |
| No APP | 8.07 (3.73) | | | |
| Low APP | 8.71 (4.07) | .45 | 3, 53 | .72 |
| Med APP | 9.57 (2.76) | | | |
| High APP | 7.88 (3.22) | | | |
| NAB Total | | | | |
| No APP | 82.10 (17.06) | | | |
| Low APP | 70.00 (13.11) | .73 | 3, 74 | .54 |
| Med APP | 87.25 (18.66) | | | |
| High APP | 78.95 (18.25) | | | |
| WCST Correct | | | | |
| No APP | 24.63 (2.01) | | | |
| Low APP | 25.00 (0.00) | .29 | 3, 58 | .83 |
| Med APP | 25.00 (0.00) | | | |
| High APP | 24.50 (1.41) | | | |
| WCST Perseverative Errors | | | | |
| No APP | 22.13 (13.01) | | | |
| Low APP | 21.50 (11.02) | .49 | 3, 104 | .69 |
| Med APP | 17.25 (14.87) | | | |
| High APP | 21.45 (11.68) | | | |
| WCST Random Errors | | | | |
| No APP | 23.58 (16.65) | | | |
| Low APP | 23.88 (7.79) | 1.66 | 3, 104 | .18 |
| Med APP | 13.25 (11.23) | | | |
| High APP | 26.09 (20.98) | | | |
| WCST Consolidation Index | | | | |
| No APP | 3.46 (4.64) | | | |
| Low APP | 1.31 (1.23) | 1.04 | 3, 58 | .38 |
| Med APP | 4.50 (6.58) | | | |
| High APP | 2.03 (3.38) | | | |
| RCFT Copy | | | | |
| No APP | 29.03 (7.21) | | | |
| Low APP | 30.07 (3.40) | .15 | 3, 69 | .93 |
| Med APP | 28.06 (8.38) | | | |
| High APP | 29.57 (5.84) | | | |
| RCFT Immediate Memory | | | | |
| No APP | 12.76 (7.09) | | | |
| Low APP | 14.21 (4.72) | 1.15 | 3, 69 | .34 |
| Med APP | 18.56 (16.09) | | | |
| High APP | 12.74 (7.36) | | | |
| RCFT Delayed Memory | | | | |
| No APP | 12.68 (6.68) | | | |
| Low APP | 12.14 (4.72) | | | |
| Med APP | 17.56 (16.10) | .85 | 3, 69 | .47 |
| High APP | 12.91 (7.39) | | | |
| RCFT Recognition | 20.54 (6.16) | 2.18 | 3, 69 | .10 |
| No APP | 18.14 (3.08) | | | |

| | | | | |
|---|---|---|---|---|
| Low APP | 21.13 (8.11) | | | |
| Med APP | 17.05 (3.28) | | | |
| High APP | | | | |
| Trails A | | | | |
| No APP | 41.71 (14.59) | | | |
| Low APP | 52.25 (25.14) | 1.72 | 3, 112 | .17 |
| Med APP | 35.08 (15.67) | | | |
| High APP | 45.71 (30.05) | | | |
| Trails B | | | | |
| No APP | 105.14 (47.61) | | | |
| Low APP | 122.75 (80.44) | 1.36 | 3, 112 | .26 |
| Med APP | 111.21 (70.12) | | | |
| High APP | 134.48 (88.39) | | | |
| COWAT/FAS | | | | |
| No APP | 30.97 (11.19) | | | |
| Low APP | 28.11 (9.61) | .36 | 3, 111 | .78 |
| Med APP | 30.67 (12.93) | | | |
| High APP | 28.87 (9.50) | | | |
| RBANS Total | | | | |
| No APP | 75.50 (16.89) | | | |
| Low APP | 75.00 (15.04) | 1.53 | 3, 90 | .21 |
| Med APP | 70.91 (14.80) | | | |
| High APP | 67.35 (13.43) | | | |

Table 12

*Bivariate Correlations for Socialcognitive Variables*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Hinting Task | - | | | | | | | | | | | | | | | | |
| 2 ï FKK Internal | -.03 | - | | | | | | | | | | | | | | | |
| 3 - FKK Self Concept | .06 | .28 * | - | | | | | | | | | | | | | | |
| 4 - FKK Self Efficacy | ..01 | .86 ** | .73 ** | - | | | | | | | | | | | | | |
| 5 - FKK Powerful Others | .09 | .07 | -.11 | -.01 | - | | | | | | | | | | | | |
| 6 ï FKK Chance | -.01 | .09 | -.45 ** | -.21 | .66 ** | - | | | | | | | | | | | |
| 7 - FKK Externality | .05 | .08 | -.33 ** | -.12 | .92 ** | .91 ** | - | | | | | | | | | | |
| 8 - IPSAQ Internal Positive | -.00 | .25 * | .25 * | .31 * | .09 | .02 | .06 | - | | | | | | | | | |
| 9 - IPSAQ Personal Positive | . .26 * | -.15 | -.12 | -.17 | .15 | .22 | .20 | -.13 | - | | | | | | | | |
| 10 - IPSAQ Situational Positive | .19 | .22 | .19 | .26 * | .08 | -.05 * | .02 | -.39 ** | -.30 * | - | | | | | | | |
| 11 - IPSAQ Internal Negative | -.03 | .10 | -.18 | -.03 | .05 | .24 * | .16 | .48 ** | .09 | -.22 | - | | | | | | |
| 12 - IPSAQ Personal Negative | .30 * | .004 | .30 * | .17 | -.09 | -.17 | -.14 | .16 | .41 ** | -.09 | -.37 ** | - | | | | | |
| 13 ï IPSAQ Situational Negative | .02 | .31 * | .23 | .34 ** | .32 * | .07 | .21 | -.03 | -.22 | .56 ** | -.35 ** | -.24 | - | | | | |
| 14 - CST Social Support Seeking | .03 | -.03 | -.11 | -.08 | -.18 | -.12 | -.17 | .06 | .19 | -.10 | .18 | -.12 | -.01 | - | | | |
| 15 - CST Self-Controlling | .04 | .05 | .41 ** | .26 * | .01 | -.22 | -.12 | .26 * | -.01 | -.12 | -.07 | .13 | .15 | -.11 | - | | |
| 16 - CST Escape Avoidance | .16 | .08 | .28 * | .20 | -.39 ** | -.47 ** | -.47 ** | -.21 | .05 | .14 | -.16 | .10 | .03 | .10 | .37 ** | - | |
| 17 - CST Planful Problem Solving | -.01 | .09 | .40 ** | .28 * | -.13 | -.45 ** | -.31 * | .02 | .12 | .15 | -.23 | .16 | .31 * | .34 * | .43 ** | .30 * | - |

** Correlation is significant at the 0.01 level (1-tailed).
* Correlation is significant at the 0.05 level (1-tailed).

Table 13

*Service Use by Theory of Mind, Social Cognition at Admission One-Way Analyses of Variance (ANOVAs)*

| | M(SD) | F | df | p |
|---|---|---|---|---|
| Theory of Mind Measure | | | | |
| Hinting Task | | | | |
| No Service | 15.12 (3.32) | 1.06 | 1, 92 | .31 |
| Service Use | 14.36 (3.81) | | | |
| Socialcognition Measures | | | | |
| FKK Internal | | | | |
| No Service | 34.41 (7.18) | .04 | 1, 43 | .84 |
| Service Use | 34.00 (5.33) | | | |
| FKK Self Concept | | | | |
| No Service | 33.56 (4.71) | .17 | 1, 43 | .68 |
| Service Use | 32.94 (5.16) | | | |
| FKK Self Efficacy | | | | |
| No Service | 67.96 (9.95) | .13 | 1, 43 | .72 |
| Service Use | 66.94 (7.80) | | | |
| FKK Powerful Others | | | | |
| No Service | 25.96 (8.80) | .24 | 1, 43 | .63 |
| Service Use | 24.78 (6.51) | | | |
| FKK Chance | | | | |
| No Service | 23.48 (7.20) | .55 | 1, 43 | .46 |
| Service Use | 25.17 (7.80) | | | |
| FKK Externality | | | | |
| No Service | 49.44 (15.53) | .01 | 1, 43 | .91 |
| Service Use | 49.94 (11.60) | | | |
| IPSAQ Internal Positive | | | | |
| No Service | 8.19 (3.50) | .09 | 1, 43 | .77 |
| Service Use | 7.89 (2.78) | | | |
| IPSAQ Personal Positive | | | | |
| No Service | 3.52 (2.39) | .00 | 1, 43 | .96 |
| Service Use | 3.56 (1.92) | | | |
| IPSAQ Situational Positive | | | | |
| No Service | 3.26 (2.35) | .44 | 1, 43 | .51 |
| Service Use | 3.78 (2.90) | | | |
| IPSAQ Internal Negative | | | | |
| No Service | 5.89 (3.77) | .00 | 1, 43 | 1.0 |
| Service Use | 5.89 (2.93) | | | |
| IPSAQ Personal Negative | | | | |
| No Service | 4.89 (3.48) | .00 | 1, 43 | 1.0 |
| Service Use | 4.89 (2.83) | | | |
| IPSAQ Situational Negative | | | | |
| No Service | 4.07 (2.80) | .23 | 1, 43 | .64 |
| Service Use | 4.50 (3.13) | | | |
| CST Social Support Seeking | | | | |
| No Service | 35.58 (9.99) | .11 | 1, 42 | .74 |
| Service Use | 36.61 (10.03) | | | |
| CST Self-Controlling | | | | |
| No Service | 52.65 (6.97) | 2.58 | 1, 42 | .12 |
| Service Use | 48.44 (10.44) | | | |
| CST Escape Avoidance | | | | |
| No Service | 37.12 (6.73) | .84 | 1, 42 | .36 |
| Service Use | 35.44 (4.53) | | | |
| CST Planful Problem Solving | | | | |
| No Service | 42.08 (8.85) | .00 | 1, 42 | .95 |
| Service Use | 41.89 (10.02) | | | |

Table 14
*APP Level by Theory of Mind and Social Cognitive Functioning at Admission*
*One-Way Analyses of Variance (ANOVAs)*

| | M(SD) | F | df | p |
|---|---|---|---|---|
| Theory of Mind Measure | | | | |
| Hinting Task | | | | |
| No APP | 15.12 (3.32) | | | |
| Low APP | 13.71 (1.98) | 0.52 | 3, 90 | .67 |
| Med APP | 15.00 (3.46) | | | |
| High APP | 14.31 (3.55) | | | |
| Socialcognition Measures | | | | |
| FKK Internal | | | | |
| No APP | 34.41 (7.18) | | | |
| Low APP | 34.43 (5.56) | .12 | 3, 41 | .95 |
| Med APP | 34.67 (5.75) | | | |
| High APP | 32.60 (5.41) | | | |
| FKK Self Concept | | | | |
| No APP | 33.56 (4.71) | | | |
| Low APP | 32.71 (5.19) | .06 | 3, 41 | .98 |
| Med APP | 33.17 (5.95) | | | |
| High APP | 33.00 (5.34) | | | |
| FKK Self Efficacy | | | | |
| No APP | 67.96 (9.95) | | | |
| Low APP | 67.14 (7.71) | .10 | 3, 41 | .96 |
| Med APP | 67.83 (9.66) | | | |
| High APP | 65.60 (6.99) | | | |
| FKK Powerful Others | | | | |
| No APP | 25.96 (8.80) | | | |
| Low APP | 25.71 (4.54) | .19 | 3, 41 | .90 |
| Med APP | 25.17 (8.31) | | | |
| High APP | 23.00 (7.58) | | | |
| FKK Chance | | | | |
| No APP | 23.48 (7.20) | | | |
| Low APP | 24.29 (8.32) | .23 | 3, 41 | .87 |
| Med APP | 26.00 (9.59) | | | |
| High APP | 25.40 (6.11) | | | |
| FKK Externality | | | | |
| No APP | 49.44 (15.53) | | | |
| Low APP | 50.00 (10.61) | .04 | 3, 41 | .99 |
| Med APP | 51.17 (16.51) | | | |
| High APP | 48.40 (7.57) | | | |
| IPSAQ Internal Positive | | | | |
| No APP | 8.19 (3.50) | | | |
| Low APP | 9.00 (3.32) | .53 | 3, 41 | .67 |
| Med APP | 6.83 (2.64) | | | |
| High APP | 7.60 (1.95) | | | |
| IPSAQ Personal Positive | | | | |
| No APP | 3.52 (2.39) | | | |
| Low APP | 2.71 (2.22) | | | |
| Med APP | 4.50 (2.07) | .70 | 3, 41 | .56 |
| High APP | 3.60 (0.55) | | | |
| IPSAQ Situational Positive | | | | |
| No APP | 3.26 (2.35) | | | |
| Low APP | 3.29 (2.43) | .39 | 3, 41 | .76 |
| Med APP | 3.67 (4.27) | | | |
| High APP | 4.60 (1.67) | | | |
| IPSAQ Internal Negative | | | | |
| No APP | 5.89 (3.77) | | | |
| Low APP | 6.00 (3.37) | .01 | 3, 41 | 1.0 |
| Med APP | 5.67 (3.33) | | | |
| High APP | 6.00 (2.35) | | | |

| | | | | |
|---|---|---|---|---|
| IPSAQ Personal Negative | | | | |
| No APP | 4.89 (3.48) | | | |
| Low APP | 4.29 (3.04) | .38 | 3, 41 | .77 |
| Med APP | 4.50 (3.27) | | | |
| High APP | 6.20 (1.92) | | | |
| IPSAQ Situational Negative | | | | |
| No APP | 4.07 (2.80) | | | |
| Low APP | 4.43 (4.35) | .27 | 3, 41 | .85 |
| Med APP | 5.17 (2.71) | | | |
| High APP | 3.80 (1.64) | | | |
| CST Social Support Seeking | | | | |
| No APP | 35.58 (9.99) | | | |
| Low APP | 37.29 (8.40) | .09 | 3, 40 | .96 |
| Med APP | 37.17 (13.17) | | | |
| High APP | 35.00 ( 10.03) | | | |
| CST Self-Controlling | | | | |
| No APP | 52.65 (6.97) | | | |
| Low APP | 51.00 (5.60) | 2.49 | 3, 40 | .07 |
| Med APP | 51.17 (6.08) | | | |
| High APP | 41.60 (16.99) | | | |
| CST Escape Avoidance | | | | |
| No APP | 37.12 (6.73) | | | |
| Low APP | 34.86 (2.19) | .36 | 3, 40 | .78 |
| Med APP | 36.50 (5.58) | | | |
| High APP | 35.00 (6.21) | | | |
| CST Planful Problem Solving | | | | |
| No APP | 42.08 (8.85) | | | |
| Low APP | 40.57 (3.99) | .51 | 3, 40 | .68 |
| Med APP | 45.67 (14.50) | | | |
| High APP | 39.20 (10.31) | | | |

Table 15
*Bivariate Correlations for Insight Variables*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1- Total Insight | - | | | | | | |
| 2 - Ability to relabel psychotic experiences | .73 ** | - | | | | | |
| 3 - Awareness of Illness | .89 ** | .45 ** | - | | | | |
| 4 - Need for Treatment | .83 ** | .39 ** | .72 ** | - | | | |
| 5 - SAIQ Need for Treatment | .80 ** | .76 ** | .76 ** | .57 ** | - | | |
| 6 - SAIQ Worry | -.80 ** | -.77 ** | -.77 ** | -.57 ** | -.95 ** | - | |
| 7 - SAIQ Presence/Outcome of Illness | -.80 ** | -.77 ** | -.77 ** | -.58 ** | -.98 ** | .95 ** | - |

** Correlation is significant at the 0.01 level (1-tailed).
* Correlation is significant at the 0.05 level (1-tailed).

Table 16

*Service Use by Insight Measures at Admission One-Way Analyses of Variance (ANOVAs)*

| Insight Measures | M(SD) | F | df | p |
|---|---|---|---|---|
| IS Relabel Symptoms Scale | | | | |
| No Service | 2.46 (1.11) | .05 | 1, 107 | .82 |
| Service Use | 2.42 (1.15) | | | |
| IS Awareness of Illness Scale | | | | |
| No Service | 2.34 (1.37) | .14 | 1, 107 | .71 |
| Service Use | 2.25 (1.28) | | | |
| IS Need for Treatment Scale | | | | |
| No Service | 2.37 (1.17) | .17 | 1, 107 | .68 |
| Service Use | 2.27 (1.19) | | | |
| IS Total Score | | | | |
| No Service | 7.17 (3.11) | .29 | 1, 107 | .59 |
| Service Use | 6.86 (2.91) | | | |
| SAIQ Need for Treatment | | | | |
| No Service | 6.10 (6.67) | 2.27 | 1, 15 | .15 |
| Service Use | 1.71 (4.54) | | | |
| SAIQ Worry | | | | |
| No Service | 26.90 (8.63) | 1.27 | 1, 15 | .28 |
| Service Use | 31.71 (8.69) | | | |
| SAIQ Presence/Outcome of Illness | | | | |
| No Service | 12.20 (3.05) | 2.56 | 1, 15 | .13 |
| Service Use | 14.29 (1.89) | | | |

Table 17

*APP Level by Insight Measures at Admission One-Way Analyses of Variance (ANOVAs)*

| Insight Measures | M(SD) | F | df | p |
|---|---|---|---|---|
| IS Relabel Symptoms Scale | | | | |
| No APP | 2.46 (1.11) | | | |
| Low APP | 2.44 (1.60) | 1.29 | 3, 105 | .28 |
| Med APP | 1.80 (.92) | | | |
| High APP | 2.59 (1.05) | | | |
| IS Awareness of Illness Scale | | | | |
| No APP | 2.34 (1.37) | | | |
| Low APP | 2.67 (1.32) | 1.19 | 3, 105 | .32 |
| Med APP | 1.60 (1.26) | | | |
| High APP | 2.32 (1.25) | | | |
| IS Need for Treatment Scale | | | | |
| No APP | 2.37 (1.17) | | | |
| Low APP | 2.72 (.97) | 1.17 | 3, 105 | .32 |
| Med APP | 1.75 (.79) | | | |
| High APP | 2.31 (1.30) | | | |
| IS Total Score | | | | |
| No APP | 7.17 (3.11) | | | |
| Low APP | 7.83 (3.30) | 1.59 | 3, 105 | .20 |
| Med APP | 5.15 (1.76) | | | |
| High APP | 7.10 (2.94) | | | |
| SAIQ Need for Treatment | | | | |
| No APP | 6.10 (6.67) | | | |
| Low APP | 6.00 (8.49) | 1.20 | 3, 13 | .35 |
| Med APP | 0.00 (0) | | | |
| High APP | 0.00 (0) | | | |
| SAIQ Worry | | | | |
| No APP | 26.90 (8.63) | | | |
| Low APP | 23.50 (16.26) | 1.32 | 3, 13 | .31 |
| Med APP | 35.00 (0.0) | | | |
| High APP | 35.00 (0.0) | | | |
| SAIQ Presence/Outcome of Illness | | | | |
| No APP | 12.20 (3.05) | | | |
| Low APP | 12.50 (3.54) | 1.21 | 3, 13 | .35 |
| Med APP | 15.00 (0.0) | | | |
| High APP | 15.00 (0.0) | | | |

Table 18
*Bivariate Correlations of NOSIE subscales*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1 ï NOSIE Daily Schedule Competence | - | | | | | | |
| 2 ï NOSIE Social Interest | .46** | - | | | | | |
| 3 ï NOSIE Neatness | .79 ** | .50** | - | | | | |
| 4 ï NOSIE Irritability | -.65** | -.29** | -.49** | - | | | |
| 5 ï NOSIE Psychoticism | -.51** | -.24** | -.39** | .50** | - | | |
| 6 ï NOSIE Motor Retardation | -.73** | -.52** | -.68** | .25** | .21* | - | |
| 7 ï NOSIE Total | .88** | .67** | .84** | -.69** | -.54** | -.74** | - |

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 19
*Service Use by NOSIE scales scores at Admission One-Way Analyses of Variance (ANOVAs)*

| NOSIE Subscales | M (SD) | F | df | p |
|---|---|---|---|---|
| Daily Schedule Competence | | | | |
| No Service | 33.57 (6.81) | 1.98 | 1, 119 | .16 |
| Service Use | 31.84 (6.72) | | | |
| Social Interest | | | | |
| No Service | 15.66 (6.45) | .01 | 1, 119 | .92 |
| Service Use | 15.53 (6.92) | | | |
| Neatness | | | | |
| No Service | 23.77 (5.50) | 1.54 | 1, 119 | .22 |
| Service Use | 22.50 (5.77) | | | |
| Irritability | | | | |
| No Service | 4.00 (5.10) | 1.95 | 1, 119 | .17 |
| Service Use | 5.48 (6.52) | | | |
| Psychoticism | | | | |
| No Service | 1.41 (2.66) | .28 | 1, 119 | .60 |
| Service Use | 1.66 (2.61) | | | |
| Motor Retardation | | | | |
| No Service | 5.93 (4.13) | 1.29 | 1, 119 | .26 |
| Service Use | 6.82 (4.53) | | | |
| NOSIE Total Score | | | | |
| No Service | 157. 68 (24.13) | 2.46 | 1, 119 | .12 |
| Service Use | 150.50 (26.26) | | | |

Table 20
*APP Level by NOSIE scale scores at Admission One-Way Analyses of Variance (ANOVAs)*

| NOSIE Subscales | M (SD) | F | df | p |
|---|---|---|---|---|
| Daily Schedule Competence | | | | |
| No APP | 33.57 (6.81) | | | |
| Low APP | 31.79 (8.59) | .82 | 3, 117 | .49 |
| Med APP | 30.96 (5.96) | | | |
| High APP | 32.50 (5.89) | | | |
| Social Interest | | | | |
| No APP | 15.66 (6.45) | | | |
| Low APP | 14.72 (6.92) | .29 | 3, 117 | .83 |
| Med APP | 14.97 (6.79) | | | |
| High APP | 16.49 (7.18) | | | |
| Neatness | | | | |
| No APP | 23.77 (5.50) | | | |
| Low APP | 21.60 (6.67) | 2.18 | 3, 117 | .09 |
| Med APP | 20.73 (5.23) | | | |
| High APP | 24.40 (5.08) | | | |
| Irritability | | | | |
| No APP | 4.00 (5.10) | | | |
| Low APP | 5.67 (7.15) | 1.21 | 3, 117 | .31 |
| Med APP | 4.00 (5.09) | | | |
| High APP | 6.38 (7.01) | | | |
| Psychoticism | | | | |
| No APP | 1.41 (2.66) | | | |
| Low APP | 1.57 (2.40) | .13 | 3, 117 | .94 |
| Med APP | 1.84 (3.48) | | | |
| High APP | 1.60 (2.12) | | | |
| Motor Retardation | | | | |
| No APP | 5.93 (4.13) | | | |
| Low APP | 7.61 (5.84) | 2.70 | 3, 117 | .05 |
| Med APP | 8.42 (4.40) | | | |
| High APP | 5.14 (2.90) | | | |
| NOSIE Total Score | | | | |
| No APP | 157. 68 (24.13) | | | |
| Low APP | 144.50 (32.32) | 1.60 | 3, 117 | .19 |
| Med APP | 148.40 (21.92) | | | |
| High APP | 156.24 (24.17) | | | |

Table 21
Bivariate Correlations of BPRS Total Scores, BPRS Factor Scores, and Symptomatology Measures

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. BPRS Total | - | | | | | | | | | | | | | |
| 2. Psychotic Disorganization | .75** | - | | | | | | | | | | | | |
| 3. Hallucinations/ Delusions | .75** | .53** | - | | | | | | | | | | | |
| 4. Paranoia | .75** | .48** | .52** | - | | | | | | | | | | |
| 5. Emotional Blunting | .19* | .07 | -.04 | -.05 | - | | | | | | | | | |
| 6.Anxiety/ Depression | .56** | .12 | .24** | .40** | -.05 | - | | | | | | | | |
| 7. Agitation/ Elation | .44** | .32** | .29** | .27** | -.33** | .35** | - | | | | | | | |
| 8. BHS Total | .32** | .07 | .14 | .18 | .25* | .35** | -.13 | - | | | | | | |
| 9. BDI-II Total | .26* | .15 | .13 | .09 | .20 | .28* | -.16 | .70** | - | | | | | |
| 10. SPS Total | .46** | .26* | .30* | .28* | .21 | .29* | .15 | .59** | .62** | - | | | | |
| 11. SPS Hopelessness Scale | .37** | .15 | .26* | .21 | .17 | .30* | .02 | .43** | .63** | .80** | - | | | |
| 12. SPS Suicidality Scale | .40** | .27* | .23 | .19 | .19 | .25* | .08 | .32** | .55** | .66** | .74** | - | | |
| 13. SPS Negative Self-Evaluation Scale | .11 | .14 | .10 | .08 | .08 | -.02 | -.09 | .37** | .27** | .50** | .38** | .49** | - | |
| 14. SPS Hostility Scale | .21 | .08 | .12 | .03 | .19 | .16 | .13 | .36** | .48** | .64** | .71** | .60** | .42** | - |

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 22
*Service Use by BPRS Factor Scores, BPRS Total, and Symptomatology Measures at Admission*
*One-Way Analyses of Variance (ANOVAs)*

| | M (SD) | F | df | p |
|---|---|---|---|---|
| BPRS Total | | | | |
| No Service | 47.60 (12.15) | .10 | 1, 154 | .75 |
| Service Use | 48.29 (14.62) | | | |
| BPRS Factor Scores | | | | |
| Psychotic Disorganization | | | | |
| No Service | 6.35 (2.76) | .99 | 1, 154 | .32 |
| Service Use | 6.84 (3.37) | | | |
| Emotional Blunting | | | | |
| No Service | 5.96 (3.65) | .04 | 1, 155 | .85 |
| Service Use | 6.07 (3.29) | | | |
| Paranoia | | | | |
| No Service | 9.00 (3.21) | 2.65 | 1, 155 | .11 |
| Service Use | 8.14 (3.36) | | | |
| Anxiety/Depression | | | | |
| No Service | 9.03 (3.46) | 2.03 | 1, 155 | .16 |
| Service Use | 9.90 (4.12) | | | |
| Hallucinations/Delusions | | | | |
| No Service | 6.71 (4.08) | .23 | 1, 155 | .63 |
| Service Use | 6.39 (4.17) | | | |
| Agitation/Elation | | | | |
| No Service | 3.49 (1.55) | 1.51 | 1, 155 | .22 |
| Service Use | 3.82 (1.79) | | | |
| BHS Total | | | | |
| No Service | 4.24 (4.55) | 2.22 | 1, 118 | .14 |
| Service Use | 5.58 (5.19) | | | |
| BDI-II Total | | | | |
| No Service | 9.33 (10.10) | 2.20 | 1, 99 | .14 |
| Service Use | 12.96 (13.82) | | | |
| SPS Total | | | | |
| No Service | 56.02 (10.19) | 7.41 | 1, 122 | .01 |
| Service Use | 61.02 (10.22) | | | |
| SPS Hopelessness Scale | | | | |
| No Service | 53.33 (10.42) | 3.76 | 1, 122 | .05 |
| Service Use | 57.48 (13.09) | | | |
| SPS Suicidality Scale | | | | |
| No Service | 51.41 (8.74) | 1.97 | 1, 122 | .16 |
| Service Use | 54.35 (13.65) | | | |
| SPS Negative Self-Evaluation Scale | | | | |
| No Service | 59.48 (9.79) | | | |
| Service Use | 58.60 (12.56) | .19 | 1, 121 | .67 |
| SPS Hostility Scale | | | | |
| No Service | 52.81 (10.57) | 3.30 | 1, 121 | .07 |
| Service Use | 56.88 (13.81) | | | |

Table 23

*APP Level by BPRS Factor Scores, BPRS Total, and Symptomatology Measures at Admission One-Way Analyses of Variance (ANOVAs)*

| | M (SD) | F | df | p |
|---|---|---|---|---|
| BPRS Total | | | | |
| No APP | 47.60 (12.15) | | | |
| Low APP | 45.96 (11.94) | .32 | 3, 152 | .81 |
| Med APP | 46.91 (14.91) | | | |
| High APP | 49.34 (15.28) | | | |
| BPRS Factor Scores | | | | |
| Psychotic Disorganization | | | | |
| No APP | 6.35 (2.76) | | | |
| Low APP | 6.70 (3.59) | .43 | 3, 152 | .73 |
| Med APP | 6.52 (2.94) | | | |
| High APP | 6.98 (3.51) | | | |
| Emotional Blunting | | | | |
| No APP | 5.97 (3.65) | | | |
| Low APP | 6.92 (2.71) | .44 | 3, 153 | .72 |
| Med APP | 5.47 (2.76) | | | |
| High APP | 6.06 (3.58) | | | |
| Paranoia | | | | |
| No APP | 9.00 (3.21) | | | |
| Low APP | 7.58 (3.83) | 1.03 | 3, 153 | .38 |
| Med APP | 8.14 (3.52) | | | |
| High APP | 8.28 (3.24) | | | |
| Anxiety/Depression | | | | |
| No APP | 9.03 (3.46) | | | |
| Low APP | 8.42 (2.95) | 1.48 | 3, 153 | .22 |
| Med APP | 9.94 (4.64) | | | |
| High APP | 10.25 (4.18) | | | |
| Hallucinations/Delusions | | | | |
| No APP | 6.71 (4.08) | | | |
| Low APP | 6.15 (3.48) | .19 | 3, 153 | .91 |
| Med APP | 5.97 (3.53) | | | |
| High APP | 6.59 (4.56) | | | |
| Agitation/Elation | | | | |
| No APP | 3.49 (1.55) | | | |
| Low APP | 3.23 (1.20) | 1.26 | 3, 153 | .29 |
| Med APP | 4.15 (1.89) | | | |
| High APP | 3.86 (1.88) | | | |
| BHS Total | | | | |
| No APP | 4.24 (4.55) | | | |
| Low APP | 5.69 (6.20) | 1.54 | 3, 116 | .21 |
| Med APP | 7.38 (3.93) | | | |
| High APP | 4.98 (5.18) | | | |
| BDI-II Total | | | | |
| No APP | 9.33 (10.10) | | | |
| Low APP | 11.71 (14.84) | 1.84 | 3, 97 | .14 |
| Med APP | 18.91 (15.75) | | | |

| | | | | |
|---|---|---|---|---|
| High APP | 11.37 (12.43) | | | |
| SPS Total | | | | |
| No APP | 56.02 (10.19) | | | |
| Low APP | 58.43 (11.32) | 3.34 | 3, 120 | .02 |
| Med APP | 64.50 (8.40) | | | |
| High APP | 60.68 (10.31) | | | |
| SPS Hopelessness Scale | | | | |
| No APP | 53.33 (10.42) | | | |
| Low APP | 56.71 (13.63) | 1.57 | 3, 120 | .20 |
| Med APP | 60.29 (12.95) | | | |
| High APP | 56.74 (13.16) | | | |
| SPS Suicidality Scale | | | | |
| No APP | 51.41 (8.74) | | | |
| Low APP | 54.64 (10.95) | .65 | 3, 120 | .58 |
| Med APP | 54.00 (15.51) | | | |
| High APP | 54.37 (14.17) | | | |
| SPS Negative Self-Evaluation Scale | | | | |
| No APP | 59.48 (9.79) | | | |
| Low APP | 58.14 (9.67) | .20 | 3, 119 | .89 |
| Med APP | 57.00 (15.58) | | | |
| High APP | 59.32 (12.64) | | | |
| SPS Hostility Scale | | | | |
| No APP | 52.81 (10.57) | | | |
| Low APP | 57.71 (10.77) | 1.53 | 3, 119 | .21 |
| Med APP | 59.92 (16.73) | | | |
| High APP | 55.53 (13.89) | | | |

Table 24

*Service Use by BPRS Items at admission One-Way Analyses of Variance (ANOVAs)*

| BPRS Items | | M (SD) | F | df | p |
|---|---|---|---|---|---|
| Somatic Concern | No Service | 2.50 (1.63) | .30 | 1, 156 | .59 |
| | Service Use | 2.36 (1.57) | | | |
| Anxiety | No Service | 2.63 (1.40) | .14 | 1, 156 | .71 |
| | Service Use | 2.72 (1.62) | | | |
| Depression | No Service | 2.19 (1.19) | 2.19 | 1, 156 | .14 |
| | Service Use | 2.52 (1.53) | | | |
| Suicidality | No Service | 1.23 (0.62) | 10.36 | 1, 156 | .002* |
| | Service Use | 1.79 (1.37) | | | |
| Guilt | No Service | 1.84 (1.24) | 2.85 | 1, 156 | .09 |
| | Service Use | 2.19 (1.37) | | | |
| Hostility | No Service | 2.53 (1.59) | .42 | 1, 156 | .52 |
| | Service Use | 2.70 (1.74) | | | |
| Elevated Mood | No Service | 1.51 (0.96) | .32 | 1, 156 | .57 |
| | Service Use | 1.61 (1.25) | | | |
| Grandiosity | No Service | 2.13 (1.82) | 3.54 | 1, 156 | .06 |
| | Service Use | 1.63 (1.52) | | | |
| Suspiciousness | No Service | 2.77 (1.80) | 2.63 | 1, 156 | .11 |
| | Service Use | 2.33 (1.58) | | | |
| Hallucinations | No Service | 1.87 (1.55) | 3.66 | 1, 156 | .06 |
| | Service Use | 2.41 (1.97) | | | |
| Unusual Thought Content | No Service | 2.71 (1.99) | 1.29 | 1,156 | .23 |
| | Service Use | 2.35 (1.96) | | | |
| Bizarre Behavior | No Service | 1.93 (1.49) | 1.60 | 1, 156 | .21 |
| | Service Use | 2.25 (1.61) | | | |
| Self-Neglect | No Service | 2.05 (0.94) | 3.55 | 1, 156 | .06 |
| | Service Use | 2.39 (1.24) | | | |
| Disorientation | No Service | 1.33 (0.70) | .92 | 1, 155 | .34 |
| | Service Use | 1.45 (0.90) | | | |
| Conceptual Disorganization | No Service | 2.06 (1.40) | .65 | 1, 155 | .42 |
| | Service Use | 1.88 (1.43) | | | |
| Blunted Affect | No Service | 2.54 (1.48) | .04 | 1, 155 | .84 |
| | Service Use | 2.59 (1.30) | | | |
| Emotional Withdrawal | No Service | 2.25 (1.41) | .11 | 1, 155 | .74 |
| | Service Use | 2.18 (1.21) | | | |
| Motor Retardation | No Service | 2.00 (1.17) | .01 | 1, 155 | .94 |
| | Service Use | 2.01 (1.19) | | | |
| Tension | No Service | 1.75 (1.16) | 1.53 | 1, 155 | .22 |
| | Service Use | 1.55 (0.85) | | | |
| Uncooperativeness | No Service | 1.83 (1.23) | 3.91 | 1, 155 | .05* |
| | Service Use | 1.49 (0.91) | | | |
| Excitement | No Service | 1.63 (1.12) | 1.99 | 1, 155 | .16 |
| | Service Use | 1.40 (0.93) | | | |
| Distractibility | No Service | 1.78 (1.15) | .54 | 1, 155 | .46 |
| | Service Use | 1.93 (1.33) | | | |
| Motor hyperactivity | No Service | 1.37 (0.88) | .23 | 1, 155 | .63 |
| | Service Use | 1.30 (0.73) | | | |
| Mannerisms and Posturing | No Service | 1.17 (0.55) | .11 | 1, 155 | .74 |
| | Service Use | 1.20 (0.58) | | | |

*p<.05

Table 25

*APP Severity Level by BPRS Items at admission One-Way Analyses of Variance (ANOVAs)*

| BPRS Items | | M (SD) | F | df | p |
|---|---|---|---|---|---|
| Somatic Concern | No APP | 2.50 (1.63) | | | |
| | Low APP | 1.77 (0.93) | 1.18 | 3, 154 | .32 |
| | Med APP | 2.12 (1.55) | | | |
| | High APP | 2.58 (1.67) | | | |
| Anxiety | No APP | 2.63 (1.40) | | | |
| | Low APP | 2.19 (1.15) | .68 | 3, 154 | .57 |
| | Med APP | 2.74 (2.06) | | | |
| | High APP | 2.84 (1.56) | | | |
| Depression | No APP | 2.19 (1.19) | | | |
| | Low APP | 2.35 (1.55) | .91 | 3, 154 | .44 |
| | Med APP | 2.38 (1.57) | | | |
| | High APP | 2.60 (1.54) | | | |
| Suicidality | No APP | 1.23 (0.62) | | | |
| | Low APP | 1.15 (0.56) | 5.34 | 3, 154 | .002* |
| | Med APP | 1.94 (1.35) | | | |
| | High APP | 1.90 (1.49) | | | |
| Guilt | No APP | 1.84 (1.24) | | | |
| | Low APP | 1.77 (1.09) | 1.49 | 3, 154 | .22 |
| | Med APP | 2.29 (1.56) | | | |
| | High APP | 2.26 (1.37) | | | |
| Hostility | No APP | 2.53 (1.59) | | | |
| | Low APP | 2.00 (1.29) | 1.11 | 3, 154 | .35 |
| | Med APP | 2.68 (1.88) | | | |
| | High APP | 2.88 (1.77) | | | |
| Elevated Mood | No APP | 1.51 (0.96) | | | |
| | Low APP | 1.35 (0.75) | .45 | 3, 154 | .72 |
| | Med APP | 1.76 (1.47) | | | |
| | High APP | 1.62 (1.29) | | | |
| Grandiosity | No APP | 2.13 (1.82) | | | |
| | Low APP | 1.54 (1.39) | 1.18 | 3, 154 | .32 |
| | Med APP | 1.65 (1.69) | | | |
| | High APP | 1.65 (1.52) | | | |
| Suspiciousness | No APP | 2.77 (1.80) | | | |
| | Low APP | 2.42 (1.66) | .90 | 3, 154 | .45 |
| | Med APP | 2.24 (1.52) | | | |
| | High APP | 2.34 (1.61) | | | |
| Hallucinations | No APP | 1.87 (1.55) | | | |
| | Low APP | 1.92 (1.80) | 1.70 | 3, 154 | .17 |
| | Med APP | 2.29 (1.90) | | | |
| | High APP | 2.57 (2.05) | | | |
| Unusual Thought Content | No APP | 2.71 (1.99) | | | |
| | Low APP | 2.69 (1.97) | .71 | 3,153 | .55 |
| | Med APP | 2.03 (2.04) | | | |
| | High APP | 2.37 (1.96) | | | |
| Bizarre Behavior | No APP | 1.93 (1.49) | | | |
| | Low APP | 2.35 (1.75) | .59 | 3, 154 | .63 |
| | Med APP | 2.12 (1.69) | | | |
| | High APP | 2.26 (1.58) | | | |
| Self-Neglect | No APP | 2.05 (0.94) | | | |
| | Low APP | 2.08 (0.95) | 2.01 | 3, 154 | .11 |
| | Med APP | 2.71 (1.23) | | | |
| | High APP | 2.36 (1.30) | | | |
| Disorientation | No APP | 1.33 (0.70) | | | |
| | Low APP | 2.08 (1.50) | 3.73 | 3, 153 | .01* |
| | Med APP | 1.21 (0.47) | | | |
| | High APP | 1.38 (0.76) | | | |
| Conceptual Disorganization | No APP | 2.06 (1.40) | | | |
| | Low APP | 2.23 (1.59) | .55 | 3, 153 | .65 |
| | Med APP | 1.88 (1.46) | | | |
| | High APP | 1.79 (1.39) | | | |

| | | | | | |
|---|---|---|---|---|---|
| Blunted Affect | No APP | 2.54 (1.48) | | | |
| | Low APP | 3.00 (1.29) | .53 | 3, 153 | .66 |
| | Med APP | 2.38 (1.17) | | | |
| | High APP | 2.55 (1.34) | | | |
| Emotional Withdrawal | No APP | 2.25 (1.41) | | | |
| | Low APP | 2.38 (1.12) | .22 | 3, 153 | .88 |
| | Med APP | 2.03 (1.07) | | | |
| | High APP | 2.17 (1.28) | | | |
| Motor Retardation | No APP | 2.00 (1.17) | | | |
| | Low APP | 2.15 (1.07) | .22 | 3, 153 | .89 |
| | Med APP | 1.82 (1.03) | | | |
| | High APP | 2.04 (1.28) | | | |
| Tension | No APP | 1.75 (1.16) | | | |
| | Low APP | 1.54 (0.88) | .50 | 3, 153 | .68 |
| | Med APP | 1.56 (.97) | | | |
| | High APP | 1.56 (.81) | | | |
| Uncooperativeness | No APP | 1.83 (1.23) | | | |
| | Low APP | 1.62 (1.12) | 1.38 | 3, 153 | .25 |
| | Med APP | 1.53 (1.13) | | | |
| | High APP | 1.45 (0.78) | | | |
| Excitement | No APP | 1.63 (1.12) | | | |
| | Low APP | 1.23 (0.45) | .86 | 3, 153 | .46 |
| | Med APP | 1.53 (1.18) | | | |
| | High APP | 1.40 (0.94) | | | |
| Distractibility | No APP | 1.78 (1.15) | | | |
| | Low APP | 1.54 (0.78) | 1.64 | 3, 153 | .18 |
| | Med APP | 1.56 (0.86) | | | |
| | High APP | 2.14 (1.52) | | | |
| Motor hyperactivity | No APP | 1.37 (0.88) | | | |
| | Low APP | 1.31 (0.63) | .21 | 3, 153 | .89 |
| | Med APP | 1.41 (1.00) | | | |
| | High APP | 1.27 (0.65) | | | |
| Mannerisms and Posturing | No APP | 1.17 (0.55) | | | |
| | Low APP | 1.31 (0.63) | .58 | 3, 152 | .63 |
| | Med APP | 1.06 (0.24) | | | |
| | High APP | 1.23 (0.64) | | | |

*p<.05

Table 26
*Service Use by WCST Repeated Measures ANOVAs*

| | Measures | | | |
|---|---|---|---|---|
| Variable | WCST Correct<br>F (2,72) | WCST Perseverative Errors<br>F (2,112) | WCST Random Errors<br>F (2, 112) | WCST Consolidation Index<br>F (2, 72) |
| Main Effect Assessment Time | .66 | 2.53 | 3.66* | 1.92 |
| Main Effect Service Use | 1.35 | 5.13* | .71 | .71 |
| Interaction Assessment Time * Service Use | .64 | 1.36 | .84 | .10 |

*p<.05, **p<.01, ***p<.001

Table 27
*Service Use by Neurocognition Measures Repeated Measures ANOVAs*

| | Measures | | | | | |
|---|---|---|---|---|---|---|
| Variable | RAVLT<br>F (2,18) | NAB Total<br>F (2,26) | Trails A<br>F (2, 110) | Trails B<br>F (2, 112) | COWAT/ FAS<br>F (2, 114) | RBANS Total<br>F (2, 108) |
| Main Effect Assessment Time | .24 | 1.74 | .51 | .12 | 1.91 | 9.82*** |
| Main Effect Service Use | 2.19 | .28 | .004 | .20 | .06 | 1.67 |
| Interaction Assessment Time * Service Use | 5.25* | .47 | 3.38* | .53 | 3.02* | 3.65* |

*p<.05, **p<.01, ***p<.001

Table 28
*Service Use by RCFT Repeated Measures ANOVAs*

| | Measures | | | |
|---|---|---|---|---|
| Variable | RCFT Copy F (2,60) | RCFT Immediate Copy F (2,60) | RCFT Delayed Memory F (2, 60) | RCFT Recognition F (2, 60) |
| Main Effect Assessment Time | 1.75 | 4.62** | 4.89** | .55 |
| Main Effect Service Use | .32 | 3.60 | 1.69 | .04 |
| Interaction Assessment Time * Service Use | .19 | 1.37 | .13 | .63 |

*p<.05, **p<.01, ***p<.001

Table 29
*Mean Scores and Standard Deviations for WCST Correct Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | WCST Correct Scores | | |
|---|---|---|---|
| Services Before Age 18 | At Admission M (SD) | Six Months M (SD) | Twelve Months M (SD) |
| No Service Use | 24.35 (2.67) | 23.41 (4.23) | 23.94 (3.31) |
| Service Use | 24.86 (.66) | 24.81 (.87) | 24.33 (2.83) |

Table 30

*Mean Scores and Standard Deviations for WCST Perseverative Errors Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | WCST Perseverative Errors Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 24.52 (13.52) | 30.70 (18.50) | 24.93 (15.98) |
| Service Use | 22.10 (11.41) | 21.52 (12.09) | 17.94 (11.23) |

Table 31

*Mean Scores and Standard Deviations for WCST Random Errors Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | WCST Random Error Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 27.89 (15.98) | 29.81 (18.19) | 21.74 (18.47) |
| Service Use | 24.90 (18.71) | 25.26 (17.51) | 20.23 (17.51) |

Table 32

*Mean Scores and Standard Deviations for WCST Consolidation Index Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | WCST Consolidation Index Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 4.59 (5.77) | 4.58 (8.42) | 11.87 (32.49) |
| Service Use | 2.84 (4.90) | 2.74 (3.21) | 7.43 (19.47) |

Table 33
*Mean Scores and Standard Deviations for RAVLT Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | RAVLT Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 6.80 (3.19) | 5.80 (3.11) | 8.20 (3.27) |
| Service Use | 9.00 (2.19) | 10.33 (3.14) | 8.50 (2.51) |

Table 34
*Mean Scores and Standard Deviations for NAB Total Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | NAB Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 70.00 (10.23) | 75.00 (3.74) | 77.75 (9.32) |
| Service Use | 75.91 (15.98) | 80.09 (14.96) | 78.27 (14.16) |

Table 35
*Mean Scores and Standard Deviations for Trails A Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | Trails A Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 42.88 (14.57) | 50.30 (19.59) | 43.03 (14.97) |
| Service Use | 47.04 (28.23) | 42.76 (30.58) | 45.24 (38.51) |

Table 36
*Mean Scores and Standard Deviations for Trails B Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | Trails B Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 107.84 (48.26) | 112.83 (58.77) | 112.03 (93.06) |
| Service Use | 126.91 (84.19) | 112.66 (94.25) | 117.02 (86.00) |

Table 37
*Mean Scores and Standard Deviations for COWAT/FAS Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | COWAT/FAS Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 30.71 (9.45) | 26.75 (12.70) | 28.82 (8.87) |
| Service Use | 26.74 (9.27) | 27.68 (9.86) | 30.32 (9.62) |

Table 38
*Mean Scores and Standard Deviations for RBANS Total Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | RBANS Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 73.77 (15.39) | 73.19 (13.49) | 80.84 (16.03) |
| Service Use | 68.32 (13.57) | 72.60 (13.45) | 73.04 (14.62) |

Table 39
*Mean Scores and Standard Deviations for RCFT Copy Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | RCFT Copy Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 29.85 (6.85) | 28.46 (5.52) | 29.85 (5.97) |
| Service Use | 28.42 (5.95) | 26.92 (7.38) | 29.55 (6.38) |

Table 40
*Mean Scores and Standard Deviations for RCFT Immediate Memory Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | RCFT Immediate Memory Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 11.58 (5.20) | 12.31 (5.53) | 16.12 (6.85) |
| Service Use | 15.82 (1.68) | 15.76 (9.97) | 29.92 (29.46) |

Table 41
*Mean Scores and Standard Deviations for RCFT Delayed Memory Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | RCFT Delayed Memory Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 12.12 (4.98) | 11.88 (5.14) | 15.23 (6.69) |
| Service Use | 15.17 (11.66) | 15.39 (9.43) | 19.71 (11.14) |

Table 42

*Mean Scores and Standard Deviations for RCFT Recognition Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | RCFT Recognition Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 19.08 (2.53) | 18.92 (1.71) | 19.08 (2.84) |
| Service Use | 18.21 (6.00) | 19.68 (7.10) | 19.95 (2.70) |

Table 43

*APP Severity Level by WCST Repeated Measures ANOVAs*

| | Measures | | | |
|---|---|---|---|---|
| | WCST Correct | WCST Perseverative Errors | WCST Random Errors | WCST Consolidation Index |
| Variable | F (6,68) | F (6,108) | F (6, 108) | F (6, 68) |
| Main Effect Assessment Time | .20 | .73 | 1.81 | .77 |
| Main Effect APP Severity Level | .54 | 2.66 | 1.87 | .40 |
| Interaction Assessment Time * APP Severity Level | .26 | 1.09 | 1.30 | .08 |

*p<.05, **p<.01, ***p<.001

Table 44
*APP Severity Level by Neurocognition Measures*
*Repeated Measures ANOVAs*

| | Measures | | | | | |
|---|---|---|---|---|---|---|
| Variable | RAVLT<br>F (4,16) | NAB Total<br>F (4,24) | Trails A<br>F (6, 106) | Trails B<br>F (6, 106) | COWAT/ FAS<br>F (6, 110) | RBANS Total<br>F (6, 104) |
| Main Effect Assessment Time | .15 | .39 | .20 | .56 | 1.16 | 6.37** |
| Main Effect APP Severity Level | 1.06 | .30 | 1.58 | .84 | .09 | .80 |
| Interaction Assessment Time * APP Severity Level | 3.88* | 1.40 | 1.28 | .55 | 1.67 | 2.40* |

*p<.05, **p<.01, ***p<.001

Table 45
*Service Use by RCFT Repeated Measures ANOVAs*

| | Measures | | | |
|---|---|---|---|---|
| Variable | RCFT Copy<br>F (6,56) | RCFT Immediate Copy<br>F (6,56) | RCFT Delayed Memory<br>F (6, 56) | RCFT Recognition<br>F (6, 56) |
| Main Effect Assessment Time | 2.20 | 5.66* | 6.23** | 1.33 |
| Main Effect Service Use | .80 | 1.27 | .55 | 1.19 |
| Interaction Assessment Time * Service Use | .25 | 1.76 | 2.14 | 1.46 |

*p<.05, **p<.01, ***p<.001

Table 46

*Mean Scores and Standard Deviations for WCST Correct Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | WCST Correct Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 24.35 (2.67) | 23.41 (4.23) | 23.94 (3.31) |
| Low APP | 25.00 (.00) | 25.00 (.00) | 25.00 (.00) |
| Medium APP | 25.00 (.00) | 25.00 (.00) | 24.80 (.45) |
| High APP | 24.75 (.87) | 24.67 (1.16) | 23.92 (3.75) |

Table 47

*Mean Scores and Standard Deviations for WCST Perseverative Errors Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | WCST Perseverative Errors Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 24.52 (13.52) | 30.70 (18.50) | 24.93 (15.98) |
| Low APP | 22.50 (11.79) | 26.25 (6.19) | 19.50 (12.77) |
| Medium APP | 18.29 (11.80) | 10.00 (6.56) | 16.14 (14.68) |
| High APP | 23.35 (11.52) | 24.60 (12.14) | 18.25 (10.18) |

Table 48

*Mean Scores and Standard Deviations for WCST Random Errors Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | WCST Random Error Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 27.89 (15.98) | 29.81 (18.19) | 21.74 (18.47) |
| Low APP | 23.00 (8.29) | 40.50 (10.76) | 22.00 (8.41) |
| Medium APP | 14.00 (12.74) | 9.71 (10.42) | 17.71 (20.23) |
| High APP | 29.10 (20.68) | 27.65 (16.95) | 20.75 (18.45) |

Table 49

*Mean Scores and Standard Deviations for WCST Consolidation Index Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | WCST Consolidation Index Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 4.59 (5.77) | 4.58 (8.42) | 11.87 (32.49) |
| Low APP | 1.23 (.70) | 1.14 (1.31) | 1.85 (1.35) |
| Medium APP | 5.31 (8.28) | 4.17 (4.52) | 8.87 (14.81) |
| High APP | 2.36 (3.82) | 2.67 (2.99) | 8.69 (24.40) |

Table 50

*Mean Scores and Standard Deviations for RAVLT Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | RAVLT Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 6.80 (3.19) | 5.80 (3.11) | 8.20 (3.27) |
| Low APP | - | - | - |
| Medium APP | 8.50 (2.12) | 8.50 (3.54) | 9.00 (1.41) |
| High APP | 9.25 (2.50) | 11.25 (2.99) | 8.25 (3.10) |

Table 51

*Mean Scores and Standard Deviations for NAB Total Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | NAB Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 70.00 (10.23) | 75.00 (3.74) | 77.75 (9.32) |
| Low APP | - | - | - |
| Medium APP | 78.00 (4.24) | 75.00 (4.24) | 67.00 (7.07) |
| High APP | 75.44 (17.76) | 81.22 (16.42) | 80.78 (14.34) |

Table 52
*Mean Scores and Standard Deviations for Trails A Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | Trails A Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 42.88 (14.57) | 50.30 (19.59) | 43.03 (14.97) |
| Low APP | 64.75 (30.39) | 65.00 (27.83) | 61.26 (23.81) |
| Medium APP | 37.78 (18.91) | 31.76 (12.55) | 33.03 (14.78) |
| High APP | 48.40 (31.61) | 44.08 (36.65) | 48.88 (49.41) |

Table 53
*Mean Scores and Standard Deviations for Trails B Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | Trails B Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 107.84 (48.26) | 112.83 (58.77) | 112.03 (93.06) |
| Low APP | 174.00 (89.80) | 160.50 (30.45) | 127.34 (47.63) |
| Medium APP | 100.03 (44.58) | 96.32 (50.47) | 92.53 (54.13) |
| High APP | 132.27 (99.94) | 110.81 (122.80) | 130.60 (108.47) |

Table 54
*Mean Scores and Standard Deviations for COWAT/FAS Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | COWAT/FAS Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 30.71 (9.45) | 26.75 (12.70) | 28.82 (8.87) |
| Low APP | 22.50 (8.89) | 30.75 (12.76) | 28.25 (11.03) |
| Medium APP | 27.90 (10.56) | 26.20 (10.68) | 28.80 (11.58) |
| High APP | 27.06 (8.84) | 27.82 (9.17) | 31.71 (8.41) |

Table 55
*Mean Scores and Standard Deviations for RBANS Total Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | RBANS Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 73.77 (15.39) | 73.19 (13.49) | 80.84 (16.03) |
| Low APP | 70.60 (13.81) | 73.80 (15.01) | 81.40 (8.39) |
| Medium APP | 68.56 (15.31) | 70.22 (14.81) | 67.44 (13.96) |
| High APP | 67.09 (13.19) | 74.00 (12.68) | 73.82 (16.28) |

Table 56
*Mean Scores and Standard Deviations for RCFT Copy Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | RCFT Copy Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 29.85 (6.85) | 28.46 (5.52) | 29.85 (5.97) |
| Low APP | 27.88 (2.32) | 27.25 (3.40) | 31.25 (5.56) |
| Medium APP | 26.75 (9.49) | 23.67 (11.42) | 26.83 (7.80) |
| High APP | 29.78 (4.14) | 28.94 (4.90) | 30.61 (5.81) |

Table 57
*Mean Scores and Standard Deviations for RCFT Immediate Memory Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | RCFT Immediate Memory Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 11.58 (5.20) | 12.31 (5.53) | 16.12 (6.85) |
| Low APP | 14.75 (6.36) | 14.25 (6.20) | 30.00 (17.22) |
| Medium APP | 19.33 (18.85) | 18.25 (15.55) | 18.42 (10.52) |
| High APP | 13.94 (7.47) | 14.78 (7.16) | 37.56 (40.10) |

Table 58

*Mean Scores and Standard Deviations for RCFT Delayed Memory Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | RCFT Delayed Memory Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 12.12 (4.98) | 11.88 (5.14) | 15.23 (6.69) |
| Low APP | 10.75 (5.87) | 14.00 (6.72) | 22.63 (10.48) |
| Medium APP | 18.92 (18.69) | 16.83 (14.17) | 15.42 (11.56) |
| High APP | 14.63 (7.38) | 15.06 (7.40) | 21.28 (11.56) |

Table 59

*Mean Scores and Standard Deviations for RCFT Recognition Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | RCFT Recognition Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 19.08 (2.53) | 18.92 (1.71) | 19.08 (2.84) |
| Low APP | 16.75 (2.87) | 19.25 (1.26) | 20.25 (1.50) |
| Medium APP | 21.17 (9.58) | 23.50 (11.11) | 19.83 (2.32) |
| High APP | 16.89 (3.30) | 17.33 (4.27) | 19.89 (3.48) |

Table 60
*Service Use by FKK Repeated Measures ANOVAs*

| | Measures | | | | | |
|---|---|---|---|---|---|---|
| Variable | FKK Internal F (2,50) | FKK Self Concept F (2,50) | FKK Self Efficacy F (2, 50) | FKK Powerful Others F (2, 50) | FKK Chance F (2, 50) | FKK Externality F (2, 50) |
| Main Effect Assessment Time | .27 | 1.14 | .11 | 1.04 | 4.66** | 3.77* |
| Main Effect Service Use | .06 | .33 | .25 | .33 | 1.13 | .74 |
| Interaction Assessment Time * Service Use | .80 | .71 | .48 | .90 | 5.29** | 3.87* |

*p<.05, **p<.01, ***p<.001

Table 61
*Service Use by Socialcognition Measures*
*Repeated Measures ANOVAs*

| | Measures | | | | |
|---|---|---|---|---|---|
| Variable | Hinting F (2,102) | CST Social Support F (2,40) | CST Self Controlling F (2, 40) | CST Escape Avoidance F (2, 40) | CST Planful Problem Solving F (2, 40) |
| Main Effect Assessment Time | 8.32*** | 4.83** | .14 | 1.74 | .47 |
| Main Effect Service Use | .01 | .21 | 7.05* | .13 | 1.16 |
| Interaction Assessment Time * Service Use | .21 | .74 | .24 | 1.92 | .57 |

*p<.05, **p<.01, ***p<.001

Table 62
*Service Use by Socialcognition Measures*
*Repeated Measures ANOVAs*

| | Measures | | | | | |
|---|---|---|---|---|---|---|
| Variable | IPSAQ Internal Positive F (2,30) | IPSAQ Personal Positive F (2,30) | IPSAQ Situational Positive F (2, 30) | IPSAQ Internal Negative F (2, 30) | IPSAQ Personal Negative F (2, 30) | IPSAQ Situational Negative F (2, 30) |
| Main Effect Assessment Time | .39 | 4.00* | 2.32 | .39 | .33 | .45 |
| Main Effect Service Use | 2.15 | .51 | 4.02 | 1.41 | .63 | .69 |
| Interaction Assessment Time * Service Use | 2.85 | .93 | 2.18 | 3.41* | .47 | 2.14 |

*p<.05, **p<.01, ***p<.001

Table 63
*Mean Scores and Standard Deviations for Hinting Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | Hinting Scores | | |
|---|---|---|---|
| Services Before Age 18 | At Admission M (SD) | Six Months M (SD) | Twelve Months M (SD) |
| No Service Use | 14.86 (3.31) | 16.48 (3.12) | 16.14 (2.90) |
| Service Use | 14.50 (3.08) | 16.75 (3.35) | 16.04 (3.67) |

Table 64

*Mean Scores and Standard Deviations for FKK Internal Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | FKK Internal Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 33.88 (7.98) | 33.94 (5.64) | 34.88 (5.37) |
| Service Use | 33.36 (6.53) | 35.09 (5.63) | 32.82 (6.35) |

Table 65

*Mean Scores and Standard Deviations for FKK Self Concept Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | FKK Self Concept Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 33.06 (5.08) | 32.75 (3.84) | 32.88 (3.74) |
| Service Use | 33.55 (5.09) | 31.09 (4.16) | 31.55 (6.36) |

Table 66

*Mean Scores and Standard Deviations for FKK Self Efficacy Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | FKK Self Efficacy Index Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 66.94 (11.11) | 66.69 (7.11) | 67.75 (6.90) |
| Service Use | 66.91 (8.85) | 66.18 (7.01) | 64.36 (9.68) |

Table 67

*Mean Scores and Standard Deviations for FKK Powerful Others Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | FKK Powerful Others Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 26.69 (9.19) | 26.88 (7.00) | 25.94 (7.23) |
| Service Use | 26.73 (7.14) | 23.73 (7.88) | 24.36 (7.87) |

Table 68

*Mean Scores and Standard Deviations for FKK Chance Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | FKK Chance Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 24.69 (7.79) | 25.63 (7.60) | 24.19 (5.94) |
| Service Use | 26.73 (9.09) | 20.09 (6.07) | 20.09 (5.19) |

Table 69

*Mean Scores and Standard Deviations for FKK Externality Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | FKK Externality Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 51.38 (16.47) | 52.50 (13.29) | 50.13 (12.12) |
| Service Use | 53.45 (13.84) | 43.82 (13.11) | 44.45 (10.31) |

Table 70

*Mean Scores and Standard Deviations for IPSAQ Internal Positive Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IPSAQ Internal Positive Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 8.50 (2.83) | 7.37 (3.29) | 7.00 (3.89) |
| Service Use | 7.67 (2.45) | 10.11 (1.69) | 9.33 (2.18) |

Table 71

*Mean Scores and Standard Deviations for IPSAQ Personal Positive Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IPSAQ Personal Positive Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 4.87 (2.36) | 3.75 (1.49) | 2.75 (2.82) |
| Service Use | 3.56 (1.81) | 3.44 (1.42) | 2.78 (1.64) |

Table 72

*Mean Scores and Standard Deviations for IPSAQ Situational Positive Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IPSAQ Situational Positive Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 2.63 (1.51) | 4.88 (2.42) | 5.38 (2.62) |
| Service Use | 3.33 (1.94) | 2.44 (1.88) | 3.89 (2.32) |

Table 73
*Mean Scores and Standard Deviations for IPSAQ Internal Negative Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IPSAQ Internal Negative Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 5.63 (4.21) | 6.50 (4.72) | 4.00 (3.38) |
| Service Use | 6.22 (2.22) | 6.78 (3.42) | 8.22 (3.11) |

Table 74
*Mean Scores and Standard Deviations for IPSAQ Personal Negative Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IPSAQ Personal Negative Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 6.13 (4.19) | 5.13 (3.68) | 4.87 (3.60) |
| Service Use | 4.22 (3.03) | 4.56 (1.94) | 4.22 (2.91) |

Table 75
*Mean Scores and Standard Deviations for IPSAQ Situational Negative Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IPSAQ Situational Negative Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 4.25 (2.12) | 4.25 (2.05) | 6.25 (1.83) |
| Service Use | 4.11 (2.62) | 4.56 (4.04) | 3.56 (3.21) |

Table 76
*Mean Scores and Standard Deviations for CST Social Support Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | CST Social Support Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 32.75 (10.11) | 37.17 (9.16) | 40.67 (8.33) |
| Service Use | 37.10 (11.06) | 36.80 (9.88) | 41.50 (10.36) |

Table 77
*Mean Scores and Standard Deviations for CST Self Controlling Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | CST Self Controlling Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 54.50 (5.14) | 54.08 (7.10) | 54.75 (4.83) |
| Service Use | 48.90 (5.41) | 48.00 (9.15) | 46.90 (11.18) |

Table 78
*Mean Scores and Standard Deviations for CST Escape Avoidance Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | CST Escape Avoidance Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 33.67 (5.28) | 36.25 (6.08) | 38.17 (3.74) |
| Service Use | 35.60 (5.48) | 39.70 (4.57) | 34.90 (12.21) |

Table 79

*Mean Scores and Standard Deviations for CST Planful Problem Solving Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | CST Planful Problem Solving Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 42.08 (8.85) | 43.33 (5.03) | 45.17 (6.24) |
| Service Use | 41.40 (11.05) | 39.10 (7.88) | 40.90 (10.78) |

Table 80

*APP Severity Level by FKK Repeated Measures ANOVAs*

| | Measures | | | | | |
|---|---|---|---|---|---|---|
| | FKK Internal | FKK Self Concept | FKK Self Efficacy | FKK Powerful Others | FKK Chance | FKK Externality |
| Variable | F (6,46) | F (6,46) | F (6,46) | F (6,46) | F (6,46) | F (6,46) |
| Main Effect Assessment Time | .54 | 1.23 | .09 | 1.11 | 7.81*** | 5.47** |
| Main Effect APP Severity Level | .06 | .26 | .12 | .25 | .35 | .29 |
| Interaction Assessment Time * APP | 1.15 | 1.17 | 1.19 | 1.09 | 2.88* | 2.30* |

*p<.05, **p<.01, ***p<.001

Table 81
*APP Severity Level by Socialcognition Measures*
*Repeated Measures ANOVAs*

| | Measures | | | | |
|---|---|---|---|---|---|
| Variable | Hinting | CST Social Support | CST Self Controlling | CST Escape Avoidance | CST Planful Problem Solving |
| | F (6,98) | F (6,36) | F (6, 36) | F (6, 36) | F (6, 36) |
| Main Effect Assessment Time | 5.87** | 2.71 | .48 | 2.15 | .21 |
| Main Effect APP Severity Level | .80 | .12 | 3.39* | 1.12 | .67 |
| Interaction Assessment Time * APP | .90 | .32 | 1.81 | 2.26 | .52 |

*p<.05, **p<.01, ***p<.001

Table 82
*APP Severity Level by Socialcognition Measures*
*Repeated Measures ANOVAs*

| | Measures | | | | | |
|---|---|---|---|---|---|---|
| Variable | IPSAQ Internal Positive | IPSAQ Personal Positive | IPSAQ Situational Positive | IPSAQ Internal Negative | IPSAQ Personal Negative | IPSAQ Situational Negative |
| | F (6,26) | F (6,26) | F (6, 26) | F (6, 26) | F (6, 26) | F (6, 26) |
| Main Effect Assessment Time | 1.57 | 1.74 | 1.05 | 1.20 | .13 | .02 |
| Main Effect APP Severity Level | 1.55 | .36 | 4.23* | .66 | .24 | .64 |
| Interaction Assessment Time * APP | 1.30 | 1.18 | 1.77 | 3.21* | .46 | 1.85 |

*p<.05, **p<.01, ***p<.001

Table 83
*Mean Scores and Standard Deviations for Hinting Task Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | Hinting Task Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 14.86 (3.31) | 16.48 (3.12) | 16.14 (2.90) |
| Low APP | 12.33 (.58) | 14.67 (3.06) | 17.33 (.58) |
| Medium APP | 14.29 (3.64) | 15.86 (3.13) | 14.43 (4.93) |
| High APP | 15.07 (3.03) | 17.64 (3.41) | 16.57 (3.23) |

Table 84
*Mean Scores and Standard Deviations for FKK Internal Locus of Control Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | FKK Internal Locus of Control Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 33.88 (7.98) | 33.94 (5.64) | 34.88 (5.37) |
| Low APP | 35.33 (9.50) | 36.00 (6.56) | 32.67 (2.52) |
| Medium APP | 34.60 (6.43) | 35.00 (6.60) | 31.00 (8.25) |
| High APP | 29.33 (2.52) | 34.33 (5.13) | 36.00 (6.00) |

Table 85

*Mean Scores and Standard Deviations for FKK Self Concept Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | FKK Self Concept Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 33.06 (5.08) | 32.75 (3.84) | 32.88 (3.74) |
| Low APP | 32.00 (2.65) | 33.00 (1.00) | 30.33 (4.73) |
| Medium APP | 33.80 (6.42) | 30.60 (2.88) | 30.00 (5.00) |
| High APP | 34.67 (5.86) | 30.00 (7.81) | 35.33 (10.02) |

Table 86

*Mean Scores and Standard Deviations for FKK Self Efficacy Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | FKK Self Efficacy Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 66.94 (11.11) | 66.69 (7.11) | 67.75 (6.90) |
| Low APP | 67.33 (10.26) | 69.00 (7.55) | 63.00 (5.57) |
| Medium APP | 68.40 (10.69) | 65.60 (3.78) | 61.00 (6.21) |
| High APP | 64.00 (6.25) | 64.33 (11.93) | 71.33 (16.01) |

Table 87

*Mean Scores and Standard Deviations for FKK Powerful Others Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | FKK Powerful Others Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 26.69 (9.19) | 26.88 (7.00) | 25.94 (7.23) |
| Low APP | 28.33 (3.79) | 21.67 (3.79) | 25.67 (9.87) |
| Medium APP | 26.20 (8.84) | 21.80 (8.32) | 22.60 (9.21) |
| High APP | 26.00 (8.89) | 29.00 (10.00) | 26.00 (5.29) |

Table 88

*Mean Scores and Standard Deviations for FKK Chance Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | FKK Chance Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 24.69 (7.79) | 25.63 (7.60) | 24.19 (5.94) |
| Low APP | 29.00 (10.00) | 20.33 (1.53) | 17.67 (2.08) |
| Medium APP | 26.20 (10.71) | 18.00 (7.25) | 22.20 (6.38) |
| High APP | 25.33 (8.51) | 23.33 (7.10) | 19.00 (5.20) |

Table 89

*Mean Scores and Standard Deviations for FKK External Locus of Control Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | FKK External Locus of Control Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 51.38 (16.47) | 52.50 (13.29) | 50.13 (12.12) |
| Low APP | 57.33 (3.58) | 42.00 (5.29) | 43.33 (9.71) |
| Medium APP | 52.40 (18.15) | 39.80 (15.43) | 44.80 (14.72) |
| High APP | 51.33 (9.07) | 52.33 (14.15) | 45.00 (1.00) |

Table 90

*Mean Scores and Standard Deviations for IPSAQ Internal Positive Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IPSAQ Internal Positive Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 8.50 (2.83) | 7.37 (3.29) | 7.00 (3.89) |
| Low APP | 8.00 (4.36) | 11.33 (1.53) | 12.00 (1.00) |
| Medium APP | 8.00 (1.41) | 9.50 (1.92) | 8.00 (.82) |
| High APP | 6.50 (.71) | 9.50 (.71) | 8.00 (1.41) |

Table 91

*Mean Scores and Standard Deviations for IPSAQ Personal Positive Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IPSAQ Personal Positive Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 4.87 (2.36) | 3.75 (1.49) | 2.75 (2.82) |
| Low APP | 2.00 (1.73) | 4.00 (2.00) | 2.00 (.00) |
| Medium APP | 4.50 (1.73) | 3.00 (1.41) | 3.00 (2.45) |
| High APP | 4.00 (.00) | 3.50 (.71) | 3.50 (.71) |

Table 92

*Mean Scores and Standard Deviations for IPSAQ Situational Positive Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IPSAQ Situational Positive Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 2.63 (1.51) | 4.88 (2.42) | 5.38 (2.62) |
| Low APP | 3.67 (1.53) | .67 (.58) | 2.00 (1.00) |
| Medium APP | 2.00 (1.63) | 3.50 (2.08) | 5.00 (2.58) |
| High APP | 5.50 (.71) | 3.00 (.00) | 4.50 (2.12) |

Table 93

*Mean Scores and Standard Deviations for IPSAQ Internal Negative Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IPSAQ Internal Negative Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 5.63 (4.21) | 6.50 (4.72) | 4.00 (3.38) |
| Low APP | 5.00 (1.00) | 3.33 (4.16) | 9.33 (4.73) |
| Medium APP | 7.25 (2.63) | 8.00 (.82) | 7.25 (.50) |
| High APP | 6.00 (2.83) | 9.50 (.71) | 8.50 (4.95) |

Table 94

*Mean Scores and Standard Deviations for IPSAQ Personal Negative Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IPSAQ Personal Negative Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 6.13 (4.19) | 5.13 (3.68) | 4.87 (3.60) |
| Low APP | 4.00 (2.65) | 5.00 (1.73) | 2.67 (2.08) |
| Medium APP | 4.00 (4.08) | 4.00 (2.58) | 5.00 (3.16) |
| High APP | 5.00 (2.83) | 5.00 (1.41) | 5.00 (4.24) |

Table 95

*Mean Scores and Standard Deviations for IPSAQ Situational Negative Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IPSAQ Situational Negative Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 4.25 (2.12) | 4.25 (2.05) | 6.25 (1.83) |
| Low APP | 4.00 (4.58) | 7.33 (5.51) | 4.00 (5.29) |
| Medium APP | 3.75 (1.89) | 4.00 (2.94) | 3.75 (2.75) |
| High APP | 5.00 (.00) | 1.50 (.71) | 2.50 (.71) |

Table 96

*Mean Scores and Standard Deviations for CST Social Support Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | CST Social Support Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 32.75 (10.11) | 37.17 (9.16) | 40.67 (8.33) |
| Low APP | 39.67 (11.24) | 36.67 (3.51) | 43.00 (7.21) |
| Medium APP | 36.25 (15.90) | 35.75 (16.22) | 39.75 (13.15) |
| High APP | 35.67 (5.51) | 38.33 (5.13) | 42.33 (12.70) |

Table 97
*Mean Scores and Standard Deviations for CST Self Controlling Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | CST Self Controlling Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 54.50 (5.14) | 54.08 (7.10) | 54.75 (4.83) |
| Low APP | 49.33 (4.04) | 46.33 (5.13) | 51.67 (.58) |
| Medium APP | 48.75 (5.68) | 51.25 (14.10) | 51.25 (9.61) |
| High APP | 48.67 (8.15) | 45.33 (4.04) | 36.33 (13.58) |

Table 98
*Mean Scores and Standard Deviations for CST Escape Avoidance Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | CST Escape Avoidance Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 33.67 (5.28) | 36.25 (6.08) | 38.17 (3.74) |
| Low APP | 34.67 (2.52) | 37.33 (.58) | 37.00 (3.00) |
| Medium APP | 36.25 (7.14) | 41.50 (5.97) | 40.75 (5.32) |
| High APP | 35.67 (7.10) | 39.67 (5.03) | 25.00 (19.93) |

Table 99

*Mean Scores and Standard Deviations for CST Planful Problem Solving Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | CST Planful Problem Solving Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity Level | M (SD) | M (SD) | M (SD) |
| No APP | 42.08 (8.85) | 43.33 (5.03) | 45.17 (6.24) |
| Low APP | 43.00 (3.61) | 43.67 (2.08) | 41.33 (2.08) |
| Medium APP | 40.25 (15.13) | 33.75 (8.26) | 40.00 (9.27) |
| High APP | 41.33 (13.65) | 41.67 (8.62) | 41.67 (19.66) |

Table 100

*Service Use by IS Repeated Measures ANOVAs*

| | Measures | | | |
|---|---|---|---|---|
| | IS Relabel | IS Awareness | IS Need for Treatment | IS Total Insight |
| Variable | F (2,114) | F (2,114) | F (2, 114) | F (2, 114) |
| Main Effect Assessment Time | 2.40 | 1.37 | 3.22* | 2.37 |
| Main Effect Service Use | .52 | 8.42** | 2.77 | 5.47* |
| Interaction Assessment Time * Service Use | 3.98* | 2.52 | 1.96 | 3.26* |

*p<.05, **p<.01, ***p<.001

Table 101

*Mean Scores and Standard Deviations for IS Relabel Scale Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IS Relabel Scale Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 2.62 (1.08) | 2.76 (.95) | 1.97 (1.21) |
| Service Use | 2.13 (1.07) | 2.43 (.94) | 2.43 (.77) |

Table 102

*Mean Scores and Standard Deviations for IS Awareness of Illness Scale Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IS Awareness of Illness Scale Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 2.66 (1.17) | 2.83 (1.20) | 2.21 (1.11) |
| Service Use | 2.00 (1.30) | 1.70 (1.29) | 1.97 (1.22) |

Table 103

*Mean Scores and Standard Deviations for IS Need for Treatment Scale Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IS Need for Treatment Scale Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 2.52 (1.08) | 2.47 (1.21) | 1.83 (1.22) |
| Service Use | 2.15 (1.18) | 1.72 (1.32) | 1.85 (1.22) |

Table 104
*Mean Scores and Standard Deviations for IS Total Insight Scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | IS Total Insight Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Services Before Age 18 | M (SD) | M (SD) | M (SD) |
| No Service Use | 7.79 (2.96) | 8.05 (2.87) | 6.00 (2.75) |
| Service Use | 6.35 (2.87) | 5.92 (2.88) | 6.25 (2.48) |

Table 105
*APP Severity by IS Repeated Measures ANOVAs*

| | Measures | | | |
|---|---|---|---|---|
| Variable | IS Relabel F (6,110) | IS Awareness F (6,110) | IS Need for Treatment F (6, 110) | IS Total Insight F (6, 110) |
| Main Effect Assessment Time | .91 | 2.16 | 3.14* | 1.98 |
| Main Effect Service Use | .43 | 2.89* | .91 | 1.88 |
| Interaction Assessment Time * Service Use | 2.90** | 2.48* | 1.79 | 3.38** |

*p<.05, **p<.01, ***p<.001

Table 106

*Mean Scores and Standard Deviations for IS Relabel Scale Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IS Relabel Scale Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity | M (SD) | M (SD) | M (SD) |
| No Service Use | 2.62 (1.08) | 2.76 (.95) | 1.97 (1.21) |
| Low APP | 3.25 (.96) | 2.50 (1.00) | 2.00 (.00) |
| Medium APP | 1.63 (.92) | 2.75 (.89) | 2.63 (.52) |
| High APP | 2.11 (1.02) | 2.28 (.96) | 2.44 (.92) |

Table 107

*Mean Scores and Standard Deviations for IS Awareness of Illness Scale Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IS Awareness of Illness Scale Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity | M (SD) | M (SD) | M (SD) |
| No Service Use | 2.66 (1.17) | 2.83 (1.20) | 2.21 (1.11) |
| Low APP | 3.25 (.96) | 1.50 (1.00) | 1.50 (1.00) |
| Medium APP | 1.50 (1.41) | 2.13 (1.13) | 1.75 (1.17) |
| High APP | 2.28 (1.18) | 1.56 (1.42) | 2.17 (1.30) |

Table 108

*Mean Scores and Standard Deviations for IS Need for Treatment Scale Scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IS Need for Treatment Scale Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity | M (SD) | M (SD) | M (SD) |
| No Service Use | 2.52 (1.08) | 2.47 (1.21) | 1.83 (1.22) |
| Low APP | 3.13 (1.03) | 1.50 (1.00) | 1.38 (1.11) |
| Medium APP | 1.69 (.88) | 2.00 (1.51) | 1.94 (1.08) |
| High APP | 2.14 (1.23) | 1.64 (1.34) | 1.92 (1.33) |

Table 109

*Mean Scores and Standard Deviations for IS Total Insight score at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | IS Total Insight Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| APP Severity | M (SD) | M (SD) | M (SD) |
| No Service Use | 7.79 (2.96) | 8.05 (2.87) | 6.00 (2.75) |
| Low APP | 9.63 (2.75) | 5.50 (1.00) | 4.88 (1.65) |
| Medium APP | 4.81 (1.81) | 7.13 (3.40) | 6.31 (2.19) |
| High APP | 6.31 (2.77) | 5.47 (2.88) | 6.53 (2.74) |

Table 110

*Service Use by NOSIE Subscales and Total Assets Repeated Measures ANOVAs*

| | NOSIE Subscales | | | | | | NOSIE Total Assets |
|---|---|---|---|---|---|---|---|
| | Daily Schedule Competence | Social Interest | Neatness | Irritability | Psychoticism | Motor Retardation | |
| Variable | F (2, 188) | F (2, 188) | F (2, 188) | F (2, 188) | F (2, 188) | F (2, 188) | F (2, 188) |
| Time | 26.86*** | 39.51*** | 20.89*** | 3.78* | 7.47*** | 15.93*** | 21.68*** |
| Service Use | 2.54 | .06 | 1.20 | 1.38 | .87 | 1.50 | 1.97 |
| Time * Service Use | .57 | 1.30 | .33 | .15 | .96 | .34 | .21 |

*p<.05, **p<.01, ***p<.001

Table 111

*Means and Standard Deviations on NOSIE Subscales and Total Assets at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | Admission | | 6 Months | | 12 Months | |
|---|---|---|---|---|---|---|
| NOSIE Subscales | M | SD | M | SD | M | SD |
| Daily Schedule Competence | | | | | | |
| No Service | 32.84 | 6.96 | 34.27 | 5.98 | 36.68 | 3.57 |
| Service Use | 31.44 | 6.76 | 31.89 | 7.01 | 35.34 | 5.52 |
| Social Interest | | | | | | |
| No Service | 15.01 | 5.58 | 18.95 | 5.96 | 19.17 | 5.38 |
| Service Use | 15.14 | 6.65 | 18.41 | 6.44 | 20.40 | 6.56 |
| Neatness | | | | | | |
| No Service | 23.05 | 5.41 | 24.00 | 5.41 | 25.79 | 4.25 |
| Service Use | 22.34 | 5.85 | 22.62 | 5.62 | 24.72 | 4.91 |
| Irritability | | | | | | |
| No Service | 4.37 | 5.44 | 5.89 | 6.14 | 4.59 | 4.60 |
| Service Use | 5.85 | 6.59 | 7.00 | 6.38 | 5.43 | 5.28 |
| Psychoticism | | | | | | |
| No Service | 1.55 | 2.90 | 2.21 | 3.56 | 2.03 | 2.96 |
| Service Use | 1.73 | 2.68 | 3.13 | 4.26 | 2.70 | 3.96 |
| Motor Retardation | | | | | | |
| No Service | 6.43 | 4.10 | 6.00 | 3.63 | 4.18 | 2.92 |
| Service Use | 7.28 | 4.60 | 6.54 | 4.76 | 5.35 | 3.88 |
| NOSIE Total Assets | | | | | | |
| No Service | 154.54 | 23.46 | 159.12 | 22.60 | 167.02 | 16.75 |
| Service Use | 148.47 | 25.70 | 152.21 | 26.50 | 162.71 | 23.39 |

Table 112

*APP Severity Level by NOSIE Subscales and Total Assets Repeated Measures ANOVAs*

| | NOSIE Subscales | | | | | | NOSIE Total Assets |
|---|---|---|---|---|---|---|---|
| | Daily Schedule Competence | Social Interest | Neatness | Irritability | Psychoticism | Motor Retardation | |
| Variable | F (6, 184) | F (6, 184) | F (6, 184) | F (6, 184) | F (6, 184) | F (6, 184) | F (6, 184) |
| Time | 23.23*** | 36.58*** | 19.85*** | 3.40* | 8.07*** | 13.55*** | 22.23*** |
| APP Severity Level | 1.10 | .73 | .73 | 1.30 | .36 | 1.63 | 1.48 |
| Time * APP | .85 | 1.83 | 3.14** | .40 | 1.58 | 2.03 | 2.20* |

*p<.05, **p<.01, ***p<.001

Table 113

*Means and Standard Deviations on NOSIE Subscales and Total Assets at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | Admission | | 6 Months | | 12 Months | |
|---|---|---|---|---|---|---|
| NOSIE Subscales | M | SD | M | SD | M | SD |
| Daily Schedule Competence | | | | | | |
| No APP | 32.84 | 6.96 | 34.27 | 5.98 | 36.68 | 3.57 |
| Low APP | 30.24 | 8.73 | 31.04 | 7.32 | 34.23 | 6.99 |
| Med APP | 30.83 | 6.36 | 33.07 | 6.36 | 36.27 | 3.50 |
| High APP | 32.75 | 5.50 | 31.60 | 7.48 | 35.42 | 5.74 |
| Social Interest | | | | | | |
| No APP | 15.01 | 5.58 | 18.95 | 5.96 | 19.17 | 5.38 |
| Low APP | 13.16 | 6.20 | 16.11 | 5.45 | 19.64 | 7.09 |
| Med APP | 15.03 | 7.02 | 21.09 | 4.35 | 20.90 | 4.50 |
| High APP | 16.60 | 6.62 | 18.00 | 7.79 | 20.56 | 7.65 |
| Neatness | | | | | | |
| No APP | 23.05 | 5.41 | 24.00 | 5.41 | 25.79 | 4.25 |
| Low APP | 20.42 | 6.71 | 22.06 | 5.68 | 24.36 | 5.47 |
| Med APP | 21.01 | 5.48 | 23.24 | 4.91 | 25.26 | 3.54 |
| High APP | 24.69 | 4.87 | 22.54 | 6.27 | 24.57 | 5.57 |
| Irritability | | | | | | |
| No APP | 4.37 | 5.44 | 5.89 | 6.14 | 4.59 | 4.60 |
| Low APP | 6.75 | 7.46 | 7.90 | 8.64 | 5.30 | 4.70 |
| Med APP | 4.31 | 5.36 | 5.75 | 6.07 | 3.38 | 4.30 |
| High APP | 6.38 | 6.90 | 7.31 | 4.76 | 7.05 | 5.97 |
| Psychoticism | | | | | | |
| No APP | 1.55 | 2.90 | 2.21 | 3.56 | 2.03 | 2.96 |
| Low APP | 1.74 | 2.58 | 3.83 | 5.50 | 2.39 | 4.32 |
| Med APP | 2.06 | 3.65 | 2.47 | 4.02 | 2.08 | 3.20 |
| High APP | 1.48 | 1.90 | 3.13 | 3.53 | 3.37 | 4.30 |
| Motor Retardation | | | | | | |
| No APP | 6.43 | 4.10 | 6.00 | 3.63 | 4.18 | 2.92 |
| Low APP | 8.91 | 5.61 | 7.96 | 4.81 | 6.23 | 4.65 |
| Med APP | 8.39 | 4.70 | 5.56 | 3.83 | 4.93 | 2.65 |
| High APP | 5.31 | 2.92 | 6.28 | 5.31 | 5.05 | 4.16 |
| NOSIE Total Assets | | | | | | |
| No APP | 154.54 | 23.46 | 159.12 | 22.60 | 167.02 | 16.75 |
| Low APP | 136.62 | 30.08 | 145.59 | 29.43 | 160.29 | 26.73 |
| Med APP | 148.09 | 23.25 | 159.65 | 18.94 | 168.03 | 12.23 |
| High APP | 157.05 | 21.68 | 151.26 | 28.98 | 160.42 | 27.39 |

Table 114

*Service Use by BPRS Factors and BPRS Total Repeated Measures ANOVAs*

| | BPRS Factors | | | | | | |
|---|---|---|---|---|---|---|---|
| | BPRS Psychotic Disorganization | BPRS Hallucination/ Delusions | BPRS Paranoia | BPRS Emotional Blunting | BPRS Anxiety/ Depression | BPRS Agitation / Elation | BPRS Total |
| Variable | F (2, 128) | F (2, 134) | F (2, 134) | F (2, 134) | F (2, 134) | F (2, 134) | F (2, 128) |
| Time | 1.16 | .82 | .04 | 1.03 | .50 | .06 | 1.23 |
| Service Use | 1.20 | .47 | 1.75 | 1.20 | .64 | .02 | .23 |
| Time * Service Use | 3.17* | .85 | .05 | .19 | .27 | 1.08 | .86 |

*p<.05, **p<.01, ***p<.001

Table 115

*APP Severity Level by BPRS Factors and BPRS Total Repeated Measures ANOVAs*

| | BPRS Factors | | | | | | |
|---|---|---|---|---|---|---|---|
| | BPRS Psychotic Disorganization | BPRS Hallucination/ Delusions | BPRS Paranoia | BPRS Emotional Blunting | BPRS Anxiety/ Depression | BPRS Agitation / Elation | BPRS Total |
| Variable | F (6, 124) | F (6, 184) | F (6, 184) | F (6, 184) | F (6, 184) | F (6, 184) | F (6, 124) |
| Time | .88 | .52 | .06 | .75 | .25 | .07 | .71 |
| APP Severity Level | .81 | .64 | .79 | 1.53 | 2.22 | .24 | .50 |
| Time * APP Severity | 1.71 | .79 | .46 | .45 | .32 | .67 | .57 |

*p<.05, **p<.01, ***p<.001

Table 116
*Mean Scores and Standard Deviations for BPRS Total scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | BPRS Total Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Service Use | M (SD) | M (SD) | M (SD) |
| No Service Use | 45.75 (10.47) | 46.34 (13.75) | 45.32 (14.75) |
| Service Use | 49.53 (16.32) | 47.13 (12.52) | 44.64 (13.22) |

Table 117
*Mean Scores and Standard Deviations for BPRS Psychotic Disorganization Factor scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | BPRS Psychotic Disorganization Factor Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Service Use | M (SD) | M (SD) | M (SD) |
| No Service Use | 5.81 (2.13) | 6.31 (2.69) | 6.13 (2.91) |
| Service Use | 7.45 (3.82) | 6.67 (2.80) | 6.12 (2.76) |

Table 118

*Mean Scores and Standard Deviations for BPRS Hallucinations/Delusions Factor scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | BPRS Hallucination/Delusions Factor Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Service Use | M (SD) | M (SD) | M (SD) |
| No Service Use | 6.83 (4.20) | 6.99 (4.31) | 6.80 (5.23) |
| Service Use | 6.96 (4.01) | 6.15 (3.87) | 5.76 (3.64) |

Table 119

*Mean Scores and Standard Deviations for BPRS Paranoia Factor scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | BPRS Paranoia Factor Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Service Use | M (SD) | M (SD) | M (SD) |
| No Service Use | 8.92 (2.86) | 8.88 (3.56) | 8.68 (3.40) |
| Service Use | 8.01 (3.58) | 8.04 (2.95) | 8.04 (3.27) |

Table 120

*Mean Scores and Standard Deviations for BPRS Emotional Blunting Factor scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | BPRS Emotional Blunting Factor Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Service Use | M (SD) | M (SD) | M (SD) |
| No Service Use | 5.99 (3.64) | 5.59 (2.27) | 5.63 (2.53) |
| Service Use | 6.77 (3.62) | 6.52 (3.69) | 6.12 (3.39) |

Table 121
*Mean Scores and Standard Deviations for BPRS Anxiety/Depression Factor scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | BPRS Anxiety/Depression Factor Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Service Use | M (SD) | M (SD) | M (SD) |
| No Service Use | 8.55 (2.81) | 8.36 (3.24) | 8.42 (3.32) |
| Service Use | 9.41 (4.21) | 9.04 (4.55) | 8.65 (3.65) |

Table 122
*Mean Scores and Standard Deviations for BPRS Agitation/Elation Factor scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | BPRS Agitation/Elation Factor Scores | | |
|---|---|---|---|
| | At Admission | Six Months | Twelve Months |
| Service Use | M (SD) | M (SD) | M (SD) |
| No Service Use | 3.31 (1.18) | 3.63 (2.38) | 3.41 (1.78) |
| Service Use | 3.58 (1.66) | 3.28 (1.19) | 3.36 (1.45) |

Table 123

*Mean Scores and Standard Deviations for BPRS Total and Factor scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| BPRS | APP Severity Level | Admission M (SD) | Six Months M (SD) | Twelve Months M (SD) |
|---|---|---|---|---|
| BPRS Total | No APP | 45.75 (10.47) | 46.34 (13.75) | 45.32 (14.75) |
| | Low APP | 49.19 (14.37) | 47.81 (9.52) | 48.13 (14.62) |
| | Med APP | 42.67 (9.05) | 43.42(10.22) | 41.33 (9.37) |
| | High APP | 51.52 (18.39) | 47.90 (14.19) | 44.27 (13.83) |
| BPRS Psychotic Disorganization Factor | No APP | 5.81 (2.13) | 6.31 (2.69) | 6.13 (2.91) |
| | Low APP | 8.00 (3.89) | 6.80 (2.35) | 6.94 (3.42) |
| | Med APP | 5.52 (1.52) | 5.98 (2.48) | 5.92 (2.25) |
| | High APP | 7.77 (4.17) | 6.80 (3.10) | 5.87 (2.69) |
| BPRS Hallucination/Delusion Factor | No APP | 6.83 (4.20) | 6.99 (4.31) | 6.80 (5.23) |
| | Low APP | 7.25 (3.88) | 8.31 (5.30) | 7.13 (5.61) |
| | Med APP | 6.17 (3.13) | 4.58 (2.54) | 5.67 (2.80) |
| | High APP | 7.07 (4.37) | 5.80 (3.40) | 5.30 (2.99) |
| BPRS Paranoia Factor | No APP | 8.92 (2.86) | 8.88 (3.56) | 8.68 (3.40) |
| | Low APP | 8.68 (4.63) | 7.90 (2.64) | 9.22 (3.43) |
| | Med APP | 7.50 (2.21) | 8.57 (2.36) | 6.62 (1.95) |
| | High APP | 7.92 (3.59) | 7.95 (3.27) | 7.99 (3.44) |
| BPRS Emotional Blunting Factor | No APP | 5.99 (3.64) | 5.59 (2.27) | 5.63 (2.53) |
| | Low APP | 7.75 (2.98) | 6.75 (2.65) | 6.72 (2.83) |
| | Med APP | 4.75 (1.41) | 4.08 (2.33) | 5.00 (2.86) |
| | High APP | 6.96 (4.09) | 7.08 (4.10) | 6.21 (3.73) |
| BPRS Anxiety/Depression Factor | No APP | 8.55 (2.81) | 8.36 (3.24) | 8.42 (3.32) |
| | Low APP | 6.63 (1.73) | 6.78 (2.37) | 7.00 (1.87) |
| | Med APP | 9.25 (4.29) | 9.67 (3.78) | 8.67 (3.92) |
| | High APP | 10.41 (4.47) | 9.67 (5.15) | 9.22 (3.98) |
| BPRS Agitation/Elation Factor | No APP | 3.31 (1.18) | 3.63 (2.38) | 3.41 (1.78) |
| | Low APP | 3.13 (1.06) | 3.16 (1.03) | 2.94 (.73) |
| | Med APP | 3.33 (.93) | 3.08 (.97) | 3.83 (1.63) |
| | High APP | 3.80 (1.95) | 3.37 (1.32) | 3.39 (1.60) |

*p<.05

Table 124

*Mean Scores and Standard Deviations for BPRS item scores at Admission, 6 Months, and 12 Months as a Function of Service Use Before Age 18*

| | | Admission | Six Months | Twelve Months |
|---|---|---|---|---|
| BPRS Items | | M (SD) | M (SD) | M (SD) |
| Somatic Concern | No Service | 2.78 (1.66) | 2.58 (1.68) | 2.59 (1.72) |
| | Service Use | 2.39 (1.71) | 2.68 (1.54) | 2.29 (1.49) |
| Anxiety | No Service | 2.39 (.97) | 2.45 (1.24) | 2.16 (1.25) |
| | Service Use | 2.54 (1.51) | 2.53 (1.35) | 2.37 (1.38) |
| Depression | No Service | 2.09 (1.11) | 2.02 (1.16) | 1.95 (1.07) |
| | Service Use | 2.39 (1.51) | 2.20 (1.41) | 2.16 (1.16) |
| Suicidality | No Service | 1.16 (.37) | 1.22 (.51) | 1.09 (.30) |
| | Service Use | 1.63 (1.26) | 1.57 (1.03) | 1.45 (1.23) |
| Guilt | No Service | 1.81 (1.38) | 1.77 (1.18) | 2.02 (1.49) |
| | Service Use | 2.07 (1.29) | 2.13 (1.51) | 2.07 (1.47) |
| Hostility | No Service | 2.44 (1.36) | 2.52 (1.45) | 2.64 (1.42) |
| | Service Use | 2.71 (1.63) | 2.91 (1.76) | 2.61 (1.71) |
| Elevated Mood | No Service | 1.44 (.91) | 1.56 (1.30) | 1.33 (.90) |
| | Service Use | 1.54 (1.22) | 1.25 (.68) | 1.45 (.98) |
| Grandiosity | No Service | 2.14 (1.78) | 2.14 (1.94) | 2.39 (2.14) |
| | Service Use | 1.66 (1.40) | 1.76 (1.78) | 1.63 (1.49) |
| Suspiciousness | No Service | 3.03 (1.85) | 2.97 (2.06) | 2.53 (1.81) |
| | Service Use | 2.28 (1.73) | 2.21 (1.46) | 2.17 (1.45) |
| Hallucinations | No Service | 1.72 (1.46) | 2.17 (1.85) | 2.23 (1.84) |
| | Service Use | 2.72 (2.10) | 2.13 (1.68) | 2.04 (1.60) |
| Unusual Thought Content | No Service | 2.97 (2.10) | 2.68 (1.66) | 2.17 (1.91) |
| | Service Use | 2.57 (1.99) | 2.26 (1.84) | 2.14 (1.69) |
| Bizarre Behavior | No Service | 1.59 (1.34) | 2.08 (1.31) | 1.80 (1.32) |
| | Service Use | 2.54 (1.76) | 2.17 (1.45) | 1.95 (1.55) |
| Self-Neglect | No Service | 1.97 (.83) | 2.56 (.93) | 2.20 (1.05) |
| | Service Use | 2.46 (1.11) | 2.46 (.90) | 1.95 (.96) |
| Disorientation | No Service | 1.41 (.76) | 1.41 (.76) | 1.50 (1.02) |
| | Service Use | 1.54 (1.07) | 1.57 (1.13) | 1.47 (1.12) |
| Conceptual Disorganization | No Service | 1.89 (1.10) | 1.86 (1.26) | 1.91 (1.21) |
| | Service Use | 2.14 (1.65) | 1.89 (1.16) | 1.69 (1.15) |
| Blunted Affect | No Service | 2.50 (1.50) | 2.56 (1.12) | 2.64 (1.07) |
| | Service Use | 2.78 (1.52) | 2.97 (1.69) | 2.82 (1.47) |
| Emotional Withdrawal | No Service | 2.19 (1.40) | 2.12 (1.30) | 2.12 (1.18) |
| | Service Use | 2.42 (1.30) | 2.22 (1.38) | 2.11 (1.18) |
| Motor Retardation | No Service | 2.05 (1.19) | 1.67 (.99) | 1.67 (.88) |
| | Service Use | 2.20 (1.27) | 1.93 (1.16) | 1.82 (1.06) |
| Tension | No Service | 1.67 (.91) | 1.52 (.91) | 1.75 (1.04) |
| | Service Use | 1.55 (.82) | 1.51 (.87) | 1.30 (.78) |
| Uncooperativeness | No Service | 1.70 (1.09) | 1.72 (1.14) | 1.64 (1.30) |
| | Service Use | 1.50 (.99) | 1.49 (.80) | 1.85 (1.16) |
| Excitement | No Service | 1.48 (.82) | 1.53 (1.22) | 1.63 (1.19) |
| | Service Use | 1.27 (.73) | 1.20 (.60) | 1.27 (.89) |
| Distractibility | No Service | 1.72 (.92) | 1.59 (1.16) | 1.88 (1.28) |
| | Service Use | 1.99 (1.42) | 1.76 (1.23) | 1.70 (1.10) |
| Motor hyperactivity | No Service | 1.30 (.49) | 1.45 (1.10) | 1.53 (1.09) |
| | Service Use | 1.20 (.64) | 1.23 (.63) | 1.18 (.65) |
| Mannerisms and Posturing | No Service | 1.30 (.60) | 1.07 (.37) | 1.27 (.73) |
| | Service Use | 1.26 (.65) | 1.14 (.54) | 1.31 (.94) |

Table 125

*Mean Scores and Standard Deviations for BPRS item scores at Admission, 6 Months, and 12 Months as a Function of APP Severity Level*

| | | Admission | Six Months | Twelve Months |
|---|---|---|---|---|
| BPRS Items | APP Severity Level | M (SD) | M (SD) | M (SD) |
| Somatic Concern | No APP | 2.78 (1.66) | 2.58 (1.68) | 2.59 (1.72) |
| | Low APP | 1.63 (.92) | 2.56 (1.64) | 2.62 (1.62) |
| | Med APP | 2.67 (2.09) | 3.33 (1.63) | 1.42 (.80) |
| | High APP | 2.58 (1.79) | 2.56 (1.51) | 2.40 (1.54) |
| Anxiety | No APP | 2.39 (.97) | 2.45 (1.24) | 2.16 (1.25) |
| | Low APP | 1.63 (.74) | 2.06 (1.27) | 2.31 (.88) |
| | Med APP | 2.33 (1.97) | 2.67 (.98) | 2.50 (1.76) |
| | High APP | 2.90 (1.49) | 2.66 (1.47) | 2.35 (1.47) |
| Depression | No APP | 2.09 (1.11) | 2.02 (1.16) | 1.95 (1.07) |
| | Low APP | 1.50 (.54) | 1.50 (1.07) | 1.63 (.74) |
| | Med APP | 2.58 (1.56) | 2.25 (1.41) | 2.42 (1.39) |
| | High APP | 2.65 (1.64) | 2.42 (1.49) | 2.27 (1.21) |
| Suicidality | No APP | 1.16 (.37) | 1.22 (.51) | 1.09 (.30) |
| | Low APP | 1.00 (.00) | 1.19 (.53) | 1.13 (.35) |
| | Med APP | 1.83 (.98) | 1.33 (.52) | 1.00 (.00) |
| | High APP | 1.79 (1.47) | 1.75 (1.21) | 1.67 (1.50) |
| Guilt | No APP | 1.81 (1.38) | 1.77 (1.18) | 2.02 (1.49) |
| | Low APP | 1.25 (.46) | 1.13 (.35) | 1.25 (.54) |
| | Med APP | 1.75 (.99) | 2.58 (1.74) | 2.08 (1.11) |
| | High APP | 2.42 (1.41) | 2.35 (1.59) | 2.33 (1.67) |
| Hostility | No APP | 2.44 (1.36) | 2.52 (1.45) | 2.64 (1.42) |
| | Low APP | 2.38 (1.51) | 2.06 (1.43) | 3.00 (2.25) |
| | Med APP | 2.67 (1.37) | 3.17 (1.72) | 1.92 (1.20) |
| | High APP | 2.83 (1.76) | 3.13 (1.85) | 2.65 (1.63) |
| Elevated Mood | No APP | 1.44 (.91) | 1.56 (1.30) | 1.33 (.90) |
| | Low APP | 1.25 (.46) | 1.13 (.35) | 1.25 (.71) |
| | Med APP | 1.42 (.67) | 1.25 (.42) | 2.33 (1.63) |
| | High APP | 1.67 (1.47) | 1.29 (.81) | 1.29 (.75) |
| Grandiosity | No APP | 2.14 (1.78) | 2.14 (1.94) | 2.39 (2.14) |
| | Low APP | 1.88 (1.73) | 3.75 (2.66) | 2.25 (2.32) |
| | Med APP | 1.67 (1.63) | 1.00 (.00) | 1.67 (1.63) |
| | High APP | 1.58 (1.27) | 1.29 (1.08) | 1.42 (1.09) |
| Suspiciousness | No APP | 3.03 (1.85) | 2.97 (2.06) | 2.53 (1.81) |
| | Low APP | 2.63 (2.07) | 2.81 (2.45) | 2.94 (1.78) |
| | Med APP | 1.67 (.82) | 2.42 (.97) | 1.75 (1.41) |
| | High APP | 2.31 (1.79) | 1.96 (1.08) | 2.02 (1.31) |
| Hallucinations | No APP | 1.72 (1.46) | 2.17 (1.85) | 2.23 (1.84) |
| | Low APP | 2.13 (2.10) | 1.63 (1.41) | 2.13 (1.81) |
| | Med APP | 2.67 (2.25) | 2.00 (1.27) | 2.17 (2.04) |
| | High APP | 2.94 (2.11) | 2.33 (1.86) | 1.98 (1.49) |
| Unusual Thought Content | No APP | 2.97 (2.10) | 2.68 (1.66) | 2.17 (1.91) |
| | Low APP | 3.25 (2.19) | 2.94 (2.28) | 2.75 (2.14) |
| | Med APP | 1.83 (1.60) | 1.58 (1.43) | 1.83 (1.33) |
| | High APP | 2.52 (2.01) | 2.20 (1.76) | 2.00 (1.62) |
| Bizarre Behavior | No APP | 1.59 (1.34) | 2.08 (1.31) | 1.80 (1.32) |
| | Low APP | 2.81 (1.89) | 2.13 (1.53) | 2.56 (1.99) |
| | Med APP | 1.33 (.52) | 1.92 (1.20) | 1.83 (1.60) |
| | High APP | 2.75 (1.84) | 2.25 (1.53) | 1.77 (1.40) |
| Self-Neglect | No APP | 1.97 (.83) | 2.56 (.93) | 2.20 (1.05) |
| | Low APP | 2.38 (1.06) | 2.44 (.62) | 2.25 (.93) |
| | Med APP | 2.67 (.52) | 2.42 (.92) | 2.67 (1.03) |
| | High APP | 2.44 (1.25) | 2.48 (.99) | 1.67 (.86) |
| Disorientation | No APP | 1.41 (.76) | 1.41 (.76) | 1.50 (1.02) |
| | Low APP | 2.63 (1.69) | 2.56 (1.80) | 2.19 (1.69) |
| | Med APP | 1.00 (.00) | 1.33 (.82) | 1.17 (.41) |
| | High APP | 1.30 (.64) | 1.28 (.65) | 1.30 (.93) |

| | | | | |
|---|---|---|---|---|
| Conceptual Disorganization | No APP | 1.89 (1.10) | 1.86 (1.26) | 1.91 (1.21) |
| | Low APP | 2.75 (1.75) | 2.38 (1.41) | 2.13 (1.46) |
| | Med APP | 1.50 (1.23) | 1.33 (.82) | 1.50 (1.23) |
| | High APP | 2.09 (1.70) | 1.87 (1.12) | 1.59 (1.02) |
| Blunted Affect | No APP | 2.50 (1.50) | 2.56 (1.12) | 2.64 (1.07) |
| | Low APP | 3.25 (1.49) | 2.94 (1.61) | 3.25 (1.51) |
| | Med APP | 1.67 (.82) | 2.00 (1.10) | 1.92 (1.11) |
| | High APP | 2.91 (1.58) | 3.24 (1.80) | 2.91 (1.50) |
| Emotional Withdrawal | No APP | 2.19 (1.40) | 2.12 (1.30) | 2.12 (1.18) |
| | Low APP | 2.88 (1.13) | 2.44 (.94) | 2.38 (1.06) |
| | Med APP | 1.83 (1.17) | 1.50 (1.23) | 2.08 (1.02) |
| | High APP | 2.41 (1.37) | 2.33 (1.53) | 2.02 (1.28) |
| Motor Retardation | No APP | 2.05 (1.19) | 1.67 (.94) | 1.67 (.88) |
| | Low APP | 2.25 (1.04) | 1.88 (.84) | 1.75 (.89) |
| | Med APP | 1.75 (.61) | 1.17 (.41) | 1.58 (.92) |
| | High APP | 2.30 (1.47) | 2.15 (1.31) | 1.91 (1.17) |
| Tension | No APP | 1.67 (.91) | 1.52 (.91) | 1.75 (1.04) |
| | Low APP | 1.75 (1.04) | 1.50 (1.07) | 1.25 (.46) |
| | Med APP | 1.67 (.82) | 1.50 (.55) | 1.17 (.41) |
| | High APP | 1.46 (.75) | 1.52 (.90) | 1.35 (.94) |
| Uncooperativeness | No APP | 1.70 (1.09) | 1.72 (1.14) | 1.64 (1.30) |
| | Low APP | 2.00 (1.31) | 1.63 (.52) | 1.88 (1.13) |
| | Med APP | 1.67 (1.03) | 1.50 (.55) | 1.67 (1.03) |
| | High APP | 1.28 (.81) | 1.43 (.95) | 1.89 (1.24) |
| Excitement | No APP | 1.48 (.82) | 1.53 (1.22) | 1.63 (1.19) |
| | Low APP | 1.25 (.46) | 1.00 (.00) | 1.31 (.70) |
| | Med APP | 1.00 (.00) | 1.17 (.41) | 1.17 (.41) |
| | High APP | 1.35 (.89) | 1.28 (.72) | 1.28 (1.05) |
| Distractibility | No APP | 1.72 (.92) | 1.59 (1.16) | 1.88 (1.28) |
| | Low APP | 1.88 (.84) | 1.63 (.74) | 1.81 (1.00) |
| | Med APP | 1.50 (.84) | 1.83 (1.60) | 1.50 (.84) |
| | High APP | 2.15 (1.68) | 1.78 (1.30) | 1.72 (1.20) |
| Motor hyperactivity | No APP | 1.30 (.49) | 1.45 (1.10) | 1.53 (1.09) |
| | Low APP | 1.38 (.74) | 1.44 (1.05) | 1.13 (.35) |
| | Med APP | 1.00 (.00) | 1.17 (.41) | 1.00 (.00) |
| | High APP | 1.20 (.69) | 1.17 (.49) | 1.24 (.80) |
| Mannerisms and Posturing | No APP | 1.30 (.60) | 1.07 (.37) | 1.27 (.73) |
| | Low APP | 1.50 (.76) | 1.13 (.35) | 1.00 (.00) |
| | Med APP | 1.00 (.00) | 1.00 (.00) | 1.00 (.00) |
| | High APP | 1.25 (.69) | 1.18 (.66) | 1.50 (1.18) |

*p<.05

Table 126
*Relationship Between Level of Discharge Location Restrictiveness and Service Use Before Age 18 (N=242)*

| Discharge Location Restrictiveness | Service Use | | |
|---|---|---|---|
| | No Service Use | Service Use | Total |
| 1 ï Same or Higher Restrictiveness (LRC Transfer) | 13 | 13 | 26 |
| 2 - Psychiatric Residential Rehabilitation | 42 | 55 | 97 |
| 3 - Assisted Living | 33 | 48 | 81 |
| 4 ï Independent Living/Living with Family | 20 | 18 | 38 |
| Total | 108 | 134 | 242 |

Table 127
*Relationship Between Level of Discharge Location Restrictiveness and APP Severity Level (N=242)*

| Discharge Location Restrictiveness | APP Severity Level | | | | |
|---|---|---|---|---|---|
| | No | Low | Med | High | Total |
| 1 ï Same or Higher Restrictiveness (LRC Transfer) | 13 | 1 | 1 | 11 | 26 |
| 2 - Psychiatric Residential Rehabilitation | 42 | 8 | 15 | 32 | 97 |
| 3 - Assisted Living | 33 | 8 | 10 | 30 | 81 |
| 4 ï Independent Living/Living with Family | 20 | 2 | 3 | 13 | 38 |
| Total | 108 | 19 | 29 | 86 | 242 |