**Youth Characteristics Associated with Behavioural Adjustment in Long-Term
Residential Care**

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

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Abstract

Very little research has been done examining trajectories of change in behaviours while youth are in long-term residential care. Such research is important in that it gives information about when treatment efforts are most beneficial. Thus, the present study examined trajectories of change in residential care with regards to several behaviours as well as client satisfaction. The files of 122 youth who entered long-term care through a local residential centre between 1999 and 2001 were reviewed. As hypothesized, results of multivariate repeated measures analyses indicated that youth showed significant decreases with respect to all of their negative behaviours, however, no significant increases in client satisfaction were found. Contrary to the hypotheses, diagnosis was not associated with behavioural change, nor were youth dysfunction or family dysfunction. Other youth characteristics were examined on an exploratory basis for associations with behavioural change. Implications and limitations of the study are discussed.

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Youth Characteristics Associated with Behavioural Adjustment in Long-Term Residential Care

Introduction

Child welfare agencies and clinical practitioners' decisions to remove children from their homes are based on a number of possible factors, including child abuse, neglect, death of biological parents, parental substance abuse, and acting-out behaviours by the child. Regardless of the reason for removal from the home, careful consideration must be given to which type of out of home placement (e.g., foster care, placement with relatives, residential care) is most appropriate for each child.

Prior to removal of a child from a home, child welfare agencies generally attempt to preserve the family unit, provided this is deemed the best option for the child. Stuck, Small and Ainsworth (2000) discuss the notion of a "continuum of care" that is adhered to by child welfare agencies in making decisions for children. The key element of the continuum of care is choosing the least invasive option most appropriate for the child. The least invasive option involves keeping children in their biological homes while providing education and support to help families deal with their issues. Alternatively, the most invasive interventions (e.g., family foster care, specialized foster care, and residential treatment) involve removing children from their biological families and placing them with out-of-home caregivers.

According to the continuum of care, residential treatment is the most extreme option for out-of-home placement without resorting to hospitalization. Residential treatment centres are defined as "out-of-home facilities for mental health treatment that are more treatment-oriented than group homes, but less restrictive than inpatient

psychiatric units” (Larzelere, et al., 2001, p. 175). Furthermore, residential care is generally reserved for children and youth who are unsuccessful in other settings, such as foster care, or whose emotional disturbances or acting-out behaviours make them unsuitable for other forms of out-of-home placement (Larzelere, et al., 2001; Stuck et al., 2000). For example, many youth in residential care exhibit Disruptive Behaviour Disorders (DBDs), such as Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) which are not easily addressed in other forms of out-of-home placement (Chamberlain, 1999). In fact, DBDs are the most common disorders in children and adolescents and the most common reason for referral to residential treatment centers (Hainesworth, 2001).

The effectiveness of residential treatment in helping youth overcome emotional disturbances and DBDs is an extremely important area of research. However, very little research has been done assessing either the short-term or long-term efficacy of residential placement in treating or reducing problematic behaviours

Given the lack of research with regards to the effectiveness of residential treatment as well as the fact that placement in residential care is an extreme option, there is a need to examine youth placed in this setting. Of particular interest are the characteristics of youth in residential care. Also of importance are the ways in which these characteristics are associated with changes in behavioural adjustment during treatment.

There were three main purposes of the present research. First, it described characteristics of youth as they entered long-term care through an Ontario-based centre that provides residential services to conduct disordered youth. Second, it described

changes in behavioural adjustment of youth over the course of their long-term care.

Third, it identified characteristics of youth and their circumstances associated with changes in behavioural adjustment.

The paper begins with a review of the relevant literature regarding treatment for youth in residential care. A general model conceptualizing the treatment process will be presented first to provide a theoretical framework for the present research. Following will be a description of residential programming, including placement criteria, principles of effective residential environments and effective human services, and types of programs and services offered. Finally, a discussion of client factors in residential care and studies that have identified factors predictive of positive outcomes for youth in care will be presented.

Literature Review

General Model of the Treatment Process

The majority of research and theory regarding effectiveness of various treatment interventions for youth has focused mainly on the question, "Is treatment effective?" (Hoge, 1999). However, arriving at an answer to such a question is difficult, given that there are many interacting factors that can impact on the effectiveness of treatment for children and adolescents. Hoge and Andrews (1986) present a model of interventions in social service agencies that attempts to conceptualize the treatment process. There are five sets of factors and two sets of outcome variables in the model, and these interact with each other in many ways (see Figure 1). The elements of the model are presented as outlined by Hoge (1999).

FIG. 1. A model of interventions in social service agencies. Source: R. D. Hoge (1999). *Assessing Adolescents in Educational, Counseling, and Other Settings*. New Jersey: Lawrence Erlbaum Associates, Publishers.

First, there are *setting factors* which include the values, attitudes, and beliefs that exist in a youth's environment. Environment includes family, peers, school, other institutional settings, (e.g., group homes, medical facilities), and other environmental influences, (e.g., media, church, and community groups). Setting factors usually exert an indirect effect on youth, however, the effect can sometimes be more direct (e.g., if one community approves of a certain form of treatment while another disapproves, setting factors might in this case directly influence the types of treatment available to a youth given his/her community).

The second set of factors, and the focus of the present study, involves *client factors*. Client factors include: a) demographic characteristics (e.g., socioeconomic status, race, gender, developmental level); b) cognitive, personality, and social characteristics; and c) presenting problems. It is hypothesized that client variables have both direct and indirect impacts on treatment effectiveness. Overall, little research has been done assessing the effects of client factors on treatment of youth.

Third, there are *therapist/worker factors*. Four types of therapist factors have been identified: a) demographic factors (e.g., age, gender); b) education, training and professional experience; c) relationship style (e.g., warm vs. distant, supportive vs. critical); and, d) beliefs about intervention being delivered and practice preferences. It is hypothesized that characteristics of the therapist may influence treatment effectiveness regardless of the actual program being delivered.

The fourth set of factors is *program factors*. These include factors involving the agency or institution in which treatment is being provided (e.g., formal policies of the organization, program options, staff morale, etc.). Different program factors will affect

treatment outcomes in various ways, but research is needed to discover just how this occurs and which program factors may be most influential (Highlin & Hill, 1984; see discussion in Hoge, 1999).

A fifth set of factors includes *process factors*. These are factors dealing with the actual treatment being delivered to youth, and they include but are not limited to treatment goals, client-therapist relationship, and duration and density of contacts. Process factors should be evaluated to ensure that what is actually being delivered in treatment closely mirrors the formal description and aims of the treatment program. Individual therapists may deliver the same type of treatment in very different ways. It is therefore difficult to operationalize treatment, which in turn leads to difficulties in conducting research in the area of treatment effectiveness (Kazdin, 1988; see discussion in Hoge, 1999).

The first level of outcome variables is *intermediate outcomes* which include changes in presenting problems and client satisfaction with service. This type of outcome variable is usually assessed at the end of the treatment intervention, or shortly after, and it reflects the more immediate effects of treatment. Intermediate outcomes also encompass changes that occur during the process of the treatment intervention.

The second level of outcome variables proposed in the model is *ultimate outcomes*. Here, longer term effectiveness of treatment is considered. Along with various short-term goals, the long-term goal of most treatment aimed at youth is to improve general functioning of the individual and to prepare him or her to deal with future problems and stresses. Little research on such long-term evaluations of treatments for youth has been conducted (Kazdin, 1988; see discussion in Hoge, 1999).

Due to the complex nature of the interactions between factors and outcomes in the treatment model (as illustrated in Figure 1), it was beyond the scope of the present research to examine the interplay between all of the elements. However, the present research focused instead on common client factors in residential care and their relationship with intermediate outcomes observed during the residential treatment process. Before describing client factors in residential care, components of residential programming as well as theories of what promotes treatment efficacy are presented.

Residential Programming

Guidelines for the choice of residential care as the most appropriate treatment for a given youth are an important consideration. One issue is that of what constitutes an effective residential program. There is also a large variety of treatments and programs available to youth in residential care. Placement criteria, theories of effective treatment and residential environments, and types of treatments and services available to youth in care will be presented.

Criteria for placement in residential care. Before a young person is admitted into residential care, he or she should ideally meet some kind of placement criteria. However, as noted by Chamberlain, Ray, and Moore (1996) and Wells (1991), no formalized criteria for placement presently exists that matches a youth's individual treatment needs to a particular type of treatment model or setting. Furthermore, placements are typically made based on jurisdictional, funding, or availability considerations rather than on the individual diagnoses or problems particular to the youth.

According to Wells (1991), placement criteria for youth in residential care have been proposed in the literature, but not formally implemented. The proposed criteria can

be classified into three broad categories. These include criteria that rely on philosophical or general principles, clinical experience, and professional standards. Each of these categories, as summarized by Wells, will be considered individually.

First, placement criteria that fall under the category of philosophical or general principles take into account elements of child mental health and child welfare policies. In particular, the idea that youth be treated in the least restrictive setting that is most beneficial to them is an important consideration when determining placement criteria. A problem with this view is that the concept of "least restrictive" is vague, thus limiting the usefulness of criteria under the general principles approach in making placement decisions. As Wells (1991) illustrates, residential treatment centres are generally considered to be more restrictive than the youth's biological home. However, the residential treatment centre may in some ways be less restrictive if one considers the idea that it provides protection and emotionally appropriate activities that are not available in the biological home. Restriction and intensity of treatment should be considered according to the individual needs and capabilities of each youth.

Second, placement criteria in the category of clinical experience tend to focus on child and family factors. Some child related factors that have been considered indicative of the need for residential placement include the severity of a child's emotional and school problems, the danger or destructiveness of a child's behaviour, the onset and duration of prior pathological conditions, lack of drive and impulse control that affect mastery and growth, and deficits in social capacity for relationships. In terms of family factors, severity of family pathology is important, particularly the family's resistance to treatment efforts and the level of destructiveness of the family situation on the child.

Although the child and family related criteria for placement are generally agreed upon by clinicians, they do not help in distinguishing whether a given child should be placed in residential care for short, intermediate or long-term durations (Wells, 1991). It may be that duration of stay is dependent on the progress made by the child while in placement.

Third, professional standards have been set as to what should constitute placement criteria for youth entering residential care. In 1990, the National Association of Psychiatric Treatment Centers for Children (NAPTCC; see discussion in Wells, 1991) indicated that a combination of disturbances in children's psychobiological, psychosocial, developmental and environmental stability formed the criteria for placement in residential care. By including environment, these criteria are advantageous in that they consider the importance of the familial and social surroundings in which youth will return after their stay in care.

Although efforts at developing placement criteria have failed to yield any formalized guidelines, they have helped to indicate which children are best suited to residential care. From the proposed criteria, it appears that residential care may be most appropriate for children with complex, severe, persistent problems that prevent them from achieving normal physical and emotional development and for whom nonresidential treatment has been unsuccessful (Wells, 1991). However, proposed criteria are limited in that they do not consider factors such as age of the child, family support for treatment, differentiation among children in need of short, intermediate and long-term care, and the link between diagnosis, etiology and aftercare resources (Chamberlain, Ray, & Moore, 1996; Wells, 1991). As indicated by Wells, overcoming the inadequacies of the proposed criteria involves outlining residential treatment programs more clearly (e.g., through

written statements describing the programs and their outcomes) and establishing a common set of definitions by which all residential treatment facilities can be described. Furthermore, she states that research can inform the placement process through empirical investigations that test hypothesized connections between child characteristics, treatment experiences, and outcomes.

Safe and effective residential environments. One theory as to what constitutes an effective residential environment (or any form of out-of-home placement) comes from Daly and Dowd's (1992) concept of a "harm-free, effective environment". According to the authors, a harm-free, effective environment is one in which youth are free from abuse and neglect, in which legal and licensing guidelines are adhered to, in which children's rights are promoted, and in which children receive care and treatment that promote spiritual, emotional, intellectual, and physical growth.

Accordingly, Daly and Dowd propose that effective, harm-free environments result from well-integrated child care systems that are characterized by several elements: a) caregiver support (e.g., having dedicated, skilled child care workers); b) a model of care (e.g., a well-defined set of procedures and practices that can be implemented across different situations); c) a focus on positive behaviour (e.g., praising children and caregivers for what they are doing right rather than focusing on negative behaviours); d) a consumer orientation (e.g., allowing for criticism from people outside of the treatment environment); e) training (e.g., proper training of caregivers to help them understand their boundaries); f) program evaluation (e.g., assessing standards of quality care and program effectiveness); and g) an internal program audit (e.g., a system that can detect when

abusive or neglectful practices occur, or when there is the potential for these practices to occur).

Principles of effective human services. A second theory that can be used to describe effective residential treatment comes from Andrews and Bonta's (1998) four general principles of classification for the purposes of effective human services.

Although the principles are generally discussed with regards to criminal offenders, they are also applicable to youth in residential care for at least two reasons. First, residential care can be considered a form of human service since one of its aims is to reduce problematic behaviours in young people; as well, some youth in care are young offenders and/or have participated in criminal activity. Second, not all youth in residential care receive the same types of treatment, therefore it is important to differentiate among youth in terms of the intensity and types of treatments they should receive.

The first principle proposed by Andrews and Bonta (1998) is the Risk Principle. With this principle comes the idea that behaviour can be predicted and that levels of treatment should be matched to the risk level of the individual. Particularly, higher-risk individuals should receive more intensive treatments and services than those with lower-risk levels. Studies have found that reductions in problematic behaviours for high risk individuals occur only when they receive intensive levels of treatment; however, low-risk individuals who receive intensive levels of treatment show either no changes in their behaviour or *increases* in problematic behaviours (O'Donnell, Lydgate, & Fo, 1971; Andrews & Kiessling, 1980; see discussion in Andrews & Bonta, 1998).

The Need Principle is also important for effective human services. Andrews and Bonta (1998) indicate that individuals, especially those at high risk, have a variety of

needs that should be targeted in treatment. The needs of youth in residential care that have been identified in the literature include mental health needs (Lyons, et al., 1998), individualized service needs (Brown & Hill, 1996), parental and family involvement needs (Brown & Hill, 1996; Small, et al., 1991), emotional development needs (Canham, 1998), social skill development needs (McMillen & Tucker, 1999) and substance abuse prevention needs (Morehouse & Tobler, 2000). Although such needs have been identified, it is recalled that Wells (1991) indicated that there exists a lack of systematic criteria for matching types of residential treatment according to the individual needs of youth.

The third principle of effective human service is the Responsivity Principle. Responsivity refers to consideration of people's different learning styles when delivering treatment programs. For example, group therapy sessions that involve participants engaging in high levels of discussion may be appropriate for youth in residential care with high verbal skills. On the other hand, youth with low verbal skills may do better in individual therapy sessions. Overall, Andrews and Bonta (1998) advocate the use of appropriate behavioural, social learning and/or cognitive behavioural styles of service that are mindful of different responsivity factors.

The final principle of effective human service is Professional Discretion. This principle dictates that risk, need, and responsivity do not always provide the final word on assessment since on occasion, there will be a case that does not fit the formula. In exceptional cases, professional judgment can be used to override the first three principles when making treatment decisions. However, the use of professional discretion must not be abused and really should be the exception rather than the rule. Wherever possible, the

various forms of residential treatment and services available for youth should follow the principles of risk, need, and responsivity.

Types of treatment and services available in residential care. The types of treatments and services available to youth vary from one residential centre to another. According to Chamberlain (1999), the most prevalent types of residential placement include community-based family-style group homes, cottages in larger institutional settings, large group living situations with shift staff, and treatment or therapeutic care with one or two youth placed in family homes in the community. Within the different placement types, typical treatment modalities available to youth include psychotherapy, counseling, family and group therapy, behavioural therapy, special education, speech, language and hearing therapy, occupational and vocational therapy, and specialized medical treatments (Stone, 1979; see discussion in Wells, 1991). Court related services and anger management courses are also offered by most residential centers (Julian et al., 1992). A central aim of these treatments is to help integrate a youth's daily activities to promote internal stability and to prepare him or her for post-residential life.

Substance abuse treatment is another common service in residential care. One example of a substance abuse prevention and reduction program described by Morehouse and Tobler (2000) is the Residential Student Assistance Program (RSAP). The program began in 1988 in six New York residential youth facilities. Highly trained counselors are used by the RSAP and they work either part-time or full-time in the residential facilities. The counselors teach culturally sensitive alcohol and drug prevention and intervention strategies. The teaching is done in prevention education groups in which 8-10 youth discuss and role-play issues related to adolescence, substance abuse, family issues and

stress. As well, the counselor conducts both group and individual counseling sessions for youth who already have substance abuse issues, or whose parents are substance abusers. Where necessary, the counselor may also refer youth to substance abuse treatment programs outside of the residential facility. The RSAP program follows the principles of effective treatment by targeting youth who are at high risk for substance abuse and by offering options that may address youth responsivity factors (i.e., group vs. individual therapy).

Aftercare and social skills training are also provided in residential care, and both are designed to help youth learn to develop and maintain positive relationships with others, as well as to help prepare them for life after they are released from residential care. It is necessary for youth to gain skills that allow them to return to and deal with post-residential environments that may still exhibit some of the same problems and temptations that were present before entrance into care. The Teaching-Family Model (TFM) is an example of residential treatment that specifically attempts to teach social skills. As described by Friman et al. (1996), in the TFM, a married couple lives in a large domestic home with six to eight adolescents. The major features of TFM include: a) a token economy motivational system in which youth earn points and exchange them for privileges; b) a self-government system that allows youth to participate in developing the rules and structure of their daily lives; c) a focus on teaching social skills from a standardized social skills curriculum; d) emphasis on normalization; and e) a continuous evaluation system which in part involves evaluation of the teaching family couple by the youth. With regards to “normalization”, TFM attempts to provide a living setting that is

as consistent as possible by having the same caregivers with the youth at all times rather than rotating staff members as is typical in many residential settings.

Given the diversity of treatments and services offered within residential settings, it is expected that some will adhere to all or many of the principles of effective human service while others will not. Based on Andrews and Bonta (1998), treatments that follow all of the principles will be more effective than treatments that follow only some or none of the principles.

It is important to note that youth in residential care often receive multiple forms of treatment and services simultaneously. This has led to some problems in conducting experimental research with regards to program and process factors associated with successful treatment outcomes (Chamberlain, 1999; Wells, 1991). As a result, it is more feasible to study treatment outcomes with respect to client factors of youth, since these factors are more easily ascertained.

Client Factors of Youth in Residential Care

Despite size and program differences across residential settings, there seem to be many common client factors associated with youth who enter residential care. In general, the majority of youth in residential care are 11-18 years of age. Younger children in out-of-home care are more typically placed in foster homes, however, when necessary, they may be placed in residential care (Berrick, Barth, Needell, & Jonson-Reid, 1997).

McMillen and Tucker (1999) cite the work of Aldgate, Maluccio and Reeves (1988) who classified adolescents in out-of-home care into three groups: a) those placed at an early age with a stable placement history; b) those placed at an early age with an unstable placement history; and, c) those placed as teenagers because of behavioural or

relationship problems. In fact, the majority of youth in residential care fall into the second category since they tend to have a long history of involvement with the child welfare system as well as a history of placement instability and failed foster care or residential placements (Berrick, et al., 1997; Julian, Julian, Mastrine, Wessa, & Atkinson, 1992; McMillen & Tucker, 1999). As well, they have a history of early onset of problem behaviours (Curry, 1991).

With regards to family factors, many youth in residential care have been the victims of abuse, neglect and/or inconsistent or multiple caregivers (Berrick et al., 1997; Julian et al., 1992). As well, it is typical that other family members of the youth are impulsive, aggressive and/or physically or verbally abusive towards others (Small, Kennedy, & Bender, 1991).

Additionally, the majority of youth who are perceived to need residential treatment and who subsequently enter residential care are males (Offord, Boyle, & Racine, 1989). This might lead one to question whether or not residential treatment is properly tailored to meet the needs of females who apparently use this type of service less frequently. One way to determine this is to compare differences across males and females in residential treatment in terms of improvement with respect to problematic behaviours. If residential treatment is taking into account the needs of both genders, it might be expected that males and females would experience improvement or worsening in behaviours at a similar rate. Another way might be to examine differences in client satisfaction. Although the majority of research has found no difference with respect to client satisfaction between male and female youth receiving mental health services (e.g., Garland, Aarons, Saltzman, & Kruse, 2000; Rouse, MacCabe, & Toprac, 1994;

Kotsopolous, Elwood & Oke, 1989), at least one study suggests that males report higher satisfaction than females (Stuntzner-Gibson, Koren, & DeChillo, 1995). As discussed by the authors of this latter study, consideration of client satisfaction can help service providers in offering treatment that meets the needs of youth and that optimizes their chances of success. To this end, if males and females are equally satisfied with their treatment, they may also experience relatively equal success rates in their residential placements.

Many of the youth in residential care have exhibited emotional and/or behavioural disturbances (Julian et al, 1992). This often translates into acts of impulsivity, neuropsychiatric disturbances, conduct disturbances and oppositional behaviour (Lyons, Libman-Mintzer, Kisiel, & Shallcross, 1998; Small et al., 1991). It is not surprising, therefore, that many youth in residential care are diagnosed with Attention Deficit Disorder (ADD), Attention Deficit and Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD) (Hainesworth, 2001; Small, et al., 1991). High levels of impulsivity also lead to an inability to delay immediate gratification, a low tolerance for frustration and a lack of control over one's drives. These elements of impulsivity would therefore suggest that the youth have very low overall self-control (Gottfredson & Hirschi, 1990).

In terms of cognitive functioning, youth in residential care tend to have poor verbal skills. This is likely to be one of the reasons why they are deficient in their social and relationship abilities. Youth also display low problem solving skills which adds to their frustration in dealing with difficult and challenging situations (Small, et al., 1991). It is very likely that frustration resulting from an inability to problem solve is one of the

reasons why youth in residential care often drop out of or are expelled from school (Berrick et al., 1997; Julian et al., 1992).

There are several acting out behaviours in which youth in residential care typically engage. These include but are not limited to running away from home, arson, prostitution, self-mutilation, physical or verbal aggression, suicide attempts and drug or alcohol use (Julian et al., 1992; Small et al., 1991). Specifically regarding substance use, Morehouse and Tobler (2000) reported that youth in residential care are more likely to use drugs and alcohol and at a much earlier age than same-age high school students not in residential care.

In sum, it appears as though the typical youth in residential care is a male adolescent with a long history of unsuccessful placements, an abusive or dysfunctional family, emotional and behavioural disturbances, cognitive deficits, and a pattern of engagement in acting out behaviours. Some of these characteristics have been studied in past research on residential treatment outcomes.

Predictors of Positive Outcomes in Residential Care

The lack of research with regards to predictors of positive outcomes in residential care is widely acknowledged in the literature (Chamberlain, 1999; Lyons, Terry, Martinovich, Peterson, & Bouska, 2001; Wells, 1991). According to Lyons, Howard, O'Mahoney, and Lish (1997), two basic methodologies that can be used to study residential treatment outcomes include *change analysis* and *outcome prediction*. Change analysis focuses on studying differences before and after treatment is received. For example, researchers examine levels of improvement or change in youth after residential treatment is completed based on pre-treatment profiles. On the other hand, outcome

prediction involves the building of trajectories of change over the course of treatment. For example, researchers attempt to determine levels of improvement or change at different points *during* the treatment process as opposed to focusing on what happens after treatment is finished. Furthermore, Lyons et al. indicate that while little research has been done with regards to change analysis, there is an even bigger lack of research with respect to outcome prediction.

Change analysis studies. In a subjective, narrative review of 24 studies conducted between 1936 and 1982, Blotcky, Dimperio and Gossett (1984) found seven child factors predictive of successful outcomes in residential care: a) higher intelligence; b) nonpsychiatric diagnosis; c) no neurological dysfunction; d) absence of antisocial behaviour; e) healthy family functioning; f) adequate time in the program; and, g) adequate aftercare services. Similarly, in her narrative review of studies, Wells (1991) found less severe dysfunction, onset of an acute rather than ongoing problem, greater academic ability, and greater capacity for relationship to be associated with positive outcomes.

Pfeiffer and Strzelecki (1990), examined all outcome studies of child and adolescent residential treatment and psychiatric hospitalization in the literature from 1975 to 1990 ($N = 34$). Their study was an extension of the Blotcky et al. (1984) study in three ways. First, it took a more rigorous approach to examining Blotcky et al.'s earlier findings, and it used a more recent pool of investigations.

Second, the research employed a statistical procedure to pool the results of the various studies. Specifically, because only 2 of the 34 studies examined reported means and standard deviations of outcome measures, Pfeiffer and Strzelecki (1990) devised a

system of rating program outcomes as positive (1), negative (-1), or neutral (0). Due to varying sample sizes, each study was assigned a relative weight reflective of its sample size. A weighted predictive value (WPV) was then calculated by adding the products of the cumulative outcome values multiplied by the studies' assigned weights and then dividing that sum by the sum of the assigned weights per variable. WPVs range from -1 to +1, and the larger the absolute value, the more powerful the relationship (either positive or negative).

Third, unlike the Blotcky et al. (1984) study, Pfeiffer and Strzelecki (1990) excluded anecdotal case reports and studies describing developmentally disabled children (e.g., children with mental retardation, autism, or other pervasive developmental delays). This is important since, as noted by Pfeiffer and Strzelecki, (p. 849), "inpatient treatment of severely emotionally disturbed children and adolescents is quite different from the treatment of persons with mental retardation and pervasive developmental disorders (such as autism)."

Across studies, Pfeiffer and Strzelecki (1990) found that organicity (e.g., central nervous system dysfunction), family functioning, presence of a specialized treatment regime, and availability of aftercare services were highly related to treatment outcomes. For example, high levels of organicity were related to negative treatment outcomes, while high levels of family functioning, specialized treatment, and appropriate aftercare were related to positive treatment outcomes. Intelligence and length of stay in care were only moderately related to treatment outcomes while age and gender were unrelated to outcomes.

In Curry's (1991) review of three residential treatment-based studies it was found that approximately 71% of youth in residential care appear to improve or at least function "adequately" during treatment. Curry noted, however, that positive adjustment during a treatment program did not necessarily predict positive adjustment after discharge. He concluded that promising targets for promotion of positive adjustment after discharge include provision of extensive aftercare, working closely with the child and his/her family, and inclusion in treatment programs of learning opportunities that can be generalized to the youth's nonresidential environment. Furthermore, indices of participation by the child during treatment (e.g., school attendance) and degree of support and continuity in significant relationships were related to positive adaptation after discharge.

Larzelere and colleagues (2001) conducted a study of 43 youth (21 boys and 22 girls; *M* age = 13 years) who entered a residential treatment centre at Girls and Boys Town. Primary diagnoses of the youth at intake were depressive disorders (51%), disruptive disorders (21%), adjustment disorders (9%), post-traumatic stress disorder (PTSD, 9%), attention deficit hyperactivity disorder (7%), and schizo-affective disorder (2%). Mean treatment duration was 181 days. The Child Behaviour Checklist (CBCL; Achenbach, 1991) was completed for each youth at intake, at discharge and at a follow-up period of six to ten months after discharge. Results indicated that youth improved significantly (approximately 1 standard deviation) on CBCL Internalizing, Externalizing, and Total scores from intake to discharge and that these gains were maintained at follow-up.

As well, Larzelere and colleagues (2001) administered The Youth Satisfaction Survey at discharge, and they conducted a telephone follow-up survey with the caregivers of the youth at approximately ten months after discharge. The follow-up response rate was 65% ($n = 28$). The mean satisfaction score in the Youth Satisfaction Scale was 6.4 (falling between “satisfied” and “completely satisfied”) on a 7-point scale. At the time of the follow-up interview, 96% of the youth were either going to school or had graduated and were working, and 80% of the caregivers reported that their relationships with the youth were going “fairly well” or “extremely well”.

Furthermore, at follow-up, youth were significantly less likely to be involved in property destruction (26% after treatment vs. 74% before treatment), running away (14% vs. 77%), theft (33% vs. 61%), or physical assault (37% vs. 68%). The youth showed involvement in other problems at the same rate as during the six months prior to admission, although the percentages involved in these behaviours were never greater after discharge than prior to admission: substance use (22% after treatment vs. 33% before treatment), fire setting (11% vs. 11%), truancy (37% vs. 42%), and lying (89% vs. 89%). Overall, the study found that the youth improved from the time of admission to discharge and that many treatment gains were maintained at follow-up. The study did not, however, indicate which client factors or treatment program features might have been associated with the positive outcomes.

Outcome prediction studies. Joshi and Rosenberg (1997) examined behavioural changes demonstrated over time by 38 children (29 males and 9 females; M age = 10 years) who had been placed in a residential treatment center. The mean length of stay in treatment was 22.5 months and the primary diagnoses of the youth were CD ($n = 10$),

mood disorders ($n = 11$), anxiety disorders ($n = 4$), schizophrenia ($n = 1$), pervasive developmental disorder ($n = 5$), ODD ($n = 5$), and adjustment disorder with mixed features of emotion and conduct ($n = 2$). Teachers and residential counselors completed the Child Behavior Checklist (CBCL; Achenbach, 1991) for each youth at 2 weeks, 2 months, 5 months, 12 months, and 18 months after admission. The CBCL was not administered at intake, therefore no baseline scores were available for the youth.

Due to a lack of subjects in each of the diagnostic subgroups, no analyses were done on the possible relationship between diagnosis, length of stay, and CBCL results. Instead, differences in psychopathology were examined by rating youth on a three point scale of social impairment (1 = least social impairment, 2 = middle range of social impairment, 3 = most social impairment). Social impairment was defined as the degree to which youth expressed the following management difficulties: stealing, running away, lying, destroying property of others, being aggressive toward peers or adults, losing his/her temper, being argumentative with adults, defying adults, purposely annoying others, being verbally abusive of others, and being angry and resentful.

Even though the criteria for social impairment define the diagnoses of ODD and CD as per the American Psychiatric Association (APA; 1994), the rating process included all youth regardless of whether they met the criteria for either diagnosis. The youth were rated on the frequency that behaviours were reported by the residential staff. At 2 weeks, 5 months, and 12 months, total T scores on the CBCL were higher for the most impaired group than the least impaired group. No comparisons were carried out at 18 months after admission due to loss of subjects (only six remained in the most impaired group and none remained in the least impaired group). Overall, during their stay in

residential care, the majority of youth classified as most socially impaired maintained average CBCL total *T* scores (many of which were in the clinical range) that were significantly higher than the least socially impaired youth. The major implication of the study is that youth with high levels of social impairment (e.g., ODD and/or CD) may experience less positive outcomes in residential care than youth with low levels of social impairment. Although the study described a trajectory of change in CBCL scores during residential care, it did not examine trajectories of change in specific behaviours by youth.

In order to assess trajectories of change in risk behaviours, psychiatric symptoms, and functioning, Lyons et al. (2001) conducted a study of 285 adolescents (63% male) aged 12-17 years who were placed in one of eight residential treatment centres in the western United States. The primary diagnoses at admission were PTSD (27%), ADHD (21%), depressive spectrum disorder (17%), ODD (11%), bipolar disorder (7%), psychotic disorder (6%), CD (2%), and adjustment disorder (1%). Case files for each youth were reviewed and rated using the Acuity of Psychiatric Illness-Child and Adolescent Version (CAPI, Lyons, 1998). The CAPI is composed of 20 anchored ratings (0 to 3) of items in four domains: High Risk Behaviours (e.g., aggressiveness, suicidality, self-mutilation), Symptoms (e.g., depression, anxiety, impulsivity, reality assessment), Functioning (e.g., educational, family, peer, and self-care), and System Support (e.g., parental supervision, safety). Scores are averaged within each domain in order to generate scale scores (0 represents an extremely healthy pole and 3 represents an extremely unhealthy pole). The CAPI ratings for each youth were obtained a minimum of 3 periods within 2 years of admission, however the timing of reviews varied from case to case.

Results indicated that youth improved in self-mutilation, aggression towards people, and suicidal ideation/gesture on the Risk subscale of the CAPI. However, aggression towards objects did not show any response to residential treatment for the sample. With regards to individual symptoms, depression, reality assessment, and sleep disruption improved. However, anxiety and activity level actually worsened. Nutritional Status was the only functioning variable that showed improvement.

The study also tested for differences across diagnostic categories. Although only marginally significant, there was some suggestion that youth with PTSD showed greater risk behaviours at admission and greater subsequent improvement. Additionally, youth with ADHD showed no significant reduction in risk behaviours and even less reduction than those with other primary diagnoses. Children diagnosed with emotional disorder at intake (e.g., depressive spectrum disorder, adjustment disorder) were more likely to show improvement in overall functioning.

Finally, trajectories of change were considered separately for each of the eight residential facilities. No site demonstrated improvement exceeding that found in other sites, however one site showed reliable worsening. It was noted that for this site, there was a significant admission difference. Specifically, children at this site had relatively healthier levels of functioning at admission, and in turn, they showed relative worsening in risk behaviours and symptoms during the 2 years following admission. This is in accordance with the Risk Principle of effective human service since intensive treatment provided to lower risk individuals results in either no change or increases in problematic behaviours (Andrews & Bonta, 1998).

Overall, the study suggests that residential programming may be effective in reducing risk behaviours and depression, and in improving management of psychosis. Of the high risk behaviours examined, treatment benefits were most apparent in reducing suicidality, self-mutilation, and aggression towards others. In addition, residential treatment may be somewhat more effective for youth with PTSD and emotional disorders than for those with behavioural disorders. Finally, youth with healthier levels of functioning (e.g., educational, familial, peer, self-care, and nutritional functioning) at admission seem to do worse in residential care, implying that youth with more severe dysfunctions do better during treatment.

Summary of studies. In sum, it appears as though most youth in residential care experience many positive outcomes from their treatment. From change analysis studies, healthy family functioning, greater academic ability/school attendance, and less severe dysfunction are among the most common client factors found to be predictive of post-discharge positive outcomes.

Outcome prediction studies, though very few in number, indicate that youth show positive trajectories of change over the course of treatment with regards to many of their risk and individual symptoms. In contrast to the findings of change analysis studies, it appears as though youth with more severe dysfunctions at intake show better adjustment over the course of treatment than those with healthier levels of functioning. Furthermore, it appears as though youth with behaviour disorders such as ADHD, CD, and ODD may experience less positive outcomes over the course of treatment than youth who have other diagnoses.

It should also be noted that although the construct of client satisfaction was examined in the change analysis studies (e.g., Larzelere, et al., 2001) it was not examined in the context of the outcome prediction studies reviewed. The study of trajectories of change in client satisfaction during residential care would provide an opportunity to examine changes in the attitudes and perceptions of youth toward their treatment.

The present study attempted to further the work that has been done on outcome prediction by examining trajectories of change in behavioural adjustment and client satisfaction within residential treatment. Furthermore, client variables that are associated with trajectories of change were determined.

Purpose of the Present Study and Research Hypotheses

To date, there is a lack of published research that systematically examines client factors associated with intermediate outcomes in residential treatment. In particular, it is recalled that research is lacking regarding trajectories of change over the course of treatment (Lyons, 1997).

The first purpose of this study was to describe characteristics of youth entering residential care. Characteristics included basic demographics, types of presenting problems, diagnoses, mental health status, family issues, levels of youth dysfunction, and personality indicators.

Second, the study examined changes in behavioural adjustment and levels of client satisfaction. Specific behavioural adjustment variables that were examined include school attendance, aggression, property damage, sexual behaviours, self-harm, running, intoxication, and criminal charges. Changes in client satisfaction were assessed based on self-report questionnaires completed by youth.

Finally, the study sought to understand which characteristics of youth and their circumstances were associated with changes in behavioural adjustment in residential care. This was partly exploratory, but some of the characteristics examined (e.g., youth dysfunction, diagnosis, and family dysfunction) were chosen based on the findings of past studies outlined in the literature review.

The following research hypotheses were derived from the studies previously reviewed.

1. Youth will show reductions in all behavioural adjustment variables and increases in client satisfaction over the course of their long-term care.
2. Youth with formal diagnoses of disruptive behaviour disorders such as ADHD, CD, and ODD will experience less improvement in behavioural adjustment and client satisfaction over the course of treatment than youth who have other diagnoses.
3. Higher scores on the Youth Self Report (Achenbach, 1991) Total Problems scale (indicating more severe youth dysfunction), will be associated with greater improvement in behavioural adjustment and client satisfaction over the course of treatment than lower scores.
4. Higher scores on the Family subscale of the Problem Oriented Screening Instrument for Teenagers (POSIT; Rahdert, 1991) will be associated with greater improvement in behavioural adjustment and client satisfaction over the course of treatment than lower scores

Methods

Setting

Data for the present study were obtained from a large centre in Ontario, Canada that provides residential services to conduct-disordered youth between the ages of 12 and 18. Not all youth have a formal diagnosis of conduct disorder, but they display symptoms, as outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 1994) that could lead them to become formally diagnosed. The organization is considered a children's mental health centre and is therefore accredited by Children's Mental Health Ontario. The centre fosters the well-being of conduct disordered adolescents with exceptional psycho-social needs within the context of a safe environment for both clients and staff.

Residential programs. The centre offers a wide variety of 24-hour residential programs including Residential Mental Health Services, Secure Treatment, and Young Offender Services. Within Mental Health Services, 7-9 youth can be served per residence. Youth admitted must either be attending school or have the capacity to do so, and they must display behaviours that are clinically assessed as moderate to severe in degree of disturbance. Furthermore, these behaviours must be deemed more suitable to treatment in a residential facility than in the youth's regular living environment.

Secure Treatment is reserved for up to 8 youth who are a severe danger to themselves or others and who have a diagnosed mental disorder. That is, the youth have caused or threatened to cause serious bodily harm to themselves or others, and it is deemed that no less restrictive method of treatment is appropriate for these youth.

Finally, youth in Young Offender Services are Phase I Young Offenders who are serving open custody dispositions. Up to 18 youth can be served, and their behaviours must be clinically assessed as moderate to severe in degree of disturbance.

Additionally, there is a Crisis Intervention program that responds to adolescents in crisis through a 24-hour telephone line and a 7-bed residential back-up. Some of the crisis youth end up being referred for long-term treatment in Residential Mental Health Services, Secure Treatment, or Young Offender Services. However, many of the crisis youth stay for relatively short periods (usually ranging from one day to no longer than 1-2 weeks) and are then returned to their previous living quarters. In 2000-2001, 576 youth were served by the different forms of residential programs (including all of the crisis youth).

Day treatment. The centre also provides Day Treatment (special education classes for youth having difficulties in regular schooling due to behavioural problems), Adolescent Substance Abuse Program (A.S.A.P) (a day treatment substance abuse prevention program), Therapeutic Camping, and Adolescent Skill Development Program (a behavioural program which teaches social skills, personal awareness and anger management). Some of the youth in these programs are also in residential care, but some live with their biological families or with foster families.

Sample

The total sample consisted of 122 youth from the residential centre admitted into long-term care in the Residential, Secure, or Young Offender Programs between 1999 and 2001. There were two criteria for inclusion of youth in the study: (a) a minimum stay of three months in care; and (b) age between 12 and 18 years (inclusive). Within the

sample, 61.5% of the youth were males ($n = 75$) and 38.5% were females ($n = 47$). The mean age of the total sample was 14.37 years ($SD = 1.14$) with a mean age of 14.39 for males ($SD = .15$) and 14.49 ($SD = .16$) for females. With regards to admission status, 52.5% ($n = 64$) of the youth were Young Offenders, 41.8% ($n = 51$) were admitted to the Mental Health program, and 5.7% ($n = 7$) were admitted to the Secure program. Length of stay in care was examined, and 38.5% ($n = 47$) of youth were in the residential program for 3-5 months, 61.5% ($n = 75$) were in for 6 months or more, and the average number of days in care was 257.69 ($SD = 189.33$). Additionally, the average number of residential moves for the youth was 7.33 ($SD = 5.53$).

With regards to diagnosis, 18.9% ($n = 23$) of youth displayed a single Disruptive Behaviour Disorder (DBD), 13.9% ($n = 17$) displayed a single non-DBD, and 30.3% ($n = 37$) displayed comorbid diagnoses. It is also interesting to note that 36.9% ($n = 45$) of youth had no diagnosis on file. Among the DBDs, ADD was the most frequent diagnosis (26.2%; $n = 32$), followed by CD (19.7%; $n = 24$), ODD (17.2%; $n = 21$), and ADHD (12.3%; $n = 15$).

Procedure

Permission was granted from the residential centre for conduction of this research. Upon acceptance of youth into one of the treatment programs offered by the centre, both youth and/or guardians are informed that any information collected may be used for research purposes.

The researcher examined the file of each youth and completed a data collection form (see Appendix A). Information that was collected included demographic variables (e.g., gender, date of birth, age, date of admission/discharge, admission status, and

number of residential moves), presenting problems, professional diagnoses, and family issues. This information was extracted from the Client Information System which is completed at the time of admission through interviews with parents/guardians by clinicians at the centre. Given the large number of possible presenting problems and family issues, composite categories and scores (see Appendix B) were formed based where applicable on scales from Achenbach's (1991) Youth Self-Report. Mental health and family relationship scores as per The Problem Oriented Screening Instrument for Teenagers (POSIT; Rahdert, 1991) were also collected, as were youth dysfunction scores on the Youth Self-Report (YSR; Achenbach, 1991), and personality scores on the Basic Personality Inventory (BPI; Jackson, 1989). Each of these measures is completed by youth at the time of admission.

In addition, two types of process variables were examined and recorded for each participant: (a) behavioural adjustment; and (b) client satisfaction (see Appendix A). Behavioural adjustment was measured with respect to levels of specific behaviours (e.g., school attendance, aggression, property damage, sexual behaviours, self-harm, running, intoxication, and criminal charges; see Appendix C) at intake and three and six months after admission. The behavioural adjustment variables were extracted from the Residential Daily Census which is a tally form completed on a daily basis by the centre for every youth in every residence. The form is also completed at intake in order to summarize involvement of the youth in each of the behaviours prior to admission.

Client satisfaction was examined at two consecutive points while the youth were in care according to their responses on the Client Satisfaction Questionnaire (CSQ-8; Attkisson, 1987). The timing of the two measurement points varied for each youth given

that client satisfaction is measured four times a year (January, April, July, and October) according to the fiscal calendar of the centre, and not based on date of admission of the youth. In order to maintain consistency, the researcher began with the first questionnaire completed after admission of the youth.

Measures and Materials

Basic Personality Inventory (BPI). The BPI (Jackson, 1989) is a multiphasic personality inventory intended for use with both clinical and normal populations to identify sources of maladjustment and personal strengths. The BPI consists of 240 true/false items, and 12 subscales. Of interest to this study were the Anxiety, Depression, Deviation, and Impulse Expression subscales. Scale internal consistency reliabilities (measured by Cronbach's alpha) for adolescent samples range from .57 to .80 (Reddon, 1980; see discussion in Jackson, 1989) while one-month test-retest reliabilities range from .62 to .87 (Holden, Helmes, Fekken, & Jackson, 1985; Kilduff, 1979; see discussion in Jackson, 1989). The BPI also demonstrates convergent and discriminant validity with mean validities averaging .56 (Holden, Fekken, Reddon, Helmes, & Jackson, 1988; see discussion in Jackson, 1989).

Client Information System. The Client Information System is completed by clinicians at the centre at the time of admission of youth. Based on interviews with families and referring agencies of the youth, and in consultation with documentation provided by physicians, psychologists, and other relevant professionals, information recorded includes demographics, presenting problems, diagnoses, and critical issues, including family issues. Presenting problems and diagnoses are checked off as Yes (e.g., present) or No (e.g., not present). Critical issues are checked off as Primary (e.g., of

direct relevance to admission into care), Secondary (e.g., present but not of primary concern), History (e.g., issue has been a concern in the past), or Not Applicable (see Appendix C).

Client Satisfaction Questionnaire (CSQ-8). The CSQ-8 is an 8-item measure designed to assess clients' satisfaction with services. Questions range from "To what extent has our program met your needs?" to "Have the services you received helped you to deal more effectively with your problems?" and are answered by circling the most appropriate of four descriptors such as "Excellent", "Good", "Fair", or "Poor". Each descriptor corresponds to a score from 1-4 with 1 indicating high dissatisfaction and 4 indicating high satisfaction. Scores across the 8 questions are summed for a total score out of 32. The instrument has good concurrent validity and internal consistency with alphas between .86 and .94 (Attkisson, 1987; see Appendix D).

Problem Oriented Screening Instrument for Teenagers (POSIT). The POSIT (Rahdert, 1991) is a brief screening tool designed for 12-19 year old adolescents to identify problems requiring an in-depth assessment and potentially a need for treatment. It is a self-report questionnaire with 139 yes/no items (i.e., "Do your parents or guardians pay attention when you talk with them?"; "Do your parents or guardians have rules about what you can and cannot do?") that assess ten functional areas. Cut-off scores are assigned to each functional area. Scores surpassing the cut-off values indicate a need for further assessment in those areas. Only two of these areas are of interest to the present study: mental health and family relationships. Internal reliability rates measured by Cronbach's alpha were found to be .84 for mental health and .72 for family relationships, respectively (McLaney, Del Boca, & Babor, 1994), and further evidence of

internal consistency was found in a second study which found a total alpha coefficient of .92 (Latimer, Winters, & Stinchfield, 1997). Evidence for convergent validity of the POSIT mental health ($r = .57$) and family ($r = .33$) subscales with similar constructs from the Personal Experience Inventory (PEI; Henly & Winters, 1988) has been established, as well as evidence for divergent validity since the POSIT subscales were unrelated to dissimilar constructs from the PEI (McLaney, Del Boca, & Babor, 1994; see Appendix E).

Residential Daily Census. The Residential Daily Census is a tally form completed by residential staff on a daily basis for each youth. The involvement of each youth in the following types of activities is recorded: (a) school attendance; (b) aggression; (c) property damage; (d) sexual behaviours; (e) self-harm; (f) running; (g) intoxication; and (h) criminal charges (see Appendix F).

Youth Self-Report (YSR). The YSR consists of 112 behavioural descriptors that are rated by youth on a three-point scale (0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true) as well as open-ended questions with items covering physical problems, concerns, and strengths. The YSR yields eight syndrome scores, two of which were examined in this study (Social Problems, and Attention Problems), as well as a total internalizing score, total externalizing score, and total overall score which were also examined. The one-week test-retest reliability of the YSR Total Problems score is $r = .70$ for 11-14 year olds and $r = .91$ for 15-18 year olds. Internal consistency of the YSR measured by Cronbach's alpha was found to be .95 for total problems with ranges of .59 to .89 for the other subscales. The YSR was found to discriminate significantly between demographically matched referred and nonreferred youth, thus demonstrating content

validity (Achenbach, 1991). Additionally, concurrent validity of the YSR has been found in relation to other psychometrically sound instruments such as the Minnesota Multiphasic Personality Inventory (Belter, Foster, & Imm, 1996).

Results

In order to examine general characteristics of the sample, descriptive statistics including means and standard deviations were run for the predictor variables. Furthermore, the effects of admission status and gender on the predictor variables were assessed using a multivariate analysis of variance (MANOVA). Descriptive statistics for the behavioural adjustment variables for the total sample were also run.

Relations between predictor and behavioural adjustment variables were examined in two ways. First, relations were examined on a static basis through use of correlational analyses. Second, relations were examined dynamically by performing two series of repeated measures analyses: one series to determine whether admission status and gender were associated with changes over time, and one to determine whether diagnosis was associated with changes over time. Two analyses were conducted rather than one due to lack of subjects. In addition, two sets of multiple regression analyses were used to determine which remaining predictor variables were associated with changes in behavioural adjustment variables at 3-months and at 6-months after admission.

Descriptive Statistics: Predictor Variables

Total Sample

Descriptive statistics were obtained for the predictor variables available from the intake period. Table 1 presents the means, standard deviations, and ranges for the total sample for presenting problem composite scores, as well as POSIT, YSR, and BPI scores.

Table 1

Descriptive Statistics for Predictor Variables: Total Sample

Variable	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>	<i>n</i>
Presenting Problems					
Child Welfare Related	1.81	1.27	0	4	122
Internal	2.25	1.86	0	7	122
External	14.08	2.76	2	20	122
Social	.52	.50	0	1	122
Sexual	.74	1.05	0	4	122
Attention	3.00	1.39	0	5	122
Family	4.77	2.79	0	13	122
POSIT					
Mental Health	9.61	5.36	1	23	119
Family	3.92	2.84	0	11	119
YSR					
Social	55.50	9.16	50	93	113
Problems					
Attention	58.18	11.25	50	96	113
Problems					
Internalizing	55.58	15.47	26	97	113
Externalizing	63.34	14.78	25	94	113
Total	58.91	15.35	22	97	113
BPI					
Anxiety	49.82	11.59	25	78	109
Depression	61.23	14.88	36	98	109
Deviation	59.75	16.73	34	99	109
Impulse	50.07	9.78	28	71	109
Expression					
Persecutory	52.68	10.26	28	75	109
Ideas					

Note. For Presenting Problems, maximum possible composite scores were as follows:

Child Welfare Related = 4

Internal = 7

External = 25

Social = 1

Sexual = 4

Attention = 5

Family = 17

Based on the maximum number of possible presenting problems within each composite category, External problems were the most prevalent, followed by Attention problems, and Social problems. All of the mean scores for the YSR syndrome and total problem scales fell within the normal range with the exception of Externalizing which fell within the clinical range. As well, all mean scores on the BPI subscales were within the normal range. For the POSIT scores, only the mean score on the mental health subscale surpassed its assigned cut-off score of 4, thus indicating a need for further assessment in this area.

Admission Status and Gender

A 3 (admission status) by 2 (gender) multivariate analysis of variance (MANOVA) was performed in order to test for effects of admission status and gender on variable scores. A significant multivariate effect of admission status was found (*Wilks' Λ* = .35; $F(38, 146) = 2.68, p < .001, \eta^2 = .41$), as was a significant effect of gender (*Wilks' Λ* = .68; $F(19, 73) = 1.80, p < .05, \eta^2 = .32$). These effects were also qualified by a significant 2-way interaction (*Wilks' Λ* = .47; $F(38, 146) = 1.76, p < .01, \eta^2 = .31$). Univariate tests revealed a significant interaction on Family Presenting Problems ($F(2, 91) = 5.57, p < .01, \eta^2 = .11$), POSIT Family subscale scores ($F(2, 91) = 3.84, p < .05, \eta^2 = .08$), YSR Social Problems scores ($F(2, 91) = 6.20, p < .01, \eta^2 = .12$), and BPI Deviation scores ($F(2, 91) = 3.16, p < .05, \eta^2 = .07$).

Simple main effects for gender at each level of admission status were examined, and a family-wise error rate of $p < .05$ was held using a Bonferroni correction for multiple comparisons. It was revealed that for Secure youth, females ($M = 10.50, SE =$

1.96) had significantly more Family Presenting Problems than males ($M = 1.00$, $SE = 2.77$; $F(1, 91) = 7.85$, $p < .01$, $\eta^2 = .08$), but for YSR Social Problems, males ($M = 93.00$, $SE = 8.45$) scored higher than females ($M = 62.00$, $SE = 5.95$; $F(1, 91) = 9.04$, $p < .01$, $\eta^2 = .09$). However, for Mental Health youth, females scored significantly higher on the POSIT Family subscale ($M = 5.65$, $SE = .62$) than males ($M = 3.37$, $SE = .63$; $F(1, 91) = 6.64$, $p < .05$, $\eta^2 = .07$) and females also scored higher on the BPI Deviation subscale ($M = 70.05$, $SE = 3.47$) than males ($M = 57.47$, $SE = 3.56$; $F(1, 91) = 6.41$, $p < .05$, $\eta^2 = .07$).

Simple main effects for admission status within gender were also examined. It was found that Secure females ($M = 10.50$, $SE = 1.96$) had significantly more Family Presenting Problems than both Young Offender ($M = 3.36$, $SE = .74$) and Mental Health females ($M = 5.35$, $SE = .62$; $F(2, 91) = 6.52$, $p < .01$, $\eta^2 = .13$). Furthermore, Mental Health females ($M = 5.65$, $SE = .62$) scored significantly higher on the POSIT Family subscale than female Young Offenders ($M = 3.00$, $SE = .74$; $F(2, 91) = 4.60$, $p < .05$, $\eta^2 = .09$). Finally, Secure males ($M = 93.00$, $SE = 8.42$) scored higher on the YSR Social Problems subscale than both Mental Health males ($M = 58.74$, $SE = 1.93$) and male Young Offenders ($M = 53.22$, $SE = 1.32$; $F(2, 91) = 12.82$, $p < .001$, $\eta^2 = .22$). None of the pairwise comparisons for the BPI Deviation subscale were significant at the designated alpha level ($\alpha = .017$).

Descriptive Statistics: Behavioural Adjustment Variables

Descriptive statistics were obtained for the total sample for the behavioural adjustment variables. It is recalled that the behavioural adjustment variables (with the exception of Client Satisfaction) were measured at three points in time: intake, 3 months after admission, and 6 months after admission. Additionally, level of engagement in each

behaviour was categorized as one of the following: 0 = no occurrence, 1 = less than once a month to once a month, 2 = 2-3 times in a 2 week period, 3 = 2-4 times a week, 4 = once or twice a day, 5 = 3 or more times a day. Table 2 presents the means and standard deviations for the behavioural adjustment variables School Attendance, Aggression, Property Damage, Sexual Behaviours, Self-Harm, Running, Intoxication, and Criminal Charges at the three measurement periods.

At intake, youth displayed the most problems with criminal charges, followed by aggression, and intoxication. At 3-months after admission, the most frequently occurring behaviours were aggression, property damage, and sexual behaviours, though the respective means for these behaviours were lower than the corresponding intake means.

Finally, at 6-months after admission, the most frequently occurring behaviours were aggression, property damage, and self-harm. Again, the respective means were lower than the corresponding intake means, however, they were slightly higher than the corresponding 3-month means. For client satisfaction, the mean at Time 1 was 19.36 ($SD = 6.30$) and at Time 2, the mean was 19.43 ($SD = 7.07$). The significance of mean differences between measurement periods was not examined here, since this issue will be dealt with in the repeated-measures analyses. However, as demonstrated in Figure 2, it appears that levels of engagement in behavioural adjustment variables decrease at 3-months and 6-months compared to intake, and that most variables seem to level off from 3-months to 6-months. Figure 3 demonstrates the increase in client satisfaction from Time 1 to Time 2.

Table 2***Descriptive Statistics for Behavioural Adjustment Variables: Total Sample***

Variable	<u>Intake</u>			<u>3-Months</u>			<u>6-Months</u>		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
School Attendance	.77	.42	122	.05	.22	122	.08	.27	75
Aggression	2.89	1.42	122	1.84	1.41	122	2.11	1.45	75
Property Damage	1.15	.96	122	.29	.65	122	.36	.67	75
Sexual	.84	1.31	122	.25	.63	122	.13	.47	75
Self-Harm	.64	1.03	122	.18	.55	122	.20	.70	75
Running	1.19	1.31	122	.14	.52	122	.07	.34	75
Intoxication	1.23	1.21	122	.00	.00	122	.00	.00	75
Criminal Charges	2.94	2.92	122	.03	.22	122	.00	.00	75

FIG 2. Changes in Behavioural Adjustment Variables from Intake to 3-Months and 6-Months After Admission.

FIG 3. Changes in Client Satisfaction from Time 1 to Time 2.

Difference scores were calculated for the youth on each outcome variable by subtracting level of engagement in each behaviour at intake from level of engagement at 6-months. Higher (e.g., positive) difference scores indicate less improvement with respect to the outcome variable, and lower (e.g., negative) scores indicate more improvement. For client satisfaction, difference scores were obtained by subtracting actual scores on the CSQ-8 at time 1 from scores at time 2, and higher difference scores indicate higher levels of client satisfaction. Given that not all youth in the study were in residential care for six months, difference scores were also calculated for the 3-month period. Table 3 presents the means and standard deviations of the difference scores for the behavioural adjustment variables at the 3 and 6 month periods.

All mean difference scores were negative, thus indicating some degree of improvement in each of the behavioural adjustment variables. At 3-months, intoxication, running, and aggression showed the highest degrees of improvement, while at 6-months, criminal charges, running, and intoxication showed the most improvement, respectively. The mean difference score for client satisfaction across the two measurement periods was .64 ($SD = 7.65$), thus indicating a degree of improvement in how satisfied youth were with the services they received.

Relations Between Predictor and Behavioural Adjustment Variables: Correlational Analyses

For exploratory purposes, a set of correlational analyses was run between scores on the predictor variables and the behavioural adjustment variables. Difference scores for 3-months and 6-months (and from Time 1 to Time 2 for client satisfaction), calculated as previously discussed, were used for the behavioural adjustment variables. Given that

Table 3***Change Scores for Behavioural Adjustment Variables at 3 and 6 Months***

Variable	<u>3-Months</u>			<u>6-Months</u>		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
School Attendance	-.72	.47	122	-.61	.54	75
Aggression	-1.06	1.99	122	-.79	2.09	75
Property Damage	-.86	1.15	122	-.76	1.05	75
Sexual	-.59	1.51	122	-.87	1.45	75
Self-Harm	-.46	1.02	122	-.61	1.18	75
Running	-1.23	1.21	122	-1.19	1.37	75
Intoxication	-2.91	2.93	122	-1.11	1.21	75
Criminal Charges	-1.05	1.41	122	-2.08	2.64	75

not all of the youth in the study were in residential care for six months, two correlational analyses were performed: one for the 3-month period (in which Client Satisfaction difference scores are also included), and one for the 6-month period.

As illustrated in Table 4, for the 3-month period, number of days in care was positively correlated with the outcome variable School Attendance, and number of residential moves was the only predictor variable associated with Property Damage. There were significant negative correlations between Sexual Behaviours and the predictor variables number of residential moves, Child Welfare Related presenting problems, Internal presenting problems, Social presenting problems, and Sexual presenting problems. With regards to the outcome variable Self-Harm, negative correlations were found with Child Welfare Related presenting problems, sexual presenting problems, POSIT family scores, YSR social problems, YSR attention problems, YSR internalizing scores, and BPI deviation scores. POSIT mental health scores were negatively correlated with the outcome variable Running. Age and External presenting problems were negatively correlated with the outcome variable Intoxication, and number of days in care, YSR social problems, YSR attention problems, YSR internalizing scores, YSR total scores, BPI anxiety scores were positively associated with Intoxication. The outcome variable Criminal Charges showed negative correlations with age and External presenting problems, and positive correlations with number of days in care, Child Welfare Related presenting problems, Internal presenting problems, Social presenting problems, and Sexual presenting problems. Finally, age was positively correlated with Client Satisfaction. None of the predictor variables were significantly correlated with Aggression.

Table 4

Correlations for Predictor and Behavioural Adjustment Variables: 3-Month Period

Behavioural Adjustment Variables									
Variable	School Attendance	Aggression	Property Damage	Sexual	Self-Harm	Running	Intoxication	Criminal Charges	Client Satisfaction
Demographics									
Age	-.10	-.02	-.02	.03	-.08	-.08	-.32**	-.44**	.26*
Residential Moves	.14	.13	.28**	-.27**	-.02	-.15	-.06	-.06	-.08
Number Days in Care	.26**	.02	.08	-.17	.01	.04	.29**	.39**	-.09
Presenting Problems									
Child Welfare Related	.06	.01	.00	-.19*	-.09	-.14	.04	.23*	-.19
Internal	.09	-.02	-.06	-.23*	-.50**	-.08	.03	.24**	-.05
External	.05	-.15	-.11	-.11	-.07	-.04	-.27**	-.23*	-.09
Social	.15	-.14	.06	-.35*	-.14	-.07	.05	.20*	-.05
Sexual	.15	-.02	-.00	-.56**	-.19*	.06	.12	.19*	-.04
Attention	.14	-.00	-.04	.04	-.09	.06	-.01	-.08	.15
Family	-.05	-.10	.04	-.08	.04	.00	-.01	.02	-.08
POST									
Mental Health	.01	.00	-.02	-.01	-.16	-.18*	.09	.06	.01

Table 4
(continued)

	School Attendance	Aggression	Property Damage	Sexual	Self- Harm	Running	Intoxication	Criminal Charges	Client Satisfaction
Family YSR	-.11	.04	-.15	-.01	-.19*	-.10	.03	.11	-.03
Social Problems	.17	.05	.02	-.06	-.22*	.15	.30**	-.05	.01
Attention Problems	.05	-.10	.09	-.09	-.19*	-.03	.21*	-.01	-.03
Internalizing Externalizing	.03	-.07	.03	-.05	-.20*	-.04	.22*	.08	.01
Total	-.07	.02	.03	-.09	-.11	.03	.14	.16	-.05
BPI	-.02	-.03	.04	-.07	-.17	-.00	.22*	.12	.01
Depression	.15	.01	-.03	.04	-.13	.03	.11	.10	-.02
Anxiety	.07	.05	.13	-.02	.07	-.04	.20*	.02	.12
Impulse	.04	.02	.04	.16	-.06	.10	.03	.14	.18
Expression Deviation	.16	.07	.08	-.07	-.22*	-.07	.12	.09	.16

Note. * $p < .05$ (2-tailed)** $p < .01$ (2-tailed)

Table 5 presents the correlations between predictors and behavioural adjustment variables for the 6-month period. As with the 3-month period, at 6 months, number of days in care was positively correlated with School Attendance, and Child Welfare Related presenting problems were positively correlated with Property Damage.

However, at 6 months, YSR Externalizing scores, BPI Anxiety scores, and BPI Deviation scores were positively associated with Aggression. Additionally, number of residential moves, Internal presenting problems, Social presenting problems, and Sexual presenting problems were negatively associated with the outcome variable Sexual Behaviour.

Furthermore, at 6 months, the only predictors significantly (and negatively) correlated with Self-Harm were Internal presenting problems and Sexual presenting problems. With regards to the outcome variable Running, Child Welfare Related presenting problems were negatively correlated. Age was negatively associated with Intoxication, and number of days in care and YSR Social problem scores were positively associated. Finally, age and External presenting problems were negatively correlated with Criminal Charges, and number of days in care was positively correlated.

Table 5

Correlations for Predictor and Behavioural Adjustment Variables: 6-Month Period

Variable	<u>Behavioural Adjustment Variables</u>							
	School Attendance	Aggression	Property Damage	Sexual	Self-Harm	Running	Intoxication	Criminal Charges
Demographics								
Age	-.20	-.16	-.20	-.18	-.21	-.20	-.41**	-.31**
Residential Moves	.12	.10	.23	-.30*	-.05	-.13	-.08	-.02
Days in Care	.31*	-.04	.17	-.08	.16	.08	.43**	.33**
Presenting Problems								
Child Welfare	.09	.17	.26*	-.21	.00	-.26*	.00	.12
Related								
Internal	-.05	-.02	.04	-.24*	-.54**	-.12	-.02	.12
External	.05	-.09	-.02	-.06	-.12	-.14	-.21	-.37**
Social	.07	.01	.20	-.43**	-.15	-.10	.13	.22
Sexual	.08	-.00	.05	-.61**	-.27*	.03	.07	.14
Attention	.20	-.00	-.05	.02	-.05	.09	.06	.04

Table 5
(continued)

	School Attendance	Aggression	Property Damage	Sexual	Self-Harm	Running	Intoxication	Criminal Charges
Family POSIT	.03	-.07	.02	-.04	.13	-.10	.06	-.10
Mental Health	-.04	.10	.04	.03	-.08	-.13	.05	-.11
Family YSR	-.06	.07	-.00	-.01	-.02	-.19	.13	.06
Social Problems	.16	.20	.06	.13	-.21	.12	.25*	-.19
Attention Problems	-.03	.12	.12	.13	-.23	-.03	.15	-.11
Internalizing	.08	.12	.12	.11	-.16	-.07	.15	-.10
Externalizing	.09	.28*	.18	-.05	-.05	-.03	.16	.00
Total BPI	.06	.22	.17	.05	-.11	-.05	.18	-.08
Depression	.11	.10	-.02	.18	-.06	-.03	.17	-.01
Anxiety	.01	.28*	.12	.02	.08	.01	.22	-.05
Impulse Expression	.08	.11	.16	.17	-.08	.13	.10	.06
Deviation	.12	.25*	.14	.08	-.13	-.07	.17	.03

Note. * $p < .05$ (2-tailed)** $p < .01$ (2-tailed)

Relations Between Predictor and Behavioural Adjustment Variables: Repeated Measures Analyses

It was hypothesized that youth in residential care would show reductions in each of the behavioural adjustment variables and improvements in client satisfaction during the course of their long-term care. In order to test this hypothesis, two series of multivariate repeated measures analyses were performed. The first series was a 3 (time: intake, 3 months, and 6 months) x 2 (admission status: Young Offender, and Mental Health/Secure) x 2 (gender) mixed design with time as the within-subjects variable and admission status and gender as exploratory between subjects variables. The analyses were performed for each outcome variable for youth who were in care at least 6 months ($n = 75$) and for client satisfaction for youth for whom there were two CSQ-8 scores available ($n = 61$).

Additionally, it was hypothesized that youth with formal diagnoses of DBDs would experience less improvement in behavioural adjustment variables and client satisfaction than youth who were diagnosed with non-DBDs. Therefore, the second series of multivariate repeated measures analyses was a 3 (time) x 4 (diagnosis: no diagnosis, DBD, non-DBD, and comorbid diagnoses) mixed design performed for each outcome variable and client satisfaction.

Data Screening

Before proceeding with the repeated measures analyses, it was necessary to test whether or not certain assumptions were satisfied. The first assumption for a multivariate repeated measures analysis is that of independence of observations. This is a logical issue in which the researcher must consider whether or not observations are correlated

among subjects. In the present research, given that youth were in care at different periods and in different residences, and given that they all came into care with different levels of acting out behaviours, there was no real reason to believe that independence of observations was violated.

A second assumption is that of multivariate normality. According to Stevens (2002), there is no established statistical test of multivariate normality, however, if univariate normality on each of the dependent variables is present, multivariate normality can be *inferred*. For each outcome variable, a histogram of the frequency versus regression standardized residuals was examined for normality. With the exception of Aggression and Client Satisfaction which were normally distributed, the remaining behavioural adjustment variables displayed a moderate positive skew. However, it has been found that deviation from multivariate normality has only a very small effect on Type I error (Everitt, 1979; Olson, 1974; Maradia, 1971; Hopkins & Clay, 1963; see discussion in Stevens, 2002). Given the above finding, the decision was made to proceed with the analyses without performing transformations on the behavioural adjustment variables.

Finally, there was an additional assumption to consider for the series of analyses involving admission status and diagnosis. Given that there were originally more than two groups of admission status (e.g., Young Offender, Mental Health, and Secure) and diagnosis (e.g., No Diagnosis, DBD, non-DBD, and Comorbid Diagnoses) it was necessary to test for homogeneity of covariance matrices. This is achieved by use of the Box test and if this test is significant, there is a violation of the assumption. Stevens (2002) indicates that a violation of homogeneity of covariance matrices is not serious if

the group sizes are relatively equal (e.g., largest group/smallest group < 1.5), but that violation is serious when the group sizes are sharply unequal, as was the case with the three admission status groups. Upon examining the Box tests for the repeated measures for the admission status groups, it was found that the majority of the tests were significant, thus indicating heterogeneity of covariance matrices. In order to correct for this violation, the Mental Health and Secure admission groups were combined¹ and repeated measures analyses run with two admission status groups (e.g., Young Offender and Mental Health/Secure).

Some of the Box tests for the repeated measures for the diagnosis groups were also significant. However, the ratio between the largest and smallest groups (e.g., 23 (Comorbid Diagnoses) vs. 16 (DBD)) is less than 1.5, therefore, a violation is not considered serious.

Effects of Admission Status, Gender, and Time

School Attendance. A significant multivariate effect of time on school attendance was found (*Wilks' Λ* = .41, $F(2, 70) = 50.13$, $p < .001$, $\eta^2 = .59$). There were no other significant main effects and no significant interactions. Time displayed both significant linear ($F(1, 71) = 74.13$, $p < .001$, $\eta^2 = .51$) and quadratic ($F(1, 71) = 62.81$, $p < .001$, $\eta^2 = .47$) trends. Follow-up analyses using a Bonferroni correction² for pairwise comparisons indicated that youth experienced significantly less problems with school attendance at 3-months ($M = .73$, $SE = .06$) and at 6-months ($M = .03$, $SE = .03$) than at

¹ The decision to combine the Mental Health and Secure groups was discussed with Dr. Francine Chappus, a Psychologist at the residential centre, in a personal communication on July 16, 2002. She confirmed that combining these groups was appropriate given that youth in Mental Health and Secure treatment often end up receiving very similar services.

² A Bonferroni correction was applied to all pairwise and follow-up comparisons within each series of repeated measures analyses.

intake ($M = .10$, $SE = .04$). The difference in means from 3-months to 6-months was non-significant.

Aggression. The overall multivariate test revealed an effect of time on aggression ($Wilks' \Lambda = .87$, $F(2, 70) = 5.32$, $p < .01$, $\eta^2 = .13$) and an effect of admission status on aggression ($F(1, 71) = 7.73$, $p < .01$, $\eta^2 = .10$). There were no other significant main effects or interactions. Both a significant linear ($F(1, 71) = 8.54$, $p < .01$, $\eta^2 = .11$) and quadratic ($F(1, 71) = 5.97$, $p < .05$, $\eta^2 = .08$) were noted for time. Follow-up analyses revealed that youth were significantly less aggressive at 3-months ($M = 1.80$, $SE = .21$) and at 6-months ($M = 1.86$, $SE = .21$) than at intake ($M = 2.75$, $SE = .21$). There were no significant differences in aggression from 3-months to 6-months. Furthermore, it was found that Mental Health/Secure youth ($M = 2.51$, $SE = .13$) were significantly more aggressive than Young Offenders ($M = 1.77$, $SE = .23$).

Property Damage. There was a significant effect of time on property damage ($Wilks' \Lambda = .71$, $F(2, 70) = 14.36$, $p < .001$, $\eta^2 = .29$). No significant effects of admission status ($F < 1$) or gender ($F < 1$) and no significant interactions were found. There were both significant linear ($F(1, 71) = 28.94$, $p < .001$, $\eta^2 = .29$) and quadratic ($F(1, 71) = 10.24$, $p < .01$, $\eta^2 = .13$) trends for time. Examination of pairwise comparisons revealed that youth engaged in less property damage at 3-months ($M = .33$, $SE = .10$) and 6-months ($M = .30$, $SE = .09$) compared to intake ($M = 1.11$, $SE = .13$). There were no significant differences in property damage from 3-months to 6-months.

Sexual Behaviours. An effect of time on sexual behaviours was found, as indicated by the significant overall test ($Wilks' \Lambda = .81$; $F(2, 70) = 8.02$, $p < .01$, $\eta^2 = .19$). Furthermore, there was a significant effect of admission status ($F(1, 71) = 6.13$, $p < .01$, $\eta^2 = .08$).

.05, $\eta^2 = .08$). No other main effects or interactions were significant. Time displayed a significant linear trend ($F(1, 71) = 12.65, p < .01, \eta^2 = .15$). The follow-up analyses revealed that youth engaged in significantly less sexual behaviours at 3-months ($M = .26, SE = .10$) and 6-months ($M = .11, SE = .07$) than at intake ($M = .80, SE = .19$). Additionally, Mental Health/Secure youth ($M = .58, SE = .08$) engaged in more sexual behaviour than Young Offenders ($M = .20, SE = .14$).

Self-Harm. Significant overall tests revealed both a main effect of time (*Wilks' Λ* = .87; $F(2, 70) = 5.08, p < .01, \eta^2 = .13$) and a main effect of admission status ($F(1, 71) = 4.40, p < .05, \eta^2 = .06$) on self-harm. There were no other significant main effects or interactions. Only the linear trend ($F(1, 71) = 10.31, p < .01, \eta^2 = .13$) was significant for time. Follow-up analyses demonstrated that youth engaged in significantly less self-harm from intake ($M = .69, SE = .17$) to both 3-months ($M = .23, SE = .10$) and 6-months ($M = .15, SE = .10$) after admission. The difference from the 3-month to 6-month period was non-significant. It was also found that Mental Health/Secure youth ($M = .55, SE = .16$) engaged in more self-harm than Young Offenders ($M = .17, SE = .16$).

Running. The overall multivariate test demonstrated a significant effect of time on running away (*Wilks' Λ* = .60; $F(2, 70) = 22.94, p < .001, \eta^2 = .40$). A significant time by gender interaction also emerged (*Wilks' Λ* = .91; $F(2, 70) = 3.49, p < .05, \eta^2 = .09$). For the interaction, there were both significant linear ($F(1, 71) = 5.62, p < .05, \eta^2 = .07$) and quadratic ($F(1, 71) = 6.71, p < .05, \eta^2 = .09$) trends. Analysis of simple main effects revealed that males ran away less at 3-months ($M = .17, SE = .06$) and 6-months ($M = .07, SE = .05$) compared to intake ($M = .89, SE = .20$; *Wilks' Λ* = .79; $F(2, 70) = 9.08, p < .001, \eta^2 = .21$). Similarly, females also ran away significantly less at 3-months

($M = .00$, $SE = .09$) and 6-months ($M = .07$, $SE = .05$) compared to intake ($M = 1.74$, $SE = .32$; $Wilks' A = .70$; $F(2, 70) = 14.84$, $p < .001$, $\eta^2 = .30$). Furthermore, at intake, females ($M = 1.74$, $SE = .32$) ran away significantly more often than males ($M = .89$, $SE = .20$; $F(1, 71) = 5.14$, $p < .05$, $\eta^2 = .07$).

Intoxication. A multivariate effect of time on intoxication was found ($Wilks' A = .56$; $F(1, 71) = 55.52$, $p < .001$, $\eta^2 = .44$). There were no other significant main effects or interactions. The F value for the significant linear trend for time ($F(1, 71) = 55.52$, $p < .001$, $\eta^2 = .44$) corresponds to that of the overall multivariate test. This is due to the fact that none of the youth in the study were observed to have been intoxicated at 3-months or 6-months after admission. Given this observation, it is not surprising that youth were significantly less intoxicated at 3-months ($M = 0$, $SE = 0$) and 6-months ($M = 0$, $SE = 0$) than at intake ($M = 1.22$, $SE = .16$), but that the difference between 3-months and 6-months was not significant.

Criminal Charges. There was an overall multivariate effect of both time ($Wilks' A = .37$; $F(2, 70) = 58.98$, $p < .001$, $\eta^2 = .63$) and admission status ($F(1, 71) = 58.22$, $p < .001$, $\eta^2 = .45$) on criminal charges. These main effects were also qualified by a significant two-way interaction between time and admission status ($Wilks' A = .55$; $F(2, 70) = 28.79$, $p < .001$, $\eta^2 = .45$). Both linear ($F(1, 71) = 58.04$, $p < .001$, $\eta^2 = .45$) and quadratic ($F(1, 71) = 52.14$, $p < .001$, $\eta^2 = .42$) trends were significant for the interaction. Simple main effects were examined and it was found that Young Offenders were charged with significantly less crimes at 3-months ($M = .06$, $SE = .07$) and 6-months ($M = 0$, $SE = 0$) compared to intake ($M = 5.24$, $SE = .50$; $Wilks' A = .39$; $F(2, 70) = 55.34$, $p < .001$, $\eta^2 = .61$). Similarly, Mental Health/Secure youth were charged with

less crimes at 3-months ($M = .02$, $SE = .04$) and 6-months ($M = 0$, $SE = 0$) compared to intake ($M = .92$, $SE = .27$; $Wilks' \Lambda = .86$; $F(2, 70) = 5.82$, $p < .01$, $\eta^2 = .14$). The differences in means from 3-months to 6-months were not significant for either group. Finally, Young Offenders ($M = 5.24$, $SE = .50$) were charged with significantly more crimes at intake than were Mental Health/Secure youth ($M = .92$, $SE = .27$; $F(1, 71) = 58.05$, $p < .001$, $\eta^2 = .45$).

Client Satisfaction. No significant effects for time ($F < 1$) or admission status ($F < 1$) were found for client satisfaction, nor were there any significant interactions. There was, however, a significant main effect of gender ($F(1, 57) = 5.65$, $p < .05$, $\eta^2 = .09$). Follow-up analyses revealed that females ($M = 16.73$, $SE = 1.46$) were significantly less satisfied with the services they received than males ($M = 20.81$, $SE = .91$).

Effects of Diagnosis and Time

School Attendance. A significant multivariate effect of time on school attendance was found ($Wilk's \Lambda = .36$; $F(2, 70) = 62.22$, $p < .001$, $\eta^2 = .64$). There was no main effect of diagnosis ($F < 1$) and no time by diagnosis interaction ($F < 1$). Tests of within-subjects contrasts revealed significant linear ($F(1, 71) = 93.15$, $p < .001$, $\eta^2 = .57$) and quadratic trends ($F(1, 71) = 78.85$, $p < .001$, $\eta^2 = .53$) for time. Follow-up analyses using a Bonferroni correction for pairwise comparisons revealed that youth improved with respect to school attendance at 3-months ($M = .04$, $SE = .02$) and 6-months ($M = .09$, $SE = .03$) compared to at intake ($M = .70$, $SE = .05$). Changes in school attendance from 3-months to 6-months were non-significant.

Aggression. There was a significant multivariate effect of time on aggression ($Wilk's \Lambda = .82$; $F(2, 70) = 7.51$, $p < .01$, $\eta^2 = .18$). There was neither a main effect of

diagnosis ($F < 1$) or a time by diagnosis interaction ($F < 1$). In addition, there were both significant linear ($F(1, 71) = 11.40, p < .01, \eta^2 = .14$) and quadratic trends ($F(1, 71) = 9.41, p < .01, \eta^2 = .12$) for time. Pairwise comparisons indicated that aggression decrease from intake ($M = 2.91, SE = .17$) to 3-months ($M = 1.96, SE = .18$) and 6-months ($M = 2.08, SE = .17$) after admission. Differences in aggression from 3-months to 6-months were not significant.

Property Damage. Time demonstrated a significant multivariate effect on property damage (*Wilk's Λ* = .63; $F(2, 70) = 20.48, p < .001, \eta^2 = .37$), however, there was no main effect of diagnosis ($F < 1$) and no interaction ($F < 1$). There were both significant linear ($F(1, 71) = 39.19, p < .001, \eta^2 = .36$) and quadratic trends ($F(1, 71) = 19.60, p < .001, \eta^2 = .22$) for time. Follow-up analyses were conducted, and it was found that youth engaged in less property damage at 3-months ($M = .32, SE = .08$) and 6-months ($M = .35, SE = .08$) compared to intake ($M = 1.12, SE = .11$), but that their levels of property damage did not significantly change from 3-months to 6-months.

Sexual Behaviours. The only significant effect on sexual behaviours was that of time (*Wilk's Λ* = .71; $F(2, 70) = 14.35, p < .001, \eta^2 = .29$). No main effect of diagnosis ($F < 1$) and no time by diagnosis interaction ($F < 1$) were found. Significant linear ($F(1, 71) = 24.81, p < .001, \eta^2 = .26$) and quadratic trends ($F(1, 71) = 6.35, p < .05, \eta^2 = .08$) were found for time, and follow up analysis revealed that youth performed significantly less sexual behaviours at 3-months ($M = .28, SE = .08$) and 6-months ($M = .14, SE = .06$) than at intake ($M = .99, SE = .17$). As with the other risk behaviours, the difference in sexual behaviour from 3-months to 6-months was not significant.

Self-Harm. Both time (*Wilk's* $\Lambda = .80$; $F(2, 70) = 8.82, p < .001, \eta^2 = .20$) and diagnosis ($F(3, 71) = 2.98, p < .05, \eta^2 = .11$) displayed main effects for self-harm. The interaction was non-significant ($F < 1$). For time, there were significant linear ($F(1, 71) = 17.89, p < .001, \eta^2 = .20$) and quadratic trends ($F(1, 71) = 4.54, p < .05, \eta^2 = .06$). An examination of pairwise comparisons revealed that youth engaged in significantly less self-harm from intake ($M = .76, SE = .13$) to both 3-months ($M = .28, SE = .08$) and 6-months ($M = .18, SE = .08$) after admission. The difference from the 3-month to 6-month period was non-significant. Although there was a main effect of diagnosis, none of the pairwise comparisons were significant at the alpha level designated by the Bonferroni correction ($\alpha = .0083$).

Running. The overall multivariate test revealed a significant effect of time on running (*Wilk's* $\Lambda = .57$; $F(2, 70) = 26.33, p < .001, \eta^2 = .43$). No significant main effect of diagnosis was found ($F < 1$), just as there was no time by diagnosis interaction ($F < 1$). There were both linear ($F(1, 71) = 52.84, p < .001, \eta^2 = .43$) and quadratic trends ($F(1, 71) = 30.35, p < .001, \eta^2 = .30$) that were displayed for time. Follow-up analyses showed that youth ran away significantly less often at 3-months in care ($M = .10, SE = .05$) and 6-months in care ($M = .06, SE = .04$) than they did at intake ($M = 1.25, SE = .17$). Their pattern of running away from 3-months to 6-months was not significant.

Intoxication. A multivariate effect of time on intoxication was found (*Wilk's* $\Lambda = .52$; $F(1, 71) = 64.52, p < .001, \eta^2 = .48$). Diagnosis showed no effect on intoxication ($F < 1$), and there was no significant time by diagnosis interaction ($F < 1$). The F value for the significant linear trend for time ($F(1, 71) = 64.52, p < .001, \eta^2 = .48$) corresponds to that of the overall multivariate test. This is due to the fact that none of the youth in the

study were observed to have been intoxicated at either 3-months or 6-months after admission. Given this observation, it is not surprising that youth were significantly less intoxicated at 3-months ($M = 0$, $SE = 0$) and 6-months ($M = 0$, $SE = 0$) than at intake ($M = 1.14$, $SE = .14$), but that the difference between 3-months and 6-months was not significant.

Criminal Charges. The overall multivariate test showed a significant effect of time on criminal charges (*Wilk's Λ* = .60, $F(2, 70) = 23.52$, $p < .001$, $\eta^2 = .40$). The effect of diagnosis ($F < 1$) and the interaction ($F < 1$) were both non-significant. Time displayed significant linear ($F(1, 71) = 46.45$, $p < .001$, $\eta^2 = .40$) and quadratic trends ($F(1, 71) = 41.93$, $p < .001$, $\eta^2 = .37$). The follow-up analyses demonstrated that youth had significantly less criminal charges at 3-months ($M = .04$, $SE = .03$) and 6-months ($M = 0$, $SE = 0$) than at intake ($M = 2.13$, $SE = .31$). No differences were found between 3-months and 6-months.

Client Satisfaction. No significant effects for time ($F < 1$) or diagnosis ($F < 1$) were found for client satisfaction, and there was no significant interaction ($F < 1$). It was therefore unnecessary to perform any further analyses.

Relations Between Predictor and Behavioural Adjustment Variables: Multiple

Regression Analyses

The final two hypotheses of the present study were that higher scores on YSR Total Problems and higher scores on the POSIT family subscale would be associated with improvement in behavioural adjustment variables and client satisfaction. In order to test these hypotheses, two sets of multiple regression analyses were performed. The first examined youth characteristics associated with changes in each of the behavioural

adjustment variables and client satisfaction at 3-months. In each case, the behavioural adjustment variables were the 3-month difference scores, calculated as previously described in the descriptive statistics section.

Besides YSR Total Problem scores and POSIT family scores, other predictor variables included for exploratory purposes were number of days in care, internal presenting problems, sexual presenting problems, and YSR social problems. These specific variables were chosen because they appeared to form the best fitting model for prediction of the behavioural adjustment variables. That is, full regression analyses were originally run including all demographic, presenting problem, POSIT, BPI, and YSR predictors and the specific variables chosen as outlined above appeared to contribute most to the prediction of the various behavioural adjustment variables. It was necessary to select such a subset of predictors due to the large number of original predictors and the comparatively smaller number of subjects.

The second set of multiple regression analyses examined youth characteristics associated with changes in each outcome variable and client satisfaction at 6-months. In this case, the behavioural adjustment variables were the 6-month difference scores and the predictor variables were the same as those for the first set of regressions. Data screening considerations will be presented next, followed by the results of the regression analyses.

Data screening

Assumptions that need to be considered when performing a regression analysis include Independence of Residuals, Normality, Homoscedascity, and Linearity. For both the 3-month and 6-month scores, there is no reason to believe that observations are

correlated among subjects. The logic behind this reasoning is the same as that presented in the data screening section for the repeated-measures analyses.

Normality was assessed through visual inspection of the histogram of frequency versus standardized regression residuals. There did not appear to be any serious deviations from normality for either the 3-month or 6-month difference scores.

Homoscedasticity and Linearity were assessed by visual inspection of the scatterplot of regression standardized residuals versus regression standardized predicted values. There did not appear to be any serious problems with heteroscedasticity or non-linearity for any of the variables. However, the scatterplot revealed that school attendance was a binary dependent variable (e.g., it was originally coded as either 0 = no problems with attendance, or 1 = problems with attendance), therefore, a logistic regression was used to analyze it rather than linear regression. The scatterplots did not reveal any serious outliers.

The issue of multicollinearity was also considered. Collinearity statistics were examined, and any variables with *VIF* statistics greater than 10 (indicating problems with multicollinearity) were excluded and the analyses re-run.

Changes at 3-months

Results of the first set of regression analyses revealed that the set of predictors did not account for a significant proportion of variance in changes in aggression ($F < 1$) or running ($F < 1$) at 3-months, nor for changes in client satisfaction at time 2 ($F < 1$).

However, at 3-months, the set of predictors accounted for approximately 13% of the variance in changes in property damage ($R^2 = .13$, Adjusted $R^2 = .07$, $F(6, 97) = 2.29$, $p < .05$). Examination of the regression coefficients revealed that POSIT family scores (β

= -.36) and YSR total scores ($\beta = .39$) were the only variables that demonstrated significant unique contributions to the prediction of change in sexual behaviour (see Table 6). The implication is that youth with lower numbers of family problems as per the POSIT and higher YSR total scores improve less³ with respect to property damage.

Additionally, the set of predictors accounted for approximately 35% of the variance in changes in sexual behaviours ($R^2 = .35$, Adjusted $R^2 = .31$, $F(6, 97) = 8.21$, $p < .001$). Examination of the regression coefficients demonstrated that only sexual presenting problems ($\beta = -.56$), provided a significant unique contribution to the prediction of change in sexual behaviour (see Table 7). This indicates that youth with fewer sexual presenting problems at intake show less improvement with respect to sexual behaviours.

The set of predictors also accounted for approximately 32% of the variance in changes in self-harm ($R^2 = .32$, Adjusted $R^2 = .28$, $F(6, 97) = 7.23$, $p < .001$). Internal presenting problems ($\beta = -.50$) was the only variable that uniquely contributed to changes in self-harm (see Table 8). Therefore, youth with fewer internal presenting problems at intake showed less improvement with respect to self-harm.

Regarding changes in intoxication, about 21% of the variance was accounted for by the set of predictors ($R^2 = .21$, Adjusted $R^2 = .16$, $F(6, 97) = 4.10$, $p < .01$). Table 9 demonstrates that the only variables that provided unique contributions to the prediction of changes in intoxication were number of days in care ($\beta = .31$), and YSR social problem scores ($\beta = .30$). More specifically, youth who were in care longer and who had

³ It is recalled from the description in the descriptive statistics section that higher change scores are associated with less improvement in behavioural adjustment variables.

Table 6***Regression Coefficients for Property Damage: 3-Months***

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	-.43	.77		-.56
Number of Days in Care	.00	.00	.12	1.18
Internal PP	-.08	.07	-.12	-1.08
Sexual PP	-.03	.13	-.03	-.24
POSIT Family Subscale	-.15	.05	-.35	-3.08**
YSR Social Problems	-.03	.02	-.23	-1.61
YSR Total	.03	.01	.39	2.51*

Note. PP = Presenting Problems

* $p < .05$; ** $p < .01$ (2-tailed)

Table 7***Regression Coefficients for Sexual Behaviours: 3-Months***

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	.10	.83		.12
Number of Days in Care	.00	.00	.12	1.33
Internal PP	-.12	.08	-.15	-1.54
Sexual PP	-.83	.14	-.56	-6.06*
POSIT Family Subscale	-.03	.05	-.06	-.61
YSR Social Problems	.00	.02	.02	.13
YSR Total	.00	.01	-.02	-.12

Note. PP = Presenting Problems

* $p < .001$ (2-tailed)

Table 8***Regression Coefficients for Self-Harm: 3-Months***

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	.65	.53		1.23
Number of Days in Care	.00	.00	.16	1.69
Internal PP	-.26	.05	-.50	-5.14*
Sexual PP	-.06	.09	-.07	-.72
POSIT Family Subscale	-.04	.03	-.13	-1.29
YSR Social Problems	-.03	.01	-.24	-1.90
YSR Total	.01	.01	.24	1.73

Note. PP = Presenting Problems

* $p < .001$ (2-tailed)

Table 9

Regression Coefficients for Intoxication: 3-Months

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	-4.24	.75		-5.65
Number of Days in Care	.00	.00	.31	3.10**
Internal PP	-.10	.07	-.15	-1.45
Sexual PP	.04	.12	.03	.30
POSIT Family Subscale	-.02	.05	-.04	-.32
YSR Social Problems	.04	.02	.30	2.22*
YSR Total	.01	.01	.08	.56

Note. PP = Presenting Problems

* $p < .05$; ** $p < .01$ (2-tailed)

higher YSR social problem scores demonstrated a lesser degree of improvement with respect to intoxication.

Finally, the set of predictors explained approximately 25% of the variance in changes in criminal charges ($R^2 = .25$, Adjusted $R^2 = .20$, $F(6, 97) = 5.00$, $p < .001$). Number of days in care ($\beta = .36$), YSR social problem scores ($\beta = -.40$), and YSR total problem scores ($\beta = .31$) each provided unique contributions to the prediction of changes in criminal charges (see Table 10). It appears as though youth in care longer with lower social problem scores but higher YSR total problem scores experienced less improvement in changes in criminal charges.

The logistic regression used to examine changes in school attendance produced a non-significant chi-square test for change in likelihood ($\chi^2(6, N = 122) = 11.16$, n.s.). This indicates that the set of predictor variables is not doing a good job of predicting whether or not youth will improve with respect to school attendance. No further analyses were conducted, as a result.

Changes at 6-Months

Results of the regression analyses indicated that the set of predictors did not account for a significant proportion of variance in changes in aggression ($F < 1$), property damage ($F < 1$), running ($F < 1$), or criminal charges ($F < 1$).

Similar to the regression analyses performed for the 3-month period, the set of predictor variables accounted for a significant proportion of variance in sexual

Table 10***Regression Coefficients for Criminal Charges: 3-Months***

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	-1.21	1.86		-.65
Number of Days in Care	.01	.00	.36	3.75***
Internal PP	.29	.17	.17	1.66
Sexual PP	.21	.31	.07	.68
POSIT Family Subscale	-.06	.12	-.06	-.54
YSR Social Problems	-.14	.05	-.40	-3.01**
YSR Total	.06	.03	.31	2.11*

Note. PP = Presenting Problems

* $p < .05$; ** $p < .01$; *** $p < .001$ (2-tailed)

behaviours ($R^2 = .51$, Adjusted $R^2 = .45$, $F(6, 52) = 8.12$, $p < .001$). Table 11 demonstrates that both sexual presenting problems ($\beta = -.61$) and internal presenting problems ($\beta = -.27$) contributed uniquely to the prediction of change in sexual behaviours. This indicates that youth with less sexual and internal presenting problems showed less improvement in sexual behaviours at 6-months.

Additionally, 47% of the variance in changes self-harm was accounted for by the set of predictors ($R^2 = .47$, Adjusted $R^2 = .40$, $F(6, 52) = 6.75$, $p < .001$). Once again, it appears that youth with less internal presenting problems ($\beta = -.56$) improved less with respect to self-harm (see Table 12).

Furthermore, with regards to changes in intoxication, the set of predictor variables accounted for 38% of the total variance ($R^2 = .38$, Adjusted $R^2 = .30$, $F(6, 52) = 4.62$, $p < .01$). As with the 3-month period, number of days in care ($\beta = .51$) and YSR social problem scores ($\beta = .37$) were the only variables that provided significant unique contributions to the prediction of changes in intoxication (see Table 13). It appears, therefore, that youth who were in care longer and who had higher social problem scores improved less with respect to intoxication at 6-months just as they had at 3-months.

Finally, the logistic regression performed to examine changes in school attendance demonstrated a non-significant chi-square test for change in likelihood ($\chi^2(6, N = 75) = 3.17$, n.s.). Therefore, the set of predictor variables does not adequately predict whether or not youth will improve with respect to school attendance. As a result, no further analyses were conducted.

Table 11

Regression Coefficients for Sexual Behaviours: 6-Months

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	-1.50	.87		-1.73
Number of Days in Care	.00	.00	.19	1.78
Internal PP	-.20	.08	-.27	-2.39*
Sexual PP	-.72	.13	-.61	-5.51**
POSIT Family Subscale	-.02	.05	-.06	-.50
YSR Social Problems	.03	.02	.19	1.21
YSR Total	.00	.01	.00	.03

Note. PP = Presenting Problems

* $p < .05$; ** $p < .001$ (2-tailed)

Table 12***Regression Coefficients for Self-Harm: 6-Months***

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	1.10	.75		1.46
Number of Days in Care	.00	.00	.16	1.41
Internal PP	-.35	.07	-.56	-4.72*
Sexual PP	-.16	.11	-.16	-1.40
POSIT Family Subscale	.02	.04	.05	.39
YSR Social Problems	-.04	.02	-.32	-1.89
YSR Total	.01	.01	.21	1.17

Note. PP = Presenting Problems

* $p < .001$ (2-tailed)

Table 13***Regression Coefficients for Intoxication: 6-Months***

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>
	B	Std. Error	Beta	
(Constant)	-4.75	.88		-5.40
Number of Days in Care	.00	.00	.51	4.18**
Internal PP	-.10	.09	-.15	-1.14
Sexual PP	.02	.13	.01	.12
POSIT Family Subscale	.06	.05	.15	1.15
YSR Social Problems	.04	.02	.37	2.06*
YSR Total	.00	.01	-.02	-.09

Note. PP = Presenting Problems

* $p < .05$; ** $p < .001$ (2-tailed)

Discussion

As previously noted, very little research has examined changes in negative behaviours by youth during the course of their stay in long-term residential care. Although changes that occur during residential care are not necessarily predictive of changes occurring once youth are discharged (Curry, 1991), the study of trajectories of change during care is important in that it gives service providers an idea of when treatment efforts may be most crucial and ultimately most beneficial. This study therefore attempted to add to the growing body of knowledge about trajectories of change within youth residential care.

There were three main purposes of this study. The first was to describe characteristics of youth entering long-term care at an Ottawa-based residential centre. The second was to examine behavioural adjustment of the youth by studying trajectories of change in behavioural adjustment variables and client satisfaction during their stay in care. Finally, this study sought to identify which characteristics of youth and their circumstances were associated with changes in their behavioural adjustment. In general, it was hypothesized that youth would show improvement with respect to behavioural adjustment variables and levels of client satisfaction and that youth with formal diagnoses of DBDs would improve less than their non-DBD counterparts. Furthermore, it was hypothesized that both higher levels of youth dysfunction and higher levels of family dysfunction would be associated with greater behavioural improvement during care.

Characteristics of Youth Entering Care

Given that Secure treatment is reserved only for youth who are of severe danger to themselves or others (e.g., suicidal, self-mutilators, extremely violent), it is not surprising that there were very few Secure youth in the study relative to Mental Health youth and Young Offenders. Furthermore, the majority of Secure youth were females ($n = 5$ vs. $n = 2$ males) and they experienced significantly more Family Presenting Problems than Secure males. Additionally, Secure males scored higher than Secure females and higher than male Young Offenders and Mental Health males on YSR Social Problems. The internalizing nature of the problems experienced by Secure youth, as outlined above, make it appear logical that the majority of these youth were females. It has been found that females tend to engage in internalizing behaviours more frequently than males (APA, 1994). It may also be that there is a link between family problems and the onset of internalizing-type problems which may explain why Secure females had more Family Presenting Problems. Future research should examine this issue more closely. Finally, the types of behaviours Secure youth exhibit may render them less likely to have many friends or other forms of social support. This may be particularly true for males given that these behaviours are even less common than in females and may therefore explain the higher scores for YSR Social Problems demonstrated by Secure males..

With respect to Mental Health youth, females scored significantly higher than males on the BPI Deviation subscale and significantly higher than males in general and female Young Offenders on the POSIT Family subscale. Given that the behaviours exhibited by Mental Health youth are often similar, though milder, versions of those

exhibited by Secure youth, the higher POSIT Family subscale scores of females may again be indicative of a link between family problems and internalizing-type behaviours. However, it is less clear why Mental Health females scored higher on BPI Deviation than males. It would appear that males should score higher on such a scale given that they are more likely to engage in externalizing-type behaviours (APA, 1994), many of which might be identified as deviant. Perhaps the females are simply labeling and subsequently reporting many more of their internalizing-type behaviours as deviant than are males.

Not surprisingly, the majority of youth across the total sample were male. This finding is consistent with that of a recent study done at the same residential centre which found that more males than females were referred for residential care (Ammerman, 2002). Furthermore, studies done at different residential centres also indicate that more males tend to be consumers of residential care than females (e.g., Lyons, *et al.*, 2001; Joshi & Rosenberg, 1997). Despite the aforementioned differences across gender and admission status in some of the predictor variables, it is important to note that across the entire sample, all mean subscale scores on the standardized measures (e.g., YSR, BPI, and POSIT) were found to be in the normal range with the exception of YSR externalizing problems, and POSIT mental health.

Given that the residential centre in this study treats conduct-disordered youth (whether or not they have a formal diagnosis of CD), it stands to reason that youth scored in the clinical range on YSR externalizing problems. As indicated by Shamsie (1991), externalizing behaviours exhibited by conduct disordered youth range on a spectrum from confrontive behaviours (e.g., fighting, temper tantrums) to concealed behaviours (e.g., stealing, lying). However, one would also expect that these youth would score in

the clinical range for other behaviours and characteristics measured by the YSR, BPI, and POSIT. One reason that they may not have done so in this study is that self-report measures were used. The strengths and weaknesses of self-report measures will be discussed later along with limitations of this study.

Changes in Behavioural Adjustment and Client Satisfaction Over Time

As hypothesized, youth showed significant decreases in school absences, aggression, property damage, sexual behaviours, self-harm, running, intoxication, and criminal charges at 3-months and 6-months after admission compared to at intake. Contrary to the hypothesis, however, youth did not display improvement in client satisfaction over time. The fact that the CSQ-8 is a self-report measure may explain why no differences in client satisfaction were found. It is important to note that while behavioural adjustment variables improved over time, none of the differences observed between the 3-month and 6-month periods were significant. What this implies is that residential care is having its greatest impact somewhere within the first three months after admission of youth.

While it appears that the period between intake and 3-months is an important time for change, this study did not examine which aspects of residential programming may be showing the greatest effects. It is certainly likely that the controlled and closely monitored environment youth experience while living in residential care would contribute to the decrease in their acting-out behaviours. After all, many youth in care came from dysfunctional families who were likely unaware of or unresponsive to their acting-out behaviours. Furthermore, most of the youth had antisocial peers who encouraged and engaged in the negative behaviours themselves. In residential care, close supervision and

structure provided by staff makes it difficult for youth to engage in negative behaviours without encountering consequences for their behaviour.

It may also be that the treatment protocols assigned to the youth are responsible for the decrease in their risk behaviours. The centre assigns treatment protocols based on the assessed needs of youth as they enter care. Future research would do well to study the effect of the different treatments experienced by youth. Of course, given the vast array of individualized treatments and services provided to youth, this type of research would be onerous.

Finally, it is possible that positive role-modeling by staff may be contributing to decreases in youth risk behaviours. For many youth, residential care may be the first time that they have had the opportunity to form healthy, prosocial relationships with others. Youth may come to look up to residential staff and may aspire to change their lives in positive ways. More than likely, however, decreases in negative behaviours can be attributed to some combination of the variables discussed above and other variables unknown.

Contrary to the research hypothesis, youth with formal diagnoses of DBDs did not experience less improvement in behavioural adjustment variables and client satisfaction than youth with non-DBDs. In fact, across each of the behavioural adjustment variables, diagnosis was only found to have a main effect on self-harm, but this was apparently a marginal effect, since exploration of which diagnostic groups (e.g., DBD, non-DBD, comorbid diagnoses, and no diagnosis) differed revealed no significant pairwise comparisons.

One likely explanation for why diagnosis did not have the expected effect has to do with the types of youth served by the residential centre. As previously mentioned, the residential centre in this study serves conduct-disordered youth. However, youth do not have to have an official diagnosis of CD to be admitted. They need only display symptoms associated with CD that may or may not eventually lead to a diagnosis. This being said, many of the youth in the study who had no official diagnosis or who were diagnosed with a non-DBD likely still engaged in the same types of behaviours as DBD youth. Therefore, the youth were probably a more homogeneous group than the different diagnostic categories would lead one to believe.

When admission status and gender were considered in the repeated measures analyses, they did not have an effect on school attendance, property damage, or intoxication. However, for the other behavioural adjustment variables, there were both expected and somewhat surprising results. For example, it is not surprising that Young Offenders had significantly more criminal charges at intake than Mental Health/Secure youth. The very nature of being a Young Offender means that these youth have engaged in some form of criminal behaviour which has brought them to the attention of the criminal justice system. Despite these initial intake differences, it is important to note that both groups, but particularly Young Offenders, experienced significant decreases in criminal charges during care.

More surprising, however, is the finding that Mental Health/Secure youth were significantly more aggressive than Young Offenders. It may be that the physically aggressive behaviours typical of Young Offenders are easier to treat in a residential setting than the verbal aggression that is more typical of Mental Health/Secure youth.

This may account for the differences found between the two groups since both types of aggression were considered together in this study.

Finally, Mental Health/Secure youth engaged in more sexual behaviours and in more self-harm than Young Offenders. These types of behaviours are often the very reason why Mental Health/Secure youth are admitted to care in the first place, therefore, it is not surprising that they display higher levels than Young Offenders. What is more important to remember is that although Mental/Health youth have higher levels of sexual behaviours and self-harm, they still experienced significant decreases in these behaviours over time.

Females had significantly higher levels of running at intake than males. It may be that females run away more often because they are influenced by friends or others they admire to flee from authority or from situations that are perceived to be difficult. The idea is that females may be more vulnerable than males to the need for acceptance from others and ultimately to social pressures to conform (Baron, Byrne, & Watson, 1998).

Finally, with respect to client satisfaction, females reported being significantly less satisfied with the services they received than males. This is consistent with the findings of Stuntzer-Gibson, Koren, and De Chillo (1995) as was previously discussed. Though females reported being less satisfied, they did not appear to do significantly better or worse than males with respect to changes in behavioural adjustment variables. One explanation for why females reported being less satisfied may have to do with how they manage their emotions while in treatment. For example, it has been found that females in restrictive social environments (of which residential facilities are an example) often suppress their true feelings due to mistrust of others in their environment (Greer,

2002). Perhaps females feel safer expressing their real feelings through a written instrument such as the Client Satisfaction Questionnaire as opposed to expressing them orally, and therefore openly, in front of others. However, given the self-report nature of the CSQ-8, this finding must be viewed with caution. This is especially true if youth are being run by their emotions while answering the questionnaire, which is often the case with conduct-disordered youth (Sanson & Prior, 1999; Shamsie & Sykes, 1992). The implication is that if youth are particularly angry or upset the day they fill out the questionnaire, these emotions may dictate how they answer the questions. Furthermore, if as proposed by Greer (2002) females are suppressing their true feelings, lower ratings in client satisfaction may be a reflection of these pent up emotions. However, it would be interesting to do follow-up research to see whether or not there are certain aspects of residential treatment that females really are consistently dissatisfied with.

It is somewhat surprising that no gender differences were found for self-harm and sexual behaviours. After all, self-harm is a complex phenomenon that includes behaviours such as suicidal gestures and attempts as well as cutting and other forms of self-mutilation. Self-harm may be the visible sign that some underlying internalizing and mental health problems are present. As previously mentioned, females tend to exhibit more internalizing-type problems and are more prone to certain types of mental health problems (APA, 1994) than males and might therefore be expected to engage in more self-harm. Furthermore, given that females are more often the victims of sexual abuse in childhood (Jonsen-Reid, 1997), it might be expected that they would engage in more sexualized behaviours. That is, engagement in these types of behaviours in adolescence may be a reflection of the sexual trauma experienced earlier in life. Alternatively,

females might be more likely than males to use sexual behaviour as a means of gaining love and acceptance from others due to social pressures (Baron, Byrne, & Watson, 1998).

Other Youth Characteristics Associated with Changes in Behavioural Adjustment Variables and Client Satisfaction

The final two research hypotheses were that higher YSR total problem scores (indicative of more severe youth dysfunction) and higher POSIT family subscale scores (indicative of more severe family dysfunction) would be associated with greater improvements in risk behaviours and client satisfaction. The results of the regression analyses provided little support for these hypotheses. Lower POSIT family scores were indeed associated with less improvement in property damage at 3-months, however, *higher* YSR total problem scores were associated with less improvement in both property damage and criminal charges at 3-months. YSR total problem scores did not uniquely predict changes in any of the other behavioural adjustment variables, nor did POSIT family subscale scores.

At 3-months, less sexual presenting problems were associated with lower improvement in sexual behaviours. However, less sexual presenting problems as well as less internal presenting problems were contributors to lower improvement at the 6-month period. This provides partial support for Andrews and Bonta's (1998) notion of the risk by treatment interaction. That is, youth with lower levels of dysfunction (in this case, less sexual and internal presenting problems) who receive intensive services will not improve or may even do worse in treatment. Therefore, Andrews and Bonta (1998) would advocate for less intensive treatment for youth with less severe dysfunctions.

For self-harm behaviours, less internal presenting problems were associated with a lower degree of improvement at both 3 and 6-months. Here, there is again partial support for the idea of the risk by treatment interaction. Conversely, with respect to intoxication, higher number of days in care and higher YSR social problem scores were associated with a lower degree of improvement at 3 and 6-months. These latter findings seem to contradict Andrews and Bonta's (1998) theory.

Finally, higher number of days in care, lower YSR social problem scores, and higher YSR total problem scores (as previously discussed) were associated with a lower degree of change in criminal charges at 3-months, however, none of the predictor variables were associated with changes at 6-months. The predictor variables also did not significantly predict changes in school attendance, aggression, running, or client satisfaction at either 3 or 6-months.

Overall, the results of the regression analyses are somewhat inconclusive. While there is some support for the risk by treatment interaction suggested by Andrews and Bonta (1998), there is also some evidence that suggests that youth with higher levels of dysfunction on some variables are improving to a lesser degree with respect to the behavioural adjustment variables. It is also noteworthy that where significance was found for subscales of the self-report measures, it was usually the case that higher scores were associated with lower degrees of improvement. On the other hand, where significance was found for presenting problem subscales, most often lower scores were associated with lower degrees of improvement. This may once again speak to the fact that there is often a discrepancy between self-report measures and information obtained from more impartial others.

Limitations of the Study

Although this study has added to the body of knowledge surrounding trajectories of change in residential care, it is not without its limitations. First, the data collected for the study came from pre-existing files, some of which contained missing or incomplete information. This placed a limit on the total number of subjects that could be used. Furthermore, the use of archival data limits the researcher in terms of what variables can be investigated in the study (Hainesworth, 2001).

Another limitation is in the measurement of the behavioural adjustment variables investigated in the study. Information about these variables is collected at intake through structured interviews with parents/guardians. After intake, residential staff keep track of how often youth engage in the various behaviours. The problem with this is that measurement of behavioural adjustment variables is not done in a standardized manner. It would be useful to develop a standardized tool for measuring the behavioural adjustment variables that could be used in future research.

Use of self-report measures is also a limitation. As explained by Zimbardo (1992), self-report measures are verbal or written answers to questions posed by a researcher and may include items such as opinion questions or test scores. Self-report measures are a primary method of obtaining information about beliefs, attitudes, feelings, motives, and personalities of individuals. In this respect, they are useful in that they tap into information about behaviours that are very difficult or even impossible to observe.

However, there are problems with the use of self-report measures. One problem is that they cannot be used with individuals who are illiterate, do not read well, or who do not understand the language in which the measurement instrument is written. Even when

illiteracy or foreign language is not an issue, the results obtained through self-report measures may not be accurate. For example, subjects may not clearly or accurately remember their experiences, or they may not be in touch with their feelings or able to objectively report their own behaviour. Furthermore, the concept of social desirability is a possible confounding variable when self-report measures are used. People may want to give a favourable impression of themselves, and may therefore answer falsely or in a misleading way. It is also possible that they are too embarrassed to report their real feelings (Zimbardo, 1992).

Given that lying is a typical externalizing behaviour exhibited by conduct disordered youth (Shamsie, 1991), it is very possible and even probable that many youth in this study did not give accurate answers on the YSR, BPI, and/or POSIT. The youth may have believed that their answers could impact upon how quickly they would be discharged from care and may therefore have been motivated to answer falsely. It is also possible that they truly believed they did not have any problems and that their answers were based on their perceived reality of their situation.

Finally, because the residential centre in this study deals primarily with conduct-disordered youth, the results may not be generalizable to other residential facilities that treat different types of youth. Comparison studies between different types of facilities would be useful and informative.

Implications and Suggestions for Future Research

This study is advantageous in that it examined trajectories of change during care, thus adding information to an understudied, yet important area of research. It also demonstrated that youth do improve while in care and that the period from intake to 3-

months seems to be a particularly important time in reducing problematic behaviours. Future research should examine more closely whether treatment factors, staff characteristics, residential environment characteristics, or some combination thereof contribute the most to reduction of negative behaviours.

More studies are also needed that compare changes in similar behavioural adjustment variables during care across several different residential facilities. Lyons *et al.* (2001) conducted one such study which was presented earlier, however, more comparison-type studies should be done in order to obtain more generalizable results.

A practical implication of this research for the residential centre examined in the study is that standardized instruments be used to measure negative behaviours at intake and after treatment has begun. Furthermore, it would be useful to devise a way to encourage parents/guardians to complete and return the CBCL and other questionnaires in order to be able to perform interrater checks between these measures and the self-report measures completed by youth.

Finally, future research should examine the relationship between changes in behavioural adjustment demonstrated during care and changes demonstrated after discharge from residential treatment. As Curry (1991) noted, changes during care do not necessarily predict changes after discharge. However, future studies need to disentangle which elements of residential care are responsible for positive changes in youth during treatment and subsequently figure out a way to provide these crucial elements to youth in aftercare. For indeed, the true test of successful residential programming lies in its ability to promote long-lasting positive changes that will allow youth to become healthier and more productive members of society.

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Appendix A

Data Collection Form

DATA COLLECTION FORM

1) INTAKE VARIABLES

a) Basic Demographics	Coding Instructions	Code
Client Number		
Gender	1 = Male, 2 = Female	
Date of Birth		
Date of Admission		
Date of Discharge		
Admission Status	1 = Young Offender 2 = Mental Health, 3 = Secure	
Age	Subtract Date of Birth from Date of Admission	
Number of Days in Care		
Number of Residential Moves		

b) Presenting Problems	Coding Instructions	Code
In Need of Protection	1 = Yes, 0 = No	
Abuse/Trauma	1 = Yes, 0 = No	
Neglect	1 = Yes, 0 = No	
False Allegations	1 = Yes, 0 = No	
Dangerous	1 = Yes, 0 = No	
Stubborn-Preschool Onset	1 = Yes, 0 = No	
Early Onset of Behavioural Problems (Before Age 6)	1 = Yes, 0 = No	
Frequent Antisocial Acts	1 = Yes, 0 = No	
Variety of Antisocial Acts	1 = Yes, 0 = No	

Variety of Settings	1 = Yes, 0 = No	
Fighting (Before Age 12)	1 = Yes, 0 = No	
Violence (Adolescent Onset)	1 = Yes, 0 = No	
Carries/Uses Weapon	1 = Yes, 0 = No	
Dealing with Gender Relations	1 = Yes, 0 = No	
Sexually Provocative	1 = Yes, 0 = No	
Sexual Acting Out	1 = Yes, 0 = No	
Sexual Aggression	1 = Yes, 0 = No	
Sexual Offender	1 = Yes, 0 = No	
Withdrawn/Isolated	1 = Yes, 0 = No	
Poor Attention	1 = Yes, 0 = No	
Overactive/restless	1 = Yes, 0 = No	
Hyperactive	1 = Yes, 0 = No	
Anxiety	1 = Yes, 0 = No	
Impulsive	1 = Yes, 0 = No	
Cruelty to Animals	1 = Yes, 0 = No	
School Age Shy	1 = Yes, 0 = No	
Defiance (Before Age 12)	1 = Yes, 0 = No	
Oppositional (After Age 12)	1 = Yes, 0 = No	
Authority Avoidant (Before Age 12)	1 = Yes, 0 = No	
Authority Avoidant (Adolescent Onset)	1 = Yes, 0 = No	
Minor Covert Behaviour (Before Age 12)	1 = Yes, 0 = No	
Serious Delinquency (Adolescent Onset)	1 = Yes, 0 = No	

Lying (After Age 12)	1 = Yes, 0 = No	
Young Offender	1 = Yes, 0 = No	
Property Damage (Before Age 12)	1 = Yes, 0 = No	
Property Damage (After Age 12)	1 = Yes, 0 = No	
Bullying (Before Age 8)	1 = Yes, 0 = No	
Chemical Dependency	1 = Yes, 0 = No	
Suicidal Ideations	1 = Yes, 0 = No	
Self-Injury/Self-Mutilation	1 = Yes, 0 = No	
Suicidal Attempts	1 = Yes, 0 = No	
Suicidal Gesturing	1 = Yes, 0 = No	
Externalizing Behaviour (Generic)	1 = Yes, 0 = No	
Intimidation	1 = Yes, 0 = No	
Verbal Aggression	1 = Yes, 0 = No	
Special Educational Needs	1 = Yes, 0 = No	

c) Professional Diagnoses	Coding Instructions	Code
Attention Deficit Disorder (ADD)	1 = Yes, 0 = No	
Attention Deficit Hyperactivity Disorder (ADHD)	1 = Yes, 0 = No	
Conduct Disorder (CD)	1 = Yes, 0 = No	
Oppositional Defiant Disorder (ODD)	1 = Yes, 0 = No	
Other Non-Disruptive Behaviour Disorder	1 = Yes, 0 = No	
Summary Diagnosis	0 = No Diagnosis on File 1 = DBD 2 = Non DBD 3 = Comorbid Diagnoses	

d) Family Presenting Problems	Coding Instructions	Code
Domestic Violence	1 = Yes, 0 = No	
Single Parent	1 = Yes, 0 = No	
Low Income	1 = Yes, 0 = No	
Separation/Divorce	1 = Yes, 0 = No	
Blended Family Issues	1 = Yes, 0 = No	
Mixed Race Family	1 = Yes, 0 = No	
Parent Medical Issues	1 = Yes, 0 = No	
Parent Emotional Disorder	1 = Yes, 0 = No	
Parent Mental Health Issues	1 = Yes, 0 = No	
Parent Temper Outbursts	1 = Yes, 0 = No	
Poor Parenting Skills	1 = Yes, 0 = No	
Parental Substance Abuse	1 = Yes, 0 = No	
Parent Suicide Attempt	1 = Yes, 0 = No	
Parent Ever Arrested	1 = Yes, 0 = No	
Unemployment	1 = Yes, 0 = No	
Employment Difficulties	1 = Yes, 0 = No	
Subsidized Housing	1 = Yes, 0 = No	

e) Youth Self-Report	Coding Instructions	Code
Social Problems	T-Score	
Attention Problems	T-Score	

Internalizing Problems	T-Score	
Externalizing Problems	T-Score	
Total Problems	T-Score	

f) Basic Personality Inventory	Coding Instructions	Code
Depression	T-Score	
Anxiety	T-Score	
Impulse Expression	T-Score	
Deviation	T-Score	

g) POSIT	Coding Instructions	Code
Mental Health	Actual Score	
Family	Actual Score	

2) PROCESS VARIABLES

a) Behavioural Adjustment Variables

Coding Instructions (These apply for Aggression, Property Damage, Sexual Behaviours, Self-Harm, Running, and Intoxication. Coding instructions for remaining variables are in table below)**

0 = No Occurrence

1 = Less than once a month to once a month

2 = 2-3 times in a 2-week period

3 = 2-4 times a week

4 = Once or twice a day

5 = 3 or more times a day

a) Behavioural Adjustment Variables	Coding Instructions	Code-Intake	Code-3-Months	Code-6-Months
School Attendance	0 = No Truancy or Suspension 1 = Truancy or Susp.			
Aggression				
Property Damage				
Sexual Behaviours				
Self-Harm				
Running				
Intoxication				
Criminal Charges	Actual Number of Charges			

b) Client Satisfaction	Coding Instructions	Code-Period 1	Code-Period 2
Quality of Help	Actual Score		
Kind of Help	Actual Score		
Meeting Needs	Actual Score		
Recommend to Friends	Actual Score		
Amount of Help	Actual Score		
Deal Better	Actual Score		
Overall Satisfaction	Actual Score		
Perceived Interest of Worker	Actual Score		
Total	Add Up All Above Items		

Appendix B

Composite Categories for Variables

1) INTAKE VARIABLES

Name of Composite Category	Variables Included
Child Welfare Related	<ul style="list-style-type: none"> - In Need of Protection - Abuse/Trauma - Neglect - False Allegations
Internal	<ul style="list-style-type: none"> - Anxiety - School Age Shy - Withdrawn/Isolated - Suicidal Ideations - Self-Injury/Self-Mutilation - Suicidal Attempts - Suicidal Gesturing
External	<ul style="list-style-type: none"> - Dangerous - Stubborn-Preschool Onset - Early Onset of Behavioural Problems (Before Age 6) - Variety of Antisocial Acts - Variety of Settings - Frequent Antisocial Acts - Fighting (Before Age 12) - Violence (Adolescent Onset) - Carries/Uses Weapon - Cruelty to Animals - Defiance (Before Age 12) - Oppositional (After Age 12) - Authority Avoidant (Adolescence) - Authority Avoidant (Before Age 12) - Minor Covert Behaviour (Before Age 12) - Serious Delinquency (Adolescent Onset) - Lying (After Age 12) - Young Offender - Property Damage (Adolescence) - Property Damage (Before Age 12) - Bullying - Chemical Dependency - Externalizing Behaviour (Generic) - Intimidation - Verbal Aggression

Social	<ul style="list-style-type: none"> - Dealing with Gender Relations
Sexual	<ul style="list-style-type: none"> - Sexually Provocative - Sexual Acting Out - Sexual Offender - Sexual Aggression
Attention	<ul style="list-style-type: none"> - Poor Attention - Overactive/restless - Hyperactive - Impulsive - Special Educational Needs
Family	<ul style="list-style-type: none"> - Domestic Violence - Single Parent - Low Income - Separation/Divorce - Blended Family Issues - Mixed Race Family - Parent Medical Issues - Parent Emotional Disorder - Parent Mental Health Issues - Parent Temper Outbursts - Poor Parenting Skills - Parental Substance Abuse - Parent Suicide Attempt - Parent Ever Arrested - Unemployment - Employment Difficulties - Subsidized Housing

2) BEHAVIOURAL ADJUSTMENT VARIABLES

Name of Composite Category	Variable Included
School Attendance	<ul style="list-style-type: none"> - School Attendance
Aggression	<ul style="list-style-type: none"> - Major Aggression - Minor Aggression - Verbal Aggression
Property Damage	<ul style="list-style-type: none"> - Property Damage - Firesetting – major - Firesetting – minor
Sexual	<ul style="list-style-type: none"> - Sexual Acting out- solitary - Sexual Acting out- interpersonal - Sexually Provocative

Self-Harm	<ul style="list-style-type: none">- Self-Mutilation- cut- Self-Mutilation- other- Suicide Attempts- Suicide Gestures
Running	<ul style="list-style-type: none">- Running
Intoxication	<ul style="list-style-type: none">- Intoxication
Criminal Charges	<ul style="list-style-type: none">- Criminal Charges

Appendix C

Client Information System

Client Information System

Referral date: _____

CASE #: _____ REFERRAL #: _____ OLD CASE #: _____

Client's Demographic Information

CLIENT			
Height: _____	Weight: _____	Place of birth: _____	What year did client come to Canada: _____
Last Name: _____		First Name: _____	
Date of Birth (M/D/Y): _____		Age: _____	Sex: ☐ Male ☐ Female
Present School: _____		Grade level: _____	
Spiritual/cultural affiliations: _____		Is this client adopted: _____	
Does this client identify themselves as belonging to an Ethno-cultural group? If yes, please specify. _____			
Is this client of aboriginal ancestry? If yes, please specify. _____			
Does this client identify themselves with mainstream society or gay, lesbian or transgender? _____			

PRESENTING PROBLEMS- Check (✓) all that apply.		
Y/N	Definition	Please provide specifics
	In need of protection: Solely defined by CAS, legal definition. Is the child a society or crown ward?	
	Abuse/Trauma: Sexual, Physical, Emotional	Has your child ever been abused? If yes, please explain.
	Neglect: Periods left unsupervised. Allowed to roam after dark. Complaints from school- no lunch. No breakfast before school. Lack of adequate clothing.	Have you ever had the Children's Aid Society involved with your family. If yes, please explain.
	False Allegations	Must have been reported to police or social service agency
	Dangerous: As defined by the referring agent	Would you consider your child dangerous?
	Stubborn: Preschool Onset	Would you consider your child stubborn. If yes, at what age did you notice your child being stubborn?
	Early Onset: Before Age of 6	At what age did you notice behavioural problems with your child?
	Frequent Anti-Social Acts Please circle one that applies	1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day
	Variety of Anti-Social Acts	What typical behaviours does your child exhibit? Please list types of behaviour.
	Variety of Settings Please circle all that apply	Home School Community

PRESENTING PROBLEMS- Check (✓) all that apply.			
Y/N	Definition	Y/N	Please provide specifics
	Fighting: Before age 12 School Age Onset i.e. physical fighting, gang fighting For physical aggression, please describe and circle one that applies.		Violence: Adolescent Onset i.e. aggravated assault, robbery, sexual assault For physical aggression, please describe and circle one that applies.
	1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day	✓	1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day
	Carries / uses weapons		
	Dealing with Gender Relations: i.e. Behaves seductively Attention seeking Exhibitionistic Lascivious & lewd gestures		Has your child engaged in sexual acting out behaviour. If yes, please explain.
	Sexually Provocative Please circle one that applies		1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day
	Sexual Acting Out i.e.: solitary and interpersonal Please circle one that applies		1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day
	Sexual Aggression: Sexual touching to assault		Has your child ever been charged or investigated for a sexual offence? If yes, was the offence of an aggressive nature. Please describe incident(s).
	Sexual Offender		
	Withdrawn/ Isolated		
	Poor Attention		
	Over active / Restless		
	Hyperactive		
	Anxiety		
	Impulsive		
	Cruelty to Animals		

PRESENTING PROBLEMS- Check (✓) all that apply.			
Y/N	Definition	Y/N	Please provide specifics
	School Age Shy		
	Defiance: Before age 12 i.e. disobedient		Oppositional: After age 12
	Authority Avoidant: Before 12 i.e. truancy, running (overnight), curfew violation If running, please circle one that applies. 1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day		Authority Avoidant: Adolescent Onset i.e. truancy, running (overnight), curfew violation If running, please circle one that applies. 1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day
✓	Minor Covert Behaviour: Before age 12 i.e. shoplifting, lying	✓	Serious Delinquency: Adolescent Onset i.e. fraud, burglary, serious theft Has your child ever been involved with the law? If yes, please state charges.
	Lying: After age 12 or currently		
	Young Offender: Previous or Current Status		
✓	Property Damage: Before age 12 i.e. vandalism, fire setting If fire setting, please describe incident and circle one that applies. 1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day	✓	Property Damage: After age 12 i.e. vandalism, fire setting If fire setting, please describe incident and circle one that applies. 1- less than once a month 4-2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day
	Bullying: Before age 8 i.e. bullying, annoying others		

PRESENTING PROBLEMS- Check (✓) all that apply.		
Y/N	Definition	Please provide specifics
	Chemical Dependency Self-admitted or diagnosed Please circle one that applies	1- less than once a month 2- once a month 3- 2- 3 times in a 2 week period 4- 2- 4 times a week 5- once or twice a day 6- 3 or more times a day
	Suicidal Ideations	
	Self-Injury / Self-Mutilation Please provide specifics and circle one that applies	1- less than once a month 2- once a month 3- 2- 3 times in a 2 week period 4- 2- 4 times a week 5- once or twice a day 6- 3 or more times a day
	Suicidal Attempts Please circle one that applies	1- less than once a month 2- once a month 3- 2- 3 times in a 2 week period 4- 2- 4 times a week 5- once or twice a day 6- 3 or more times a day
	Suicidal Gesturing Please circle one that applies	1- less than once a month 2- once a month 3- 2- 3 times in a 2 week period 4- 2- 4 times a week 5- once or twice a day 6- 3 or more times a day
	Externalizing Behaviour/ Generic	
	Intimidation: Adolescent Onset i.e. threats of harm, verbal aggression (SEE BCFPI)	For verbal aggression, please circle one that applies 1- less than once a month 2- once a month 3- 2- 3 times in a 2 week period 4- 2- 4 times a week 5- once or twice a day 6- 3 or more times a day
	Verbal aggression- applies to females only: i.e. gossiping, insults.	
	Domestic Violence	Has your child ever been a witness to violence in the home?
	Single Parent	
	Low Income: Below poverty level with job or welfare	Describe your total family income over the past year.
	Special Educational Needs: LD, Learning Problems	Client must be more than 2 years behind in school.

PRESENTING PROBLEMS- Check (✓) all that apply.			
Professional diagnosis	Y	N	By whom and date of diagnosis
Adjustment disorder			
Affective Disorder			
Anxiety disorder			
Attachment Disorder			
Attention Deficit Disorder			
Attention Deficit Hyperactivity Disorder			
Borderline IQ			
Character Disorder: Diagnosis of being character damaged (i.e.: personality disorder)			
Conduct disorder			
Convulsive disorder			
Depression			
Dysthymia			
Developmental Delay			
MBD - brain injury			
Mentally Deficient			
Motor control delay			
Obsessive-compulsive disorder			
Oppositional Defiant Disorder			
Other diagnosis			
Perceptual motor delay			
Post Traumatic Stress Disorder Including flashbacks			If flashbacks, please circle one that applies. 1- less than once a month 4- 2- 4 times a week 2- once a month 5- once or twice a day 3- 2- 3 times in a 2 week period 6- 3 or more times a day
Speech / language delay			
Superior intellect			

CRITICAL ISSUES- Check (✓) all that apply.					
Definition	P	S	H	N/A	Please provide specifics
Complicated / difficult birth					
Child chronic physical illness					
Medical issues - other					
Low birth weight					
Late walking					
Late talking					
Encopresis					
Enuresis					
Eating disturbance					
Sleep disturbance					
Separation / Divorce					
Death of a significant person					
Loss - other					
Shelter / parent, youth					
Over-dependent					
Low self-esteem					
Low social skills					
Issues with opposite sex					
Dysfunctional relationship					
Few friends					
Poor peer relations / interactions					
Negative peer group					
Sad					
Extreme mood swings					
Temper outbursts					
Angry					
School behaviour problems					
School suspensions					

CRITICAL ISSUES- Check (✓) all that apply.					
Definition	P	S	H	N/A	Please provide specifics
Prostitution					
Witness to violence					
Unusual mannerisms/tics					
Phobias					
Blended family issues					
Mixed race family					
Highest level of education of parent (s)					
Parent - medical issues					
Parent emotional disorder					
Parent mental health issues - other					
Parent temper outbursts					
Poor parenting skills					
Parental substance abuse					
Parent suicide attempt					
Parent ever arrested					
Unemployment					
Employment difficulties (family)					
Subsidized housing					
War-torn country					

Appendix D

Client Satisfaction Questionnaire

Client Satisfaction Questionnaire

NAME _____ HOUSE _____ DATE _____
 (optional)

We are interested in your opinion about the treatment you are receiving here
 We would appreciate you taking the time to fill out this questionnaire.

1. How would you rate the quality of the help you are getting?
☐ Excellent ☐ Good ☐ Fair ☐ Poor
2. Are you getting the kind of help you want?
☐ Definitely Not ☐ Not Really ☐ Generally, yes ☐ YES!!
3. To what extent is our program meeting your needs?
☐ Almost all met ☐ Most needs met ☐ Just a few ☐ No needs met
4. If a friend were in need of similar help, would you recommend the Roberts/Smart Centre?
☐ NO!!! ☐ I don't think so ☐ Maybe so ☐ YES!!!
5. How satisfied are you with the amount of help you are receiving?
☐ VERY dissatisfied ☐ Mildly dissatisfied ☐ Mostly satisfied ☐ VERY satisfied
6. Is the help you are receiving allowing you to deal better with your problems?
☐ YES, a lot ☐ Somewhat ☐ Not really ☐ NO, not at all
7. Overall, how satisfied are you with the help you are receiving?
☐ VERY satisfied ☐ Mostly satisfied ☐ Mildly dissatisfied ☐ VERY dissatisfied
8. How interested in helping you is the person who works closest with you?
☐ Very interested ☐ Interested ☐ Somewhat interested ☐ Very uninterested

Appendix E

Problem Oriented Screening Instrument for Teenagers

PROBLEM ORIENTED SCREENING INSTRUMENT FOR TEENAGERS

INSTRUCTIONS

The purpose of these questions is to help us choose the best ways to help you. So, please try to answer the questions honestly.

Please answer all of the questions. If a question does not fit you exactly, pick the answer that is mostly true.

You may see the same or similar questions more than once. Please just answer each question as it comes up.

Please put an "X" through your answer.

If you do not understand a word, please ask for help.

You may begin.

1.	Do you have so much energy you don't know what to do with it?	Yes	No
2.	Do you brag?	Yes	No
3.	Do you get into trouble because you use drugs or alcohol at school?	Yes	No
4.	Do your friends get bored at parties when there is no alcohol served?	Yes	No
5.	Is it hard for you to ask for help from others?	Yes	No
6.	Has there been adult supervision at the parties you've gone to recently?	Yes	No
7.	Do your parents or guardians argue a lot?	Yes	No
8.	Do you usually think about how your actions will affect others?	Yes	No
9.	Have you recently either lost or gained more than 10 pounds?	Yes	No
10.	Have you ever had sex with someone who shot up drugs?	Yes	No
11.	Do you often feel tired?	Yes	No
12.	Have you had trouble with stomach pain or nausea?	Yes	No
13.	Do you get easily frightened?	Yes	No
14.	Have any of your best friends dated regularly during the past year?	Yes	No
15.	Have you dated regularly in the past year?	Yes	No
16.	Do you have a skill, craft, trade or work experience?	Yes	No
17.	Are most of your friends older than you are?	Yes	No
18.	Do you have less energy than you think you should?	Yes	No
19.	Do you get frustrated easily?	Yes	No

20. Do you threaten to hurt people?	Yes	No
21. Do you feel alone most of the time?	Yes	No
22. Do you sleep either too much or too little?	Yes	No
23. Do you swear or use dirty language?	Yes	No
24. Are you a good listener?	Yes	No
25. Do your parents or guardians approve of your friends?	Yes	No
26. Have you lied to anyone in the past week?	Yes	No
27. Do your parents or guardians refuse to talk with you when they are mad at you?	Yes	No
28. Do you rush into things without thinking about what could happen?	Yes	No
29. Did you have a paying job last summer?	Yes	No
30. Is your free time spent just hanging out with friends?	Yes	No
31. Have you accidentally hurt yourself or someone else while high on alcohol or drugs?	Yes	No
32. Have you had any accidents or injuries that still bother you?	Yes	No
33. Are you a good speller?	Yes	No
34. Do you have friends who damage or destroy things on purpose?	Yes	No
35. Have the whites of your eyes ever turned yellow?	Yes	No
36. Do your parents or guardians usually know where you are and what you're doing?	Yes	No
37. Do you miss out on activities because you spend too much money on drugs or alcohol?	Yes	No

38.	Do people pick on you because of the way you look?	Yes	No
39.	Do you know how to get a job if you want one?	Yes	No
40.	Do your parents or guardians and you do lots of things together?	Yes	No
41.	Do you get A's and B's in some classes and fail others?	Yes	No
42.	Do you feel nervous most of the time?	Yes	No
43.	Have you stolen things?	Yes	No
44.	Have you even been told you were hyperactive?	Yes	No
45.	Do you ever feel you are addicted to alcohol or drugs?	Yes	No
46.	Are you a good reader?	Yes	No
47.	Do you have a hobby you are really interested in?	Yes	No
48.	Do you plan to get a diploma (or already have one)?	Yes	No
49.	Have you been frequently absent or late for work?	Yes	No
50.	Do you feel people are against you?	Yes	No
51.	Do you participate in team sports which have regular practices?	Yes	No
52.	Have you ever read a book cover to cover for your own enjoyment?	Yes	No
53.	Do you have chores that you must regularly do at home?	Yes	No
54.	Do your friends bring drugs to parties?	Yes	No
55.	Do you get into fights a lot?	Yes	No
56.	Do you have a hot temper?	Yes	No

57. Do your parents or guardians pay attention when you talk with them?	Yes	No
58. Have you started using more and more drugs or alcohol to get the effect you want?	Yes	No
59. Do your parents or guardians have rules about what you can and cannot do?	Yes	No
60. Do people tell you that you are careless?	Yes	No
61. Are you stubborn?	Yes	No
62. Do any of your best friends go out on school nights without permission from their parents or guardians?	Yes	No
63. Have you ever had or do you now have a job?	Yes	No
64. Do you have trouble getting your mind off things?	Yes	No
65. Have you ever threatened anyone with a weapon?	Yes	No
66. Do you have a way to get to a job?	Yes	No
67. Do you ever leave a party because there is no alcohol or drugs?	Yes	No
68. Do your parents or guardians know what you really think or feel?	Yes	No
69. Do you often act on the spur of the moment?	Yes	No
70. Do you usually exercise for a half hour or more at least once a week?	Yes	No
71. Do you have a constant desire for alcohol or drugs?	Yes	No
72. Is it easy to learn new things?	Yes	No
73. Do you have trouble with your breathing or with coughing?	Yes	No

74.	Do people your own age like and respect you?	Yes	No
75.	Does your mind wander a lot?	Yes	No
76.	Do you hear things no one else around you hears?	Yes	No
77.	Do you have trouble concentrating?	Yes	No
78.	Do you have a valid driver's license?	Yes	No
79.	Have you ever had a paying job that lasted at least one month?	Yes	No
80.	Do you and your parents or guardians have frequent arguments which involve yelling and screaming?	Yes	No
81.	Have you had a car accident while high on alcohol or drugs?	Yes	No
82.	Do you forget things you did while drinking or using drugs?	Yes	No
83.	During the past month have you driven a car while you were drunk or high?	Yes	No
84.	Are you louder than other kids?	Yes	No
85.	Are most of your friends younger than you are?	Yes	No
86.	Have you ever intentionally damaged someone else's property?	Yes	No
87.	Have you ever stopped working at a job because you just didn't care?	Yes	No
88.	Do your parents or guardians like talking with you and being with you?	Yes	No
89.	Have you ever spent the night away from home when your parents didn't know where you were?	Yes	No
90.	Have any of your best friends participated in team sports which require regular practices?	Yes	No
91.	Are you suspicious of other people?	Yes	No

92.	Are you already too busy with school and other adult supervised activities to be interested in a job?	Yes	No
93.	Have you cut school at least 5 days in the past year?	Yes	No
94.	Are you usually pleased with how well you do in activities with your friends?	Yes	No
95.	Does alcohol or drug use cause your moods to change quickly like from happy to sad or vice versa?	Yes	No
96.	Do you feel sad most of the time?	Yes	No
97.	Do you miss school or arrive late for school because of your alcohol or drug use?	Yes	No
98.	Is it important to you now to get or keep a satisfactory job?	Yes	No
99.	Do your family or friends ever tell you that you should cut down on your drinking or drug use?	Yes	No
100.	Do you have serious arguments with friends or family members because of your drinking or drug use?	Yes	No
101.	Do you tease others a lot?	Yes	No
102.	Do you have trouble sleeping?	Yes	No
103.	Do you have trouble with written work?	Yes	No
104.	Does your alcohol or drug use ever make you do something you would not normally do - like breaking rules, missing curfew, breaking the law or having sex with someone?	Yes	No
105.	Do you feel you loose control and get into fights?	Yes	No
106.	Have you ever been fired from a job?	Yes	No
107.	During the past month, have you skipped school?	Yes	No

108. Do you have trouble getting along with any of your friends because of your alcohol or drug use?	Yes	No
109. Do you have a hard time following directions?	Yes	No
110. Are you good at talking your way out of trouble?	Yes	No
111. Do you have friends who have hit or threatened to hit someone without any real reason?	Yes	No
112. Do you ever feel you can't control your alcohol or drug use?	Yes	No
113. Do you have a good memory?	Yes	No
114. Do your parents or guardians have a pretty good idea of your interests?	Yes	No
115. Do your parents or guardians usually agree about how to handle you?	Yes	No
116. Do you have a hard time planning and organizing?	Yes	No
117. Do you have trouble with math?	Yes	No
118. Do your friends cut school a lot?	Yes	No
119. Do you worry a lot?	Yes	No
120. Do you find it difficult to complete class projects or work tasks?	Yes	No
121. Does school sometimes make you feel stupid?	Yes	No
122. Are you able to make friends easily in a new group?	Yes	No
123. Do you often feel like you want to cry?	Yes	No
124. Are you afraid to be around people?	Yes	No
125. Do you have friends who have stolen things?	Yes	No
126. Do you want to be a member of any organized group, team, or club?	Yes	No

127. Does one of your parents or guardians have a steady job?	Yes	No
128. Do you think it's a bad idea to trust other people?	Yes	No
129. Do you enjoy doing things with people your own age?	Yes	No
130. Do you feel you study longer than your classmates and still get poorer grades?	Yes	No
131. Have you ever failed a grade in school?	Yes	No
132. Do you go out for fun on school nights without your parents' or guardians' permission?	Yes	No
133. Is school hard for you?	Yes	No
134. Do you have an idea about the type of job or career that you want to have?	Yes	No
135. On a typical day, do you watch more than two hours of TV?	Yes	No
136. Are you restless and can't sit still?	Yes	No
137. Do you have trouble finding the right words to express what you are thinking?	Yes	No
138. Do you scream a lot?	Yes	No
139. Have you ever had sexual intercourse without using a condom?	Yes	No

Appendix F
Residential Daily Census

[illegible]