Understanding Substance Use Treatment Motivation: The Role of Social Network Pressure in Emerging Adulthood

by

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A thesis submitted in conformity with the requirements for the degree of Master of Arts
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Abstract

Research has shown that social pressure is related to treatment motivation and plays an important role in treatment engagement in adults with problematic substance use. Despite the shifts in autonomy and decision-making in emerging adulthood, the factors affecting treatment motivation (e.g., readiness to comply with treatment) and motivation to change (e.g., problem recognition and taking steps towards change) during this period have been largely ignored. In this study, 134 youth presenting to an outpatient substance abuse program completed questionnaires investigating substance use history, mental health, social pressure to reduce use and enter treatment, and motivation. Results indicated that peer pressure accounted for significant variance in internal positive and internal negative treatment motivation. Family pressure was related only to external treatment motivation. Neither social network source had a significant impact on motivation to change. Limitations, directions for future research and treatment implications are discussed.
Acknowledgements

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# Table of Contents

Title Page................................................................................................................................................. i  
Abstract..................................................................................................................................................... ii  
Acknowledgements..................................................................................................................................... iii  
Table of Contents....................................................................................................................................... iv  
List of Tables and Appendices................................................................................................................... v  
1.0 Introduction......................................................................................................................................... 1  
  1.1 Substance Use in Emerging Adulthood......................................................................................... 1  
  1.2 Motivation and the Behaviour Change Process.......................................................................... 3  
  1.3 Social Pressure and Treatment Seeking ..................................................................................... 7  
  1.4 Social Pressure and Motivation................................................................................................. 8  
  1.5 Changing Relationships during Emerging Adulthood............................................................... 9  
  1.6 The Present Study....................................................................................................................... 11  
2.0 Methods ........................................................................................................................................... 11  
  2.1 Participants ..................................................................................................................................... 11  
  2.2 Measures ....................................................................................................................................... 13  
    2.21 Substance Use ............................................................................................................................ 13  
    2.22 Mental Health Functioning ...................................................................................................... 13  
    2.23 Social Pressure .......................................................................................................................... 15  
    2.24 Motivation .................................................................................................................................. 15  
  2.3 Procedure ....................................................................................................................................... 17  
3.0 Results .............................................................................................................................................. 18  
  3.1 Plan of Analysis ............................................................................................................................. 18  
  3.2 Descriptive Analyses...................................................................................................................... 19  
    3.31 Social Pressure .......................................................................................................................... 19  
    3.32 Mental Health ........................................................................................................................... 19  
    3.33 Motivation ................................................................................................................................ 20  
  3.3 Correlations .................................................................................................................................... 21  
    3.31 Motivation (Outcome) Measures............................................................................................ 21  
    3.32 Demographics .......................................................................................................................... 21  
    3.33 Social Pressure and Motivation............................................................................................. 22  
    3.34 Mental Health and Motivation............................................................................................... 24  
  3.4 Regression Analysis ....................................................................................................................... 25  
    3.41 Motivation to Change Regressions.......................................................................................... 25  
    3.42 Treatment Motivation Regressions ........................................................................................ 27  
4.0 Discussion ......................................................................................................................................... 29  
  4.1 Treatment Motivation .................................................................................................................... 29  
  4.2 Motivation to Change .................................................................................................................... 32  
  4.3 Limitations and Directions for Future Research ......................................................................... 33  
  4.4 Treatment Implications ................................................................................................................ 36  
5.0 References........................................................................................................................................ 38
List of Tables of Appendices

Tables

*Table 1.* Demographic Characteristics of the Sample ........................................ 13

*Table 2.* Motivation Measures and Descriptive Statistics ............................ 17

*Table 3.* Descriptive Data of Motivation Measures ........................................ 19

*Table 4.* Intercorrelations between Motivation Variables ............................ 21

*Table 5.* Intercorrelations between Age, Sex, Substance Use History and Motivation Measures ................................................................. 22

*Table 6.* Intercorrelations between Social Network Pressure to Reduce Substance Use (Total, Family, Friends, Other) and Motivation Variables ......................................................... 23

*Table 7.* Intercorrelations between Social Network Pressure to Enter Treatment (Total, Family, Friend, Other) and Motivation Variables .......................................................... 23

*Table 8.* Intercorrelations between Motivation Measures, Internalizing Problems and Externalizing Problems ................................................................. 25

*Table 9.* Effects of Predictors on Motivation to Change by Analysis ............... 26

*Table 10.* Effects of Predictors on Treatment Motivation by Analysis .............. 28

Appendices

*Appendix A:* Letter of Information and Consent Forms .................................. 46
Understanding Substance Use Treatment Motivation: The Role of Social Network Pressure in Emerging Adulthood

Substance abuse is a significant social, physical and mental health problem for young people, peaking during the ages 20-24 years (Chen & Kandel, 1995; Tjepkema, 2004). Problematic substance use in youth is associated with continued substance abuse in adulthood, adverse health effects, academic/vocational difficulties, unemployment, increased risk taking behaviour, criminality, suicidality, and later psychiatric disorders (Merline, O’Malley, Schulenberg, Bachman, & Johnston, 2004; Rohde, Lewinsohn, Kahler, Seeley, & Brown 2001; Spirito, Jelalian, Rasile, Rohrbeck & Vinnick, 2000; Valdez & Curtis, 2001). Despite the increased prevalence of drug and alcohol dependency during adolescence and young adulthood, little research has focused on identifying the unique needs of these populations in terms of immediate intervention and long-term treatment. Providing effective treatment services in a timely manner is critical in order to avoid the development of lifelong, recurrent problems with severe individual and social consequences. Placing this issue in a developmental context provides a framework that may facilitate the identification of processes involved in maintaining the problem behaviour and those that impact response to treatment.

1.1 Substance Use in Emerging Adulthood

Recent research has begun to focus on identifying the developmental trajectories associated with substance use initiation and maintenance. Early adolescents who use substances (ages 13-14 years or younger) have been identified as an at-risk group for poor outcomes in late adolescence and young adulthood and are a key target group for early intervention (Tucker, Ellickson, Orlando, Martino & Klein, 2005). A second critical subgroup are those youth who have delayed initiation or experimented moderately in adolescence but commence or increase their substance use to significantly higher levels as they transition into adulthood (Tucker et al.,
Indeed, this peak in substance abuse occurs during a developmental period that has only recently received empirical attention: emerging adulthood. This period occurs from roughly 18 - 25 years of age and has been clearly differentiated from adolescence and adulthood (Arnett, 2005). Emerging adults begin to make independent decisions concerning vocational and/or educational status, residential arrangements and interpersonal relationships (Arnett, 2001; 2004; Martin & White, 2005). Although for most this transition is accompanied by positive change and growth it is also a time of great instability in all aforementioned domains. Most illustrative of this instability is the dramatic increase in psychopathology from late adolescence to early adulthood (Khatzian, 1997). A significant number of emerging adults develop an array of mental health issues including depression and anxiety, which are often accompanied by drug and alcohol abuse and/or dependence (Arnett, 2005).

Despite the increased recognition of emerging adulthood as a period of vulnerability for the onset of substance related issues, research to date has focused primarily on drug and alcohol use during the earlier transitional period between childhood and adolescence (Martin & White, 2005). Recently, studies have begun to investigate trends related to drug use during the transition to adulthood, with several researchers reporting increased marijuana and alcohol consumption. Further, changes in consumption have been linked to significant transitions that often occur during this stage (e.g., increased use after moving away from one’s parental home, decreased use after entering romantic partnership/establishing a family) (Hammer & Vaglum, 1990). For many young people, college offers a lifestyle of increased freedom in which substance-related experimentation is normative behaviour, rendering these youth at particular risk for drug initiation (Larimer, Kilmer, & Lee, 2005). Similarly, because they are of legal drinking age, transition-aged youth are more likely to frequent dance clubs, bars and parties at
which binge drinking and/or illicit drug use is encouraged within the party-culture (Miller, Furr-Holden, Voas & Bright, 2005). Substance use tends to decrease as individuals mature into adulthood, with most reducing to minimal use or abstaining entirely by their late 20s and early 30s (Chen & Kandel, 1995). This may be attributed to the fact that during early adulthood he majority of youth adopt some adult responsibility, such as obtaining full time work or starting a family, and are less interested in engaging in risky behaviours that can jeopardize these aspects of their lives (Hammer & Vaglum, 1990). While this may be true for most, a significant number of youth experience severe consequences as a result of their substance use, develop chronic problems with substance abuse, and have difficulty successfully transitioning into adulthood (Larimer et.al, 2005). In order to offer effective services to emerging adults who struggle with their substance use and to prevent long-term consequences, research is needed to understand how the processes that underlie behaviour change and maintenance function during this developmental period. Thus, the purpose of the present study was to identify factors that are of particular importance for the substance use behaviour change process during emerging adulthood and that can be incorporated into intervention efforts targeting this population.

1.2 Motivation and the Behaviour Change Process

Increasing empirical attention has been devoted to determining when and how individuals with substance use concerns change their problematic behaviour, and on isolating the processes through which these individuals seek and comply with treatment guidelines and achieve successful outcomes (DiClemente, 1999). Substance use behaviour change is a complex process that is dependent on many factors, including substance use severity and history, perceived costs and benefits of substance use, personal motivations, co-occurring mental health difficulties, social network, and environmental context (DiClemente, 1999; 2003; 2005; Klar,
Each of these factors may impact different stages of the behaviour change and treatment-seeking process, which is comprised of initial problem recognition, taking actions towards change, treatment entry and retention, treatment completion, and behaviour change maintenance (Bellino et al, 1999). Across varied populations with problematic substance use, studies indicate that motivation regarding changing problem behaviour is the strongest predictor of engagement in treatment and positive treatment outcome (Broome, Joe & Simpson, 2001; DiClemente, 1999; DiClemente, et.al, 2004; Simpson & Joe, 1991; Wild, Cunningham, & Ryan, 2006). While several definitions of motivation have been discussed in the literature, the general concept of motivation refers to internal mental states, including the “personal considerations, commitments, reasons and intentions that move individuals to perform certain behaviours” (Diclemente, Schlundt, & Gemmell, 2004).

Since motivation was first recognized as an important predictor of treatment outcome, both internal and external processes have been identified as contributing to a person’s motivation to seek treatment and/or move through the behaviour change process. A client who is *internally motivated* is one who chooses to be in treatment for personal and/or internal benefit (e.g., make changes, improve functioning); thus, the source(s) of motivation are internal (Ryan, Plant, & O’Malley, 1995; Wild et al., 2006). An individual is considered *externally motivated* when his or her predominant reasons for seeking treatment are in response to external conditions (e.g., to avoid work or legal consequences or obtain gains from an external source; Ryan et.al, 1995; Wild et al., 2006). However, external forces also have the ability to impact internal

---

1 It is also important to differentiate potential sources of, or influences on, motivation from motivation itself. Clearly, if a stimulus does not affect an individual’s attitudes, intentions, or behaviour then it cannot be considered a motivational force despite the fact that it may be intended as such. For example, a person might remain unaffected by suggestions from loved ones to seek treatment; thus, ‘family concern’ cannot be considered to contribute to motivation for this individual.
motivation through a process known as *internalization* (Deci & Ryan, 1985). Internalization occurs when stimuli from the external environment are integrated into a personal belief system (Deci & Ryan, 1985; Pelletier, Tuson, & Haddad, 1997). For example, with respect to substance use, concern and pressure from family or friends may cause an individual to evaluate his or her behaviour, recognize it as problematic and make a personal choice to change and seek treatment. This may also translate into negative emotions, such as feelings of guilt and shame regarding one’s substance use, which may also be a source of motivation.

Individuals who perceive their actions to be self-initiated and maintained (i.e., those whose motivation is considered internal or internalized) are more likely to persevere and improve on a variety of tasks compared to those who perceive their actions to occur as a result of external conditions and coercion (i.e., those defined as ‘externally motivated’; Deci & Ryan, 1985; Ryan, et.al, 1995). Individuals may perceive their behaviour to be coerced when external events threaten their personal autonomy and control their behaviour (Wild, Newton-Taylor & Alleto, 1998). Thus, it is not simply the existence of an external pressure source, but the fact that an individual attributes that pressure as having an impact on his or her behaviour change, that renders it coercive. This is particularly important when considering treatment entry and outcomes, since many individuals with alcohol and substance dependence seek treatment in response to external influences such as family/peer pressure, legal context (e.g., court order), and medical or workplace pressures (Polcin & Weisner, 1999). While internal motivation has been found to be a stronger predictor of favourable treatment outcomes than external motivation, clients who are high in both internal and external motivation are more likely to regularly attend treatment sessions and demonstrate successful behaviour change than individuals who are high in either type of motivation alone (Ryan, et al., 1995). Thus, both
internal and external motivation are significant processes that contribute to successful behaviour change.

Two separate but related constructs that fall under the motivational umbrella in relation to problem behaviour are motivation to change and motivation for treatment (also called treatment motivation). Motivation to change is individuals’ willingness to recognize their behaviour as problematic and take the necessary steps towards change. Motivation for treatment refers to a willingness to seek help and readiness to invest and act in accordance with a treatment program (DiClemente, et. al, 2004). Both motivation to change and motivation for treatment have been found to be predictive of treatment engagement and successful outcome. While these two concepts are related, they often occur as two independent motivational forces and, consequently, should not be considered as a single motivational construct (Bellino, DiClemente, Neavins, 1999; DiClemente, et al., 2004). For example, individuals may recognize their substance use as problematic and want to make changes but may not be willing to enter and comply with a treatment program in order to achieve these goals. In contrast, individuals may be motivated to follow through with a treatment program (e.g., regularly attending, completing assignments) in response to external influences, such as to avoid family discord or legal difficulties, but may not truly perceive their behaviour to be problematic and may not be willing to change.

Until recently, the motivation literature has focused primarily on adult samples, with some attention to motivation in adolescents. However, little is known about the unique factors that contribute to motivation to change and enter treatment in emerging adulthood. In both the adolescent and adult literatures, factors that influence motivational variables include substance use quantity and frequency, legal context (e.g., court order), family and peer involvement, and
mental health status (e.g., depression, anxiety) (Breda & Heflinger, 2004; Broome et al., 2001). Although these factors seem to play a role regardless of age, the extent of their influence appears to differ across the developmental trajectory. For example, adolescents tend to be less internally motivated than adults and most enter treatment because of external influences (e.g., family or legal pressure), likely accounting for high drop out rates across treatment programs (Melnick, De Leon, Hawke, Jainchill & Kressel, 1997; Battjes et al., 2004). Because increased independence is critical in emerging adulthood, it is unclear how external environmental factors such as family and peer pressure to reduce substance use and enter into treatment may impact motivation to change and treatment motivation during this developmental period. In order to address this gap in the literature, the current study will provide an in depth examination of the role of these social pressures on substance-related motivation in youth.

1.3 Social Pressure and Treatment Seeking

In the addictions literature, social pressure has been identified as an external influence on treatment motivation that is an important contributor to treatment seeking (Polcin & Weisner, 1999; Polcin & Beattie, 2007; Wild, 2006). Social pressure is defined as confrontation from members of an individual’s social environment or network regarding the negative aspects of his or her substance use (Polcin & Beattie, 2007; Polcin, Galloway, & Greenfield, 2006). Early studies on social network pressure examined mandated forms of social controls such as court ordered treatment, civil commitments, welfare conditions, and employee assistance (Wild, 2006; Polcin & Beattie, 2007). However, recent research has recognized that informal pressures have a strong impact on treatment processes as well (Marlowe et al., 1996; Marlowe, Merikle, Kirby, Festinger & McLellan, 2001). Indeed, individuals in treatment for substance disorders have identified psychosocial pressure as a central reason for seeking treatment (Polcin & Weisner,
1999) and, in many cases, identify these types of pressure as being more influential than formally mandated social controls (Marlowe et. al, 1996). In a study of 927 participants that examined social pressure in alcohol treatment, Polcin and Weisner (1999) found that over 40% of individuals received pressure from at least one source, with the most common source of pressure identified as coming from family members (24%) followed by the legal system (8%). Similarly, in an investigation of perceived pressure to enter alcohol and drug treatments, Marlowe et al (2001) found that 61% of participants reported receiving family pressure and 41% reported non-familial social pressure, compared to only 24% identifying legal mandates as a reason for seeking treatment. Interestingly, Polcin et.al (2006) found that those who reported more verbal confrontations had positive views about their relationship with the confronters and believed these concerns to be justified. Moreover, most participants identified that the confrontation they received was helpful to their recovery, further highlighting the importance of pressure on the treatment process.

1.4 Social Pressure and Motivation

Although several investigators have been interested in the role of social pressure on treatment entry and retention, very few have considered the impact of social pressure on motivation specifically. In a recent study, Wild et al. (2006) considered the role of social pressure on treatment motivation and engagement in a sample of adults seeking treatment from an outpatient program. The authors found that perceived social pressure was positively correlated with external motivation and was inversely correlated with internal motivation. The more adult clients believed they had personally chosen to seek treatment, the more likely they were to recognize the benefits of decreasing their substance use, take actions towards change, and take interest in the treatment program. Adult clients who believed they were seeking
treatment in response to external pressures were less likely to experience these treatment gains. Polcin and Beattie (2007), on the other hand, found that relationship pressure (e.g., family, friends, neighbours, clergy etc.) was unrelated to motivation to change and that institutional pressure (e.g., legal or welfare involvement) was negatively related. One limitation of both of these studies is that the results were based on a single composite score for social network pressure, and the independent impact of each source of pressure was not investigated. Examining the role of social pressures separately by relationship type may be particularly critical during emerging adulthood, as primary relationships go through fundamental transformations.

1.5 Changing Relationships during Emerging Adulthood

During emerging adulthood, family and friends may make differential contributions to substance use change and treatment seeking processes. As youths progress from adolescence to young adulthood their relationships with their parents change. In general, emerging adults tend to have more favourable relationships with their parents than they did in adolescence. Among the general population, parents tend to exert less power and influence on youths’ decision-making and actions and youth spend significantly less time with their parents as they transition into adulthood - many moving away from their parental home (Arnett, 2004; 2005). Increasing independence from parents is a central process related to the development of autonomy, an important component of adulthood (Arnett, 2005). Indeed, emerging adults who live at home tend to be less close to their parents than those who have moved away successfully (Arnett, 2000). Consequently, some researchers have proposed that during this period, successful parenting is characterized by an increased emphasis on and support for individuality (e.g., independent decision making) (Beyer & Seiffge-Krenke, 2007). Establishing healthy
independent relationships with parents and personal autonomy may be particularly challenging for individuals with substance use concerns; 60-80% of adults with problematic drug use live with their parents or communicate with them regularly (e.g., 4-7 times per week) (Stanton & Heath, 2004). Moreover, the likelihood that an individual with substance use concerns lives at home with a parent is five times greater than an adult from the general population (Stanton, 2004).

In contrast to the types of changes common in parental relationships, friendships become more intimate and supportive during emerging adulthood, gradually assuming a more focal position in young persons’ lives (Arnett, 2005; Seiffge-Krenke, 2007). Highlighting the importance of friendships during emerging adulthood, several studies have linked positive friendship relationships with fewer symptoms of psychopathology and maladjustment (Bagwell, Bender, Andreassi, Kinoshita, Montarello & Muller, 2005). Moreover, friendships have been found to mediate the relationship between poor parent-adolescent relationships and later psychosocial adjustment (Beyers & Seiffge-Krenke, 2007). Thus, while social pressures likely contribute to motivation in emerging adulthood, it is possible that the impact will differ depending on the source of the social pressure. Although there is evidence that both family and peers are primary reasons for individuals with substance abuse to seek and remain in treatment (Beattie & Longabaugh, 1999; Stanton, 2004), it remains unclear whether one is of greater importance than the other. Moreover, whether these groups are able to influence motivation to change substance use behavior remains unknown. Investigating the impact of pressure from family and peers on motivation is necessary in order to identify which social networks are the most crucial targets of interventions aimed at emerging adults.
1.6 The Present Study

In the present study I sought to add to the substance abuse literature by investigating several factors that contribute to motivation to enter treatment and to reduce substance abuse in emerging adults, a population that has received little empirical attention to date. The goals of the study were (1) to investigate whether older youth are more motivated to change their problematic substance use (2) to examine whether youth become more internally motivated and less externally motivated to seek treatment as they age and transition from adolescence to young adulthood (3) to explore the relationships between peer, family and other social network pressure on motivation to change and motivation to enter treatment. First, I hypothesized that the older the youth, and thus the closer the young person is to adulthood, the more likely he or she will be to acknowledge substance use as problematic and take steps toward change. Secondly, I predicted that the older the youth, the more he or she will identify as being internally motivated and less externally motivated to seek treatment. Lastly, I hypothesized that family pressure, which may be perceived as coercive and a threat to autonomy, will be associated with high external and low internal motivation. In contrast, peer pressure – which does not carry the same negative implications for young people’s autonomy – will be associated with high internal as well as high external motivation.

Methods

2.1 Participants

The sample consisted of 135 youth seeking services for substance use treatment over a twelve-month period (May 2008 through April 2009) at an outpatient treatment program at a mental health facility in Toronto, Canada for individuals aged 16 to 24 with substance use and concurrent mental health concerns (one dropped due to incomplete data). Clients completed
questionnaires as part of a clinical assessment package during their initial orientation session following admission to the program. A member of the research team approached each youth attending orientation to request informed consent (see Appendix A) to use the clinical information for research; 90% of clients agreed.

The sample consisted of 83 male (61.9%) and 51 (38.1%) female participants ranging in age from 16 to 24 years ($M = 20.1$ years). The majority of participants identified themselves as White/European descent (80.6%). Participants were asked to identify their primary substances of concern. Responses were as follows: alcohol only (n = 18, 13.4%), cannabis only (n = 21, 15.7%), alcohol and other substances (n = 12, 9.0%), and multiple substances excluding alcohol (n = 74, 55.2%). The remaining 9 participants (6.7%) did not identify a primary substance or reported behaviour/mental health (e.g., depression, anxiety) as being their most salient area of concern. (See Table 1 for demographic information).
Table 1.

Demographic Characteristics of the Sample (N = 134)

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>83</td>
<td>61.9</td>
</tr>
<tr>
<td>Female</td>
<td>51</td>
<td>38.1</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 - 18</td>
<td>37</td>
<td>27.6</td>
</tr>
<tr>
<td>19 - 21</td>
<td>55</td>
<td>41.0</td>
</tr>
<tr>
<td>22 - 24</td>
<td>42</td>
<td>31.4</td>
</tr>
<tr>
<td><strong>Ethnicity (N = 93)</strong></td>
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<td></td>
</tr>
<tr>
<td>White</td>
<td>75</td>
<td>80.6</td>
</tr>
<tr>
<td>Other</td>
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<td>19.4</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
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<td>7.5</td>
</tr>
<tr>
<td>Part Time</td>
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<td>19.4</td>
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<tr>
<td>Student</td>
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<td>33.6</td>
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<tr>
<td>Unemployed</td>
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<td>59.7</td>
</tr>
<tr>
<td><strong>Primary Substance</strong></td>
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<td></td>
</tr>
<tr>
<td>Poly Substance</td>
<td>74</td>
<td>55.2</td>
</tr>
<tr>
<td>Poly Substance (alcohol primary)</td>
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<tr>
<td>Cannabis Only</td>
<td>21</td>
<td>15.7</td>
</tr>
<tr>
<td>Alcohol Only</td>
<td>18</td>
<td>13.4</td>
</tr>
<tr>
<td>Unknown</td>
<td>9</td>
<td>6.7</td>
</tr>
</tbody>
</table>

2.2 Measures

2.2.1 Substance Use.

In addition to being asked to identify the primary substance for which they were seeking treatment, clients were asked to list other substances that might be of concern. Substance use
history was calculated using the Drug Use History portion of the Adolescent Alcohol and Drug Involvement Scale (AADIS). The AADIS is an adapted version of the Adolescent Drug Involvement Scale (Moberg, 1991) that includes both alcohol and drug use. This measure asks participants to specify how frequently they use thirteen different substance categories (tobacco, alcohol, cannabis, hallucinogens, amphetamines, powder cocaine, rock cocaine, barbiturates, PCP, heroine/opiates, inhalants, tranquilizers, other). Responses are measured on a seven-point scale (0 = never; 1 = tried but quit; 2 = several times a year; 3 = several times a month; 4 = week-ends only; 5 = several times a week; 6 = daily; 7 = several times a day) and are summed to create a multiple substance use index score that ranges between 0 and 84, with higher scores indicated more extensive involvement with substance use. Although tobacco use was included in the original measure, it was excluded from the Total Severity calculation used in all analyses. The majority of participants use tobacco frequently (i.e., daily or several times/day; n = 93, 69.2%) and the high endorsement of this item would inflate the results of this measure, thus it was dropped from the calculation.

2.22 Mental Health Functioning.

Youth rated their emotional and behavioural functioning using the Achenbach Adult Self Report for participants 18 years and older (ASR, 123 items; Achenbach 2003) and the Achenbach Youth Self Report for youth under 18 years old (YSR, 112 items; Achenbach, 2001). Both are widely used, reliable, internally consistent (Cronbach \( \alpha = .89-.92 \)), standardized measures that are utilized clinically and for research (Achenbach, 2003, 2001). These measures ask participants to rate the extent to which they are experiencing specific problem areas on a three-point scale from 0 (Not True) to 2 (Very True or Often True). Both measures yield broadband scores for Internalizing Problems (e.g., anxiety, depression, somatic complaints,
social withdrawal) and Externalizing Problems (e.g., conflict with others, aggressive behaviour, rule-breaking). For this study, T-scores for each broad-band scale were calculated for each participant.

2.23 Social Pressure.

A modified version of the Social Pressure Index (Polcin & Weisner, 1999; Wild et al, 2006) was used to assess perceived pressure. Clients rated the extent to which they have received pressure from family, friends (including romantic partner), and others to reduce substance use behaviour in the past two months. They also rated the extent to which these three social-network groups have pressured them to enter a treatment program during the past two months. A 5-point likert scale ranging from 1 (no pressure) to 5 (extreme pressure) was used for each item. Overall scores for both pressure to reduce substance use and pressure to enter treatment were calculated by averaging the participants’ responses from the three target groups.

2.24 Motivation.

The Stages of Change Readiness and Treatment Eagerness Scale – Version 8 (SOCRATES; Miller & Tonigan, 1996). This is a 19-item self-report inventory that measures an individual’s general level of motivation to change his or her substance use behaviour. The participants completed a SOCRATES for alcohol and one for the drug that they identified as most problematic. In order to assess motivation to change, the SOCRATES-A (alcohol) was used for participants who identified alcohol use as their primary substance of concern and the SOCRATES-D (drugs) was used for those who identified drug use (with and without alcohol use) as their primary substance of concern. Responses are scored on a 5-point likert-scale (ranging from No! Strongly disagree to Yes! Strongly Agree) and the measure yields three subscale scores: Recognition (the level of awareness of substance use as problematic),
Ambivalence (degree of certainty surrounding problem recognition), and Taking Steps (evidence that change has already begun). Of the three original scales, only Recognition ($\alpha = .95$) and Taking Steps ($\alpha = .96$) have consistently proven reliable and internally consistent (Miller & Tonigan, 1996; Sanchez & Lundberg, 2007) and thus, the Ambivalence Scale was not used in this study. Internal consistency analyses were calculated for each scale using the present sample, revealing Cronbach’s alpha reliability coefficients of .95 (Recognition) and .97 (Taking Steps) (See Table 2 for sample items.)

Abbreviated Treatment Entry Questionnaire (TEQ). A 12-item version of the 30-item Treatment Entry Questionnaire developed by Wild, Cunningham and Ryan (2006) was used to assess three measures of motivation including external, internal positive and internal negative reasons for seeking treatment. Previously labeled “identified” motivation in Wild et.al (2006), for the purposes of the present study, Internal Positive motivation refers to the youth’s personal interest in and commitment to seeking help for his or her problem through treatment. Internal Negative motivation (previously termed Introjected by Wild et.al, 2006) refers to a desire to enter and commit to treatment based on feelings of guilt and shame. External motivation (also called External Coercion) refers to the youth’s belief that he or she is seeking treatment in response to external pressures. Items are scored on a 7-point likert-scale questionnaire (1 = strongly disagree to 7 = strongly agree). The subscales of the 12-item version were highly correlated (.96 – .98) with those of the 30-item version of the measure administered to a large subset of the sample (N = 88) and thus they are used in all of the analyses in the present study. Internal consistency coefficients were calculated for each scale, with Cronbach’s alpha reliability coefficients ranging from .78 - .88 (See Table 2 for reliability statistics and sample items).
Table 2.

Motivation Measures and Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable Group Subcomponent</th>
<th>Sample Item</th>
<th>No. of Items</th>
<th>Cronbach’s α</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TEQ</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal- Positive (/24)</td>
<td>I decided to enter a program because I really want to make some changes in my life.</td>
<td>4</td>
<td>.88</td>
<td>21.61</td>
<td>6.20</td>
</tr>
<tr>
<td>External Coercion (/24)</td>
<td>If I remain in treatment it will probably be because others will be angry with me if I don’t.</td>
<td>4</td>
<td>.78</td>
<td>11.43</td>
<td>6.15</td>
</tr>
<tr>
<td>Internal- Negative (/24)</td>
<td>If I remain in treatment it will probably be because I’ll feel like a failure if I don’t.</td>
<td>4</td>
<td>.86</td>
<td>15.66</td>
<td>6.98</td>
</tr>
<tr>
<td><strong>SOCRATES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition: D (/35)</td>
<td>I know that I have a drug problem</td>
<td>7</td>
<td>.95</td>
<td>21.93</td>
<td>8.98</td>
</tr>
<tr>
<td>Taking Steps: D (/40)</td>
<td>I am working hard to change my drug use</td>
<td>8</td>
<td>.95</td>
<td>27.09</td>
<td>9.39</td>
</tr>
<tr>
<td>Recognition: A (/35)</td>
<td>I am a problem drinker</td>
<td>7</td>
<td>.97</td>
<td>17.90</td>
<td>9.67</td>
</tr>
<tr>
<td>Taking Steps: A (/40)</td>
<td>I am actively doing things to change my drinking</td>
<td>8</td>
<td>.96</td>
<td>21.66</td>
<td>10.69</td>
</tr>
</tbody>
</table>

2.3 Procedure

Each participant completed the package of questionnaires following a 30 minute orientation session outlining the services available in the Youth Addictions and Concurrent Disorder Service of the mental health facility. Participants completed the questionnaires in the orientation room in which the researcher and clinical staff were present to answer questions and
clarify instructions. The questionnaires took approximately 1 ½ hours to complete and included measures of substance use concerns, substance use history, concurrent mental health concerns/psychological functioning, perceived pressure to reduce substance use and enter treatment, motivation to change and treatment motivation.

Results

3.1 Plan of Analysis

The Results section begins with a description of the sample in terms of psychosocial predictors (mental health, social pressure) and motivation variables. The demographic and independent variables included sex, age, substance use history, internalizing and externalizing difficulties, and pressure to reduce substance use and enter a treatment program (from family, friends and others). The Recognition and Taking Steps subscales from the SOCRATES and the Internal-Positive, Internal Negative and External Coercion subscales from the TEQ were the dependent measures of motivation in all analyses in this study.

Correlations were computed to identify significant bivariate relationships between continuous variables; Spearman correlation coefficients were calculated to address non-normally distributed variables. Multivariate linear regression was used to assess the strength of significant predictors identified during univariate analyses. Five separate linear regression analyses were conducted: one for each measure of motivation. Predictor variables were entered simultaneously into the regression equations as no specific hypotheses about the order and importance of each of the predictors had been generated. Again, as a result of departures from normality, transformation of continuous variables was employed and transformed variables entered into regression analyses when necessary.
3.2 Descriptive Analyses

3.21 Social Pressure.

When asked about the pressure youth perceived from their families surrounding substance use and treatment, the majority of the sample indicated that they have received pressure (some to extreme) from their family to reduce their substance use (75.4%, n = 101) and/or enter a treatment program (70.9%, n = 95) over the past two months. Over half of the sample reported pressure from friends to reduce their substance use (60.4%, n = 81) and just under half reported peer pressure to enter a treatment program (41.0%, n = 55). Finally, about half of the sample indicated that they perceived pressure from other individuals, agencies or systems in their social network to reduce their substance use (47.0%, n = 63) and a third indicated pressure from others to enter a treatment program specifically (34.3%, n = 36). Pressure from friends to reduce substance use (z = 2.40) and pressure from friends to enter a treatment program (z = 4.51) were significantly skewed (greater than +/-2; Tabachnick & Fidell, 2008), thus the square root transformation was used to address the skewness of these variables.

3.22 Mental Health Status.

Respondents’ Internalizing t scores ranged from 35 to 97 with a mean score of 67.2 (SD = 13.75), which is in the Borderline Clinical range. Of the total sample, 38.1% (n = 51) scored in the Clinical range on this subscale. Youths’ Externalizing t-scores were slightly higher than their Internalizing scores and ranged from 41 to 93, with a mean of 69.5 (SD = 10.42), falling in the Clinical range. A significant portion of the sample reported clinically significant externalizing difficulties (39.6%, n = 53). The large representation of participants with significant mental health difficulties was expected as the sample consisted of youth referred to a program for addictions and concurrent mental health concerns.
3.23 Motivation.

As Table 3 indicates, the majority of youth acknowledged that their substance use was at least somewhat problematic. Similarly, the majority of youth reported taking some steps towards change. Over three-quarters of participants (n = 102) endorsed Internal Positive (e.g., personal choice), and approximately 40% (n = 51) identified Internal Negative (e.g., shame and guilt), reasons for seeking treatment. In contrast, only 20% (n = 26) of youth indicated External Coercion as being a reason for seeking treatment (i.e., had a mean score > 4). Finally, Examination of the descriptive statistics revealed that SOCRATES Recognition (z = 2.55), TEQ Internal Positive Motivation (z = 4.48), and TEQ External Coercion (z = 2.16) were significantly skewed. In order to deal with the skewness, the square transformation was used for the Recognition and Internal Motivation and the square root function was used for External Coercion.

Table 3

Descriptive Data of Motivation Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCRATES Recognition</td>
<td>25.0</td>
<td>7.5</td>
<td>6 - 35</td>
</tr>
<tr>
<td>Taking Steps</td>
<td>28.7</td>
<td>8.5</td>
<td>7 - 40</td>
</tr>
<tr>
<td>TEQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Positive</td>
<td>5.41</td>
<td>1.55</td>
<td>1 - 7</td>
</tr>
<tr>
<td>Internal Negative</td>
<td>3.67</td>
<td>1.77</td>
<td>1 - 7</td>
</tr>
<tr>
<td>External Coercion</td>
<td>2.85</td>
<td>1.54</td>
<td>1 - 7</td>
</tr>
</tbody>
</table>
3.3 Correlations

3.3.1 Motivation (Outcome) Measures.

As shown in Table 4, several motivation variables were significantly correlated. Of those that are most noteworthy, internal positive motivation was significantly correlated with internal negative motivation ($r = .63$) and recognition ($r = .63$). In addition, internal negative motivation was significantly correlated with recognition ($r = .58$). Despite these significant relationships, composite variables were not created due to moderate effect sizes and theoretical reasons for maintaining separate constructs.

Table 4.

*Intercorrelations between Motivation Variables.*

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Internal Positive</td>
<td>-</td>
<td>.627**</td>
<td>-.214*</td>
<td>.628**</td>
<td>.441**</td>
</tr>
<tr>
<td>2. Internal Negative</td>
<td>-</td>
<td>.141</td>
<td>.582**</td>
<td>.272**</td>
<td></td>
</tr>
<tr>
<td>3. External</td>
<td>-</td>
<td></td>
<td>-.098</td>
<td></td>
<td>-.154</td>
</tr>
<tr>
<td>4. Recognition</td>
<td>-</td>
<td></td>
<td></td>
<td>.451**</td>
<td></td>
</tr>
<tr>
<td>5. Taking Steps</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; ** p < .001

3.3.2 Demographics.

As Table 5 shows, neither sex nor substance use history were correlated with any motivation measure. However, as youths’ age increased they were more likely to identify their substance use as problematic and seek treatment for internal reasons and less likely to report entering treatment in response to external influences.
### Table 5.

*Intercorrelations between Age, Sex, Substance Use History and Motivation Measures*

<table>
<thead>
<tr>
<th></th>
<th>Internal Positive</th>
<th>Internal Negative</th>
<th>External</th>
<th>Recognition</th>
<th>Taking Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.278**</td>
<td>.079</td>
<td>-.255**</td>
<td>.316**</td>
<td>.178</td>
</tr>
<tr>
<td>Sex</td>
<td>.064</td>
<td>.012</td>
<td>-.082</td>
<td>.060</td>
<td>-.092</td>
</tr>
<tr>
<td>Substance Use History</td>
<td>.074</td>
<td>-.003</td>
<td>-.159</td>
<td>.171</td>
<td>-.025</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .001

### 3.33 Social Pressure and Motivation.

When investigating total perceived pressure (i.e., across family, friends, and others), pressure to *reduce* substance use was significantly related to all three treatment motivation measures as well as problem recognition, but was not related to taking steps (See Table 6). Pressure to *enter* a treatment program was also related to all three measures of treatment motivation but not related to either measure of motivation to change (Problem Recognition or Taking Steps; See Table 7).

Examining the relationship of the separate social network pressures yielded more differentiated results. As can be seen in Table 6, pressure from friends to reduce substance use was positively correlated with internal positive and internal negative treatment motivation, problem recognition, and taking steps but was not correlated with external treatment motivation. In contrast, family pressure to reduce substance use was positively correlated with internal negative and external treatment motivation and uncorrelated with internal positive treatment motivation, problem recognition, and taking steps. Pressure from others to reduce substance use was not related to scores on any of the motivation measures.
Table 6.
*Intercorrelations between Social Network Pressure to Reduce Substance Use (Total, Family, Friends, Other) and Motivation Variables.*

<table>
<thead>
<tr>
<th></th>
<th>Internal Positive</th>
<th>Internal Negative</th>
<th>External Recognition</th>
<th>Taking Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total Pressure – Reduce</td>
<td>.276**</td>
<td>.296**</td>
<td>.260**</td>
<td>.205*</td>
</tr>
<tr>
<td>2. Friends – Reduce</td>
<td>.337**</td>
<td>.392**</td>
<td>.114</td>
<td>.312**</td>
</tr>
<tr>
<td>3. Family – Reduce</td>
<td>.111</td>
<td>.278**</td>
<td>.368**</td>
<td>.212**</td>
</tr>
<tr>
<td>4. Other – Reduce</td>
<td>.133</td>
<td>-.014</td>
<td>.056</td>
<td>-.070</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .001

Table 7.
*Intercorrelations between Social Network Pressure to Enter Treatment (Total, Family, Friend, Other) and Motivation Variables.*

<table>
<thead>
<tr>
<th></th>
<th>Internal Positive</th>
<th>Internal Negative</th>
<th>External</th>
<th>Recognition</th>
<th>Taking Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Pressure - Enter</td>
<td>.194*</td>
<td>.412**</td>
<td>.547**</td>
<td>.117</td>
<td>.067</td>
</tr>
<tr>
<td>Friends - Enter</td>
<td>.428**</td>
<td>.505**</td>
<td>.190*</td>
<td>.286**</td>
<td>.228*</td>
</tr>
<tr>
<td>Family –Enter</td>
<td>.048</td>
<td>.315**</td>
<td>.623**</td>
<td>.083</td>
<td>-.033</td>
</tr>
<tr>
<td>Other - Enter</td>
<td>.039</td>
<td>.103</td>
<td>.235*</td>
<td>-.077</td>
<td>-.103</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .001
Similarly, pressure from friends to enter a treatment program was positively correlated with all measures of treatment motivation and motivation to change. Family pressure to enter a treatment program was correlated with internal negative treatment motivation and external treatment motivation while uncorrelated with internal positive treatment motivation, problem recognition, and taking steps. Pressure from others to enter a treatment program was not related to scores on any of the motivation measures.

These results suggest that youth who perceive pressure from friends to reduce substance use and enter treatment are more likely to be positively motivated to change and enter treatment. In contrast, greater family pressure to reduce substance use is unrelated to positive treatment motivation and motivation to change. Youth who experience greater family pressure are more likely to report entering treatment due to external influences. Youth who experience greater family pressure as well as those who report more friend pressure are more likely to recognize they have a problem and identify internal negative reasons for seeking treatment.

3.34 Mental Health and Motivation.

Correlations were also computed between motivation variables and mental health functioning (See Table 8). Youth who experienced greater mental health difficulties were more likely to recognize they have a problem related to their substance use and also reported more internal negative reasons for treatment entry.
Table 8.
*Intercorrelations between Motivation Measures, Internalizing Problems and Externalizing Problems.*

<table>
<thead>
<tr>
<th></th>
<th>Internal Negative</th>
<th>External</th>
<th>Recognition</th>
<th>Taking Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internalizing Problems</td>
<td>.097</td>
<td>.244*</td>
<td>-.071</td>
<td>.233*</td>
</tr>
<tr>
<td>Externalizing Problems</td>
<td>.079</td>
<td>.221*</td>
<td>-.008</td>
<td>.294**</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .001

3.4 Regression Analyses

With the exception of age, preliminary analyses revealed that demographic variables did not significantly contribute to variation in scores on any motivation measure. Because pressure from ‘others’ was largely unrelated to any outcome measure, only the pressure scores for family and friends were used in the regression analyses. Although significant predictor variables differed depending on the type of motivation, they were all included in each regression to maintain consistency between the models and to examine whether the role of specific predictor variables changed in the presence of other significant variables.

3.41 Motivation to Change Regressions.

A linear regression analysis examining the contribution of age, pressure variables (family pressure to reduce substance use, family pressure to enter treatment, friends’ pressure to reduce substance use, friends’ pressure to enter treatment) and mental health functioning (internalizing and externalizing symptoms) to *problem recognition* scores revealed that, taken together, these variables accounted for a significant amount of variance in the model, multiple *R*
= .62, adjusted $R^2 = .32$, $F (7, 78) = 6.83, p < .001$. Of these seven predictors, only age ($\beta = .43, p < .001$) and externalizing difficulties ($\beta = .32, p = .01$) independently accounted for a significant amount of variance in problem recognition (See Table 9).

A second linear regression was conducted to examine the contribution of age, pressure, and mental health variables on taking steps to change substance use. Results indicated that the overall model was significant $R = .44$, adjusted $R^2 = .12$, $F (7, 78) = 2.66, p < .05$, however none of the predictors accounted for significant variance in the model on their own (See Table 9).

Table 9.
Effects of Predictors on Motivation to Change by Analysis

<table>
<thead>
<tr>
<th>SOCRATES Subscale</th>
<th>Predictors</th>
<th>$R$</th>
<th>$F$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition$^a$</td>
<td>Age</td>
<td>.62</td>
<td>6.83***</td>
<td>.43***</td>
</tr>
<tr>
<td></td>
<td>Family Pressure Reduce</td>
<td>.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Pressure Enter</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friend Pressure Reduce$^a$</td>
<td>.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friend Pressure Enter$^a$</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internalizing Symptoms</td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Externalizing Symptoms</td>
<td>.32**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking Steps</td>
<td>Age</td>
<td>.44</td>
<td>2.65*</td>
<td>.16</td>
</tr>
<tr>
<td></td>
<td>Family Pressure Reduce</td>
<td>.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Pressure Enter</td>
<td>-.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friend Pressure Reduce$^a$</td>
<td>.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friend Pressure Enter$^a$</td>
<td>.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internalizing Symptoms</td>
<td>-.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Externalizing Symptoms</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. ***$p < .001$. **$p < .01$. *$p < .05$

$^a$ = transformed variables
3.42 Treatment Motivation Regressions.

Linear regression analyses were conducted examining age, pressure, and mental health functioning on each of the treatment motivation subscales. The regression model was significant in relation to *internal positive treatment motivation*, $R = .62$, adjusted $R^2 = .34$, $F (7, 86) = 7.69$, $p < .001$. Both age ($\beta = .37, p < .001$) and pressure from friends to enter a treatment program ($\beta = .32, p < .05$) made independent contributions to youths’ internal motivation for seeking treatment (See Table 10).

The regression model predicting *internal negative motivation* was also significant, $R = .66$, adjusted $R^2 = .39$, $F (7, 84) = 9.32, p < .001$. However, pressure from friends to enter a treatment program ($\beta = .28, p < .01$) was the only predictor to account individually for significant variance (See Table 10).

A final linear regression was conducted to examine the relationship between predictor variables and *external treatment motivation*; the model was significant, $R = .72$, adjusted $R^2 = .47$, $F (7, 81) = 12.34, p < .001$. Age ($\beta = -.20, p = .01$) and family pressure to enter a treatment program ($\beta = .75, p < .001$) independently accounted for significant amount of variance in external treatment motivation (See Table 10.)

Thus, older youth and those who reported receiving greater pressure from their friends to enter treatment reported greater internal positive treatment motivation. Youth who reported higher levels of pressure to enter treatment from friends also reported higher levels of internal negative treatment motivation. In contrast, younger youth and youth who reported higher levels of pressure from their families to enter a treatment program reported higher levels of external treatment motivation.
Table 10.
Effects of Predictors on Treatment Motivation by Analysis

<table>
<thead>
<tr>
<th>TEQ Subscale</th>
<th>Predictors</th>
<th>R</th>
<th>F</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Positive</td>
<td></td>
<td>.62</td>
<td>7.69***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>.37***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Pressure Reduce</td>
<td>.05</td>
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<td></td>
<td>Family Pressure Enter</td>
<td>-.07</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Friend Pressure Reduce</td>
<td>.16</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Friend Pressure Enter</td>
<td>.33*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internalizing Symptoms</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Externalizing Symptoms</td>
<td>.12</td>
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<td></td>
</tr>
<tr>
<td>Internal Negative</td>
<td></td>
<td>.44</td>
<td>9.33***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Pressure Reduce</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Pressure Enter</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friend Pressure Reduce</td>
<td>.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friend Pressure Enter</td>
<td>.40**</td>
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<td>Internalizing Symptoms</td>
<td>.19</td>
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<tr>
<td></td>
<td>Externalizing Symptoms</td>
<td>.13</td>
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<td>External</td>
<td></td>
<td>.72</td>
<td>12.34***</td>
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<tr>
<td></td>
<td>Age</td>
<td>-.20**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Pressure Reduce</td>
<td>-.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Pressure Enter</td>
<td>.75***</td>
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<tr>
<td></td>
<td>Friend Pressure Reduce</td>
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Note. ***p < .001, **p < .01, *p < .05

a = transformed variables
Discussion

The purpose of the current study was to explore the role of social network pressure on motivation in a sample of emerging adults with substance use concerns. In line with predictions, as age increased, youth were more likely to recognize their substance use as problematic and be internally motivated to seek treatment and less likely to identify external influences as a primary reason for seeking treatment. Also as predicted, family and peer social networks had differentiated relationships with treatment motivation. When all other factors were considered in the regression model, age and pressure from friends to seek treatment accounted for significant variance in internal motivation. Pressure from friends to seek help also accounted for significant variance in internal negative motivation (e.g., shame and guilt surrounding substance use). In contrast, greater pressure from family to seek treatment was related to external motivation whereas age was inversely related to this outcome variable. Contrary to the author’s predictions, neither pressure from family nor peers independently accounted for significant variance in either measure of motivation to change.

4.1 Treatment Motivation

Both motivation to change and motivation to seek treatment have been identified in the addictions literature as important predictors of treatment engagement and positive treatment outcomes (Simpson, Joe, Re, & Rowan-Syal, 1997; Melnick et.al, 1997; Broom et.al, 2001; Battjes et al, 2003; Wild et.al, 2006). The results of this study suggest that friends may play a pivotal role in encouraging youth to enter treatment -- feeling personally motivated to make changes -- and are a key target group for intervention during this developmental stage. Pressure from friends to enter a treatment program remained an important predictor of internal motivation even when other significant variables were considered simultaneously. Friendships
during the transition from adolescence to adulthood are often marked by significant improvements in closeness, reciprocity and intimacy (Bukowski, 2004; Hartup & Stevens, 1997). One explanation for this study’s findings may be that as friends and romantic partners begin to assume a more central position in emerging adults’ lives they may be in a better position to empower their peers to come to terms with their substance use on their own.

In addition to the significant impact that peers may make on positive treatment motivation, they may also be more likely to evoke negative emotions, such as shame and guilt, in youth with substance use concerns. Indeed, peer pressure to enter treatment was a significant predictor of internal negative motivation even when all other variables were considered in the regression model. Although family pressure was correlated with internal negative treatment motivation, it was no longer a significant predictor when peer pressure to seek treatment was considered simultaneously. These findings highlight that pressure from friends may be a greater external force than family pressure on the internal motivational processes responsible for treatment entry. Individuals with greater internal negative motivation have been found to perceive greater costs and benefits of changing substance use (Wild et al., 2006). Contemplation surrounding one’s substance use is an early stage in the motivation and behaviour change process (Prochaska & Dicelmente, 1992) and one that may be indirectly influenced by peers, whose pressures surrounding substance use are internalized by youth.

Although family pressure did not remain an important predictor of internal motivation, family pressure to enter treatment was significantly related to external motivation when all other factors were considered in the model. Thus, the more pressure youth received from their family the more likely they were to believe treatment was sought in response to that pressure (e.g., the level of coercion). One explanation that may account for these results is that not all pressure is
perceived as coercive and pressure from different social networks may be internalized differently by youth. Indeed, in their investigation of 300 clients seeking treatment for substance use, 35% of externally referred clients did not believe they had been coerced into treatment whereas 35% of self-referred clients did (Wild, Newton-Tyloer & B, Aletto, R, 1998). As previously noted, increased autonomy and independent decision-making accompanied by establishing an equal relationship with parents are particularly important characteristics of emerging adult development (Arnett, 2005). Youth often remain somewhat dependent on their parents as they emerge into adulthood prior to establishing equal and reciprocal relationships. Thus, youth may perceive the pressure received from their parents as impeding on their desire to be autonomous. As youth increasingly make decisions on their own and begin to distinguish their own values and beliefs from those of their parents, they may be more likely to interpret pressure that does not align with their values as threatening. In contrast, friendships during emerging adulthood are increasingly based on common values and reciprocity, which may explain why pressure received from friends was more likely to be internalized and impacted internal, rather than external, treatment motivation.

An additional, and not incompatible, explanation is that pressure can come in many different forms (e.g., ranging from mere suggestions to ultimatums) and the level of pressure from family may be both quantitatively and qualitatively greater than pressure from peer groups and, consequently, perceived as more coercive (Polcin & Weisner, 1999). In the current study, 42% of youth identified “a great deal” or “extreme” pressure from their family to enter treatment; only 17% reported similar levels of pressure from their friends. Thus, it may be that pressure from family members, which may occur more often and in more extreme forms than pressure from peers, is genuinely threatening to youth’s autonomy and decision-making
freedom regarding their substance use. For example, parents with youth living at home may exert sanctions such as reducing financial support or other privileges that ultimately cause youth to concede to treatment. Typically, friends are not in a position of power that allows them to exert the same forms of social control (i.e., rewards and punishments) as family members. It is possible that pressure from friends is less coercive in nature, and occurs as expressions of concern or simple suggestions regarding substance use. This type of pressure may be interpreted by youth as genuine concern, particularly when it is expressed from close friends by whom the youth feels respected and supported. Therefore, peers may only be able to influence one another informally by encouraging internalization of values rather than through formal means of social control.

4.2 Motivation to Change

Whereas social network pressures were found to predict youths’ treatment motivation in meaningful ways, they did not have a significant impact on youths’ motivation to change. External pressure did not account for differences in the likelihood that youth recognized their substance use as problematic or begin to take action towards behaviour change. This finding provides additional evidence for treatment motivation and motivation to change as separate constructs (Bellino et.al, 1999; DiClemente et.al, 2004; Freyer et al, 2005). While peer and family pressure can be pivotal forces in determining whether youths seek the help of a treatment program, there are other factors at work that influence their willingness to go through the behaviour change process. Interestingly, with the exception of age, only externalizing symptoms accounted for significant variance in problem recognition when all other factors were considered in the model. This may be explained by an increase in objective negative consequences associated with substance use that are also characteristic of externalizing
difficulties (e.g., legal trouble, arguments, physical fights, financial difficulties) (Achenbach, 2001). Indeed, negative consequences associated with substance use have been identified as important for motivation to change and treatment engagement (Melnick, 1997; Battjes et al, 2003; Breda & Hellfinger, 2004).

Youths’ perception of the negative consequences that accompany substance use may also explain why age was related to motivation. Consistent with previous research on motivation, as age increased, youth were more likely to be internally positively motivated and less likely to be externally coerced into treatment, providing supportive evidence for shifting processes during this developmental period (Melnick et al, 1997; Battjes et al, 2003). In addition, the older the youth the more likely they were to recognize their substance use as problematic. It is possible that older youth are more likely to have used substances for longer, experienced greater negative consequences, and be more likely to make changes. Alternatively, it is possible that as youth age they are more likely to reflect on their own behaviour and view their substance use as hindering their personal goals and autonomy, thus perceiving greater negative consequences associated with substance use. Consequently, these youth are those that enter treatment out of their own accord.

4.3 Limitations and Directions for Future Research

There are several methodological limitations in the present study must be addressed in future investigations. The study’s measure of each type of social network pressure consisted of a single likert-scale item, which may have limited the validity and reliability with which these constructs were measured. Furthermore, because external pressure was measured solely by youths’ self-report, it is unclear whether it is actual pressure from social networks or youths’ sensitivity to that pressure that is predictive of treatment motivation. Future studies should
investigate different kinds of pressure (e.g., frequency and severity of ultimatums, suggestions from family and peer groups) via multi-item measures, ideally administered to multiple informants (e.g., youths’ family members and friends as well as youths themselves) in order to separate actual from perceived pressure. Moreover, it would be beneficial to investigate when the source and type of pressure is perceived as coercive and whether it is this type of pressure rather than non-coercive pressure that accounts for the differences obtained in the present study.

In addition, our study defined peer pressure as pressure exerted from both friendships and romantic partners. Not only do friendships become more primary during emerging adulthood, but romantic relationships become closer as well (Arnett, 2004). It may be that pressure from romantic partners is a more important motivating influence than platonic peer relationships, a hypothesis that should be addressed in a future investigation.

Although in this study we aimed to investigate a broad range of factors affecting motivation, we did not include a measure of negative consequences associated with substance use. Pressure from social networks is one type of negative consequence that youth experience as a result of their substance use. Other personal consequences, such as job loss, medical concerns, financial difficulties, legal trouble, incomplete education, and/or withdrawal symptoms also have an impact on treatment motivation. It is possible that the cumulative negative consequences perceived by youth may be more important than social network pressure in predicting internal positive treatment motivation. Similarly, it may be that older youth who have had problematic substance use for longer also have suffered greater repercussions as a result of use, thus accounting for the differences that we have attributed to age (Melnick et.al, 1997; Breda & Helfinger, 2004). In order to further examine the interpretations suggested by the present results, and to ascertain whether age and pressure predict motivation beyond overall
perceived negative consequences, it will be important to measure youths’ perceptions of consequences associated with substance use.

It is also important to consider the results of the research in light of the highly motivated sample. The majority of youth included in our study indicated that they were internally motivated and fewer identified external reasons for seeking treatment. Similarly, most youth recognized that they had problematic substance use and were taking some steps towards change (e.g., attending treatment is an action towards change). At the time they were recruited, participants had gone through a telephone intake process and several weeks’ lag before attending the orientation session. As such, it is possible that youth who attended the orientation were more highly motivated than those who did not follow through with their scheduled appointments. Moreover, it is logical that the youth in our study were more highly motivated than youth who have problematic substance use but have not contacted a treatment program to address their behaviours. Thus, our sample might not have been representative of a significant number of youth with low motivation, limiting the generalizability of the findings.

Finally, while treatment motivation has been identified as a critical predictor of treatment adherence and success it is not the sole contributing factor. Social network pressure may play a role in treatment engagement beyond its impact on motivation. The behaviour change process is one that requires sustained motivation and is usually not a linear process (Prochaska & DiClemente, 1992). Perhaps external pressure increases the likelihood that youth follow through with the treatment process despite the occurrence of relapses or other setbacks. A longitudinal study that follows youth as they move through the treatment process, engage in treatment, and work towards their substance use goals, would help to clarify the role of social network treatment pressure on the behaviour change process.
4.4 Treatment Implications

Despite the limitations of the present study, it has added to our understanding of the unique needs of emerging adults with substance use concerns and provides evidence for prevention and intervention programs that differentiate this age group from young adolescents and adults. Our study highlighted the important role peers may take in encouraging treatment initiation during this developmental stage. Accordingly, youth should be encouraged to express their concerns to one another about their substance use behaviour. Outreach efforts targeting the general emerging adult population through high school, college and university campus initiatives in addition to multi-media (e.g., subway posters, commercials) that facilitate dialogue among youth may encourage greater numbers to seek treatment for their problematic use.

Moreover, these findings provide additional support for group therapy with same-aged peers as an appropriate intervention for transition aged youth, and in particular for those who believe that they have been coerced into treatment. Group therapy has been found to be as, if not more, effective in reducing substance use in youth (Kaminer, 2005). This type of therapeutic environment can facilitate a supportive peer network that will provide feedback to youth and encourage substance use reduction and treatment retention. It is possible that peer group therapy will lead to greater internalization of the values of therapy and subsequently increase internal motivation. Similarly, the results of our study suggest that group facilitators and/or therapists who are close in age to their emerging adult clients may be particularly effective in increasing motivation and behaviour change. Youth may be more likely to internalize information received from young adult therapists who are able to personally relate to the challenges associated with transitioning to adulthood, thus contributing to a stronger therapeutic alliance.
In addition to peer-based treatments for youth with substance use concerns, our results have implications for interventions aimed at family members as well. Our results suggest that family members should be taught to take an “autonomy supportive” approach when speaking to their youth about their concerning behaviour. Encouraging youth to identify their own struggles and providing them with choice in how they address them would increase the likelihood that youth arrive at treatment programs feeling personally motivated (Pelletier, Tuson, & Haddad, 1997). In addition, family-based interventions could suggest that parents minimize the use of ultimatums and other control tactics on their children in order to decrease their perception of external coercion into treatment.

Finally, our findings suggest the importance of motivational enhancement as a first step therapeutic approach once youth arrive in treatment. Although pressure from social networks may motivate youth to enter treatment, it does not necessarily impact youths’ recognition of their problem and willingness to take action. Motivational enhancement techniques that emphasize internally motivated change are needed to increase youths’ chances of treatment success. Without a personal awareness of their problem, and a belief that treatment is necessary to effect personal change and growth, emerging adults are unlikely to engage in the treatment process, and achieve and maintain their goals surrounding their substance us
References


Beyers, W., & Seiffge, K. (2007). Are friends and romantic partners the “best medicine”? 


people change. New York: Guilford.


Marlowe, D.B., Kirby, K.C., Bonieskie, L.M., Glass, D.J., Dodds, L.D., Husband, S.D., Platt,


Appendix A

Letter of Information and Consent Forms
An Evaluation of the Assessment Protocol, Treatment Participation and Outcomes in the Youth Addiction Service at the Centre for Addiction and Mental Health

CONSENT TO PARTICIPATE

It is important that you read and understand this research consent form. This form provides the information you will need to know in order for you to determine whether you wish to participate in this study. Please ask the researcher any questions you may have, in order to ensure complete clarification on what this study entails.

Title of Research Study
An Evaluation of the Assessment Protocol, Treatment Participation and Outcomes in the Youth Addiction Service

Principal Investigator
Joanna Henderson, Ph.D., C.Psych.
Youth Addiction Service, Child, Youth, and Family Program,
Centre for Addiction and Mental Health
416-535-8501, x 4959

Purpose of the Study: The goals of this study are to evaluate the usefulness of the assessment tools currently used by the Youth Addictions Service (YAS), to help us better understand factors affecting treatment participation, and to help us evaluate how these aspects of service (initial assessment and treatment participation) are related to later substance use and mental health concerns. It is hoped that the results of this study will help the Youth Addictions Service to better meet the needs of youth with substance use issues.

Description of the Study: As part of routine service at YAS, you undergo an initial assessment, during which you are interviewed and complete a number of questionnaires about mental health and addiction issues. In addition, as part of routine service at YAS, information about your participation in various treatment services is documented by the clinicians involved in your care. All of the information gathered through these processes is part of normal clinical procedures at YAS. For this study, we are asking for your consent to use this information for research purposes.

In addition to asking for your consent to use the information gathered for routine clinical purposes for research purposes, we are asking for your consent to re-contact you in 4 months. At that time you will be asked to complete the questionnaires that you completed as part of your initial assessment at YAS. This assessment is not currently part of routine care at YAS but YAS services will be made available to address any clinical issues that arise during this follow-up assessment. Please note, you
may choose to allow us to use your clinical data (Part 1), but not participate in the follow-up study (Part 2).

**Risks:** Completing questionnaires may be stressful to some people. Some people may find it difficult to answer questions about their problems. Others may find this a useful way to express some of their feelings and gain helpful information. If you feel extreme discomfort during an assessment, a clinician will be available to help.

**Benefits:** Your participation in this study is important in order to increase our understanding of assessing and addressing substance use in youth populations. This research may or may not be of benefit to you directly but may be of benefit to future persons seeking services at YAS and it will help YAS plan services in the future.

**Voluntary Participation and Withdrawal:** Your participation in this study is completely voluntary and you may refuse to join the study or withdraw from it at any time. Your decision to accept or refuse to participate in the study will in no way affect your current services at the Centre for Addiction and Mental Health or your access to future services here.

**Confidentiality and Privacy:** Your identity will remain confidential to the full extent of the law. Your name or any personal identifier will not be used in reports or publications arising from this study. You will be assigned a code number. Data stored in the computer will be traceable by your personal identification code and your name will not be used. Your data will be stored in a locked room and only the research and clinical staff involved with this research study will have access to it. If information is to be exchanged with other mental health professionals for case management or research needs, you will be asked to sign a separate release of information form. If you refuse, information will not be released.

Please be advised that if you are believed to be at an acute risk of self-harm, based upon your responses, then steps will be taken to ensure your safety, including dissolving confidentiality, and enlisting appropriate medical assistance, such as your family doctor, or appropriate mental health professionals.

As part of continuing review of the research, your study records may be assessed on behalf of the Research Ethics Board and, if applicable, by the Health Canada Therapeutic Products Programme. A person from the research ethics team may contact you (if your contact information is available) to ask you questions about the research study and your consent to participate. The person assessing your file or contacting you, must maintain your confidentiality to the extent permitted by law.

**Additional Information:** If you have any questions about the study that are not answered in this Information Sheet, please ask them. In addition, if you have questions in the future you may contact the study investigator at the telephone number given on the first page. You may also contact Dr. Padraig Darby, Chair, Research Ethics Board, Centre for Addiction and Mental Health, at (416) 535-8501 ext. 6876 to discuss your rights as a clinical research participant.
CONSENT TO PARTICIPATE

Part 1: I, ________________________________, have read (or had read to me) the Information Sheet for the study named ‘An Evaluation of the Assessment Protocol, Treatment Participation and Outcomes in the Youth Addiction Service.’ I have been informed that the purposes of this part of the study are to evaluate the usefulness of the assessment tools currently used by the Youth Addictions Service (YAS) and to aid in understanding the factors affecting treatment participation. I have been informed that my role as a participant in this part of the study is to allow investigators to use information collected for clinical purposes for research purposes.

Part 2: I understand that a second part of the study involves a four-month follow-up, during which I will be asked to complete the same clinical assessment tools again. This is not currently part of routine care at YAS, but YAS services will be made available if any concerns become apparent during the follow-up assessment. The purpose of this part of the study is to examine how initial assessment information and treatment participation are related to later substance use and mental health concerns. I have been informed that my role as a participant in this part of the study is to provide information during the follow-up phase of the study.

This study may or may not be useful in designing better ways to help youth with substance abuse concerns in the future. My questions, if any, have been answered to my satisfaction, so that I now have been informed of the procedures to be followed in the study, the risks to me from participation, and my right to the confidential treatment of information that is collected about me.

I consent to participate in _____ (initial) Part 1   and  _____ (initial) Part 2 (follow-up).

Research Participant:

Signature: __________________________________________

Date: ______________________________________________________________________

Print Name: _________________________________________

Witness: (Required if participant cannot read the consent form)

Signature: __________________________________________

Date: ______________________________________________________________________

Print Name: _________________________________________

Person Obtaining Consent:

Signature: __________________________________________

Date: _____________________ Title: ______________________

Print Name: _________________________________________
CONSENT TO FOLLOW-UP

1. By providing the following contact information, this is my authorization to be contacted by a research team member for scheduling purposes, data collection purposes, to confirm my contact information, and to book an assessment appointment:

Contact me at:

Home: (   ) - _____ - ______ (9am – 5pm)  
          (5pm – 9pm)

Cell: (   ) - _____ - ______ (9am – 5pm)  
      (5pm – 9pm)

Work: (   ) - _____ - ______ (9am – 5pm)   
      (5pm – 9pm)

Email: ______________________________

Address: __________________________________________________________

Postal Code

Street  City  Province

Best way to reach you:  Phone  Mail  Other
If other, please specify: ____________________________

Best time to reach you:  Home  Work  Cell  No preference

Time, day

The research team member should ask for __________________

Name or nickname client commonly uses including Jr. or Sr., if applicable

If I am not available, the research team member may leave a message with someone else at:

Home:  Yes  No  N/A
Work:  Yes  No  N/A
Cell:  Yes  No  N/A

If I am not available, the research team member may leave a message on my answering machine or voice mail at:

Home:  Yes  No  N/A
Work:  Yes  No  N/A
Cell:  Yes  No  N/A

When leaving a message with someone or using my answering machine or voice mail, the research team member may be identified as phoning from the Centre for Addiction and Mental Health, at:

Home:  Yes  No  N/A
Work:  Yes  No  N/A
Cell:  Yes  No  N/A
1. By providing the names, addresses, and telephone numbers of two people listed below, I am authorizing a research team member to contact them solely to request information on my whereabouts:

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<th>First name</th>
<th>Initial</th>
<th>Last Name</th>
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</thead>
<tbody>
<tr>
<td>Address: ____________________________________________</td>
<td>Number</td>
<td>Street</td>
<td>Apt/Unit #</td>
</tr>
<tr>
<td>City</td>
<td>Province</td>
<td>Postal Code</td>
<td></td>
</tr>
<tr>
<td>Telephone: (<strong><strong>) (</strong></strong>) (____)</td>
<td>Home</td>
<td>Work</td>
<td>Cell</td>
</tr>
<tr>
<td>Relationship to me: ____________________________</td>
<td>Best time to call: ____________________________</td>
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</table>

<table>
<thead>
<tr>
<th>Contact #2 Name: ____________________________</th>
<th>First name</th>
<th>Initial</th>
<th>Last Name</th>
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<td>Address: ____________________________________________</td>
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<td>Apt/Unit #</td>
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<td>City</td>
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<td>Postal Code</td>
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<tr>
<td>Telephone: (<strong><strong>) (</strong></strong>) (____)</td>
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<td>Work</td>
<td>Cell</td>
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<tr>
<td>Relationship to me: ____________________________</td>
<td>Best time to call: ____________________________</td>
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</table>

2. I have the right to withdraw my permission these people at any time.
3. I understand that all calls will be ‘call blocked’ or the display will read ‘Private Call’.
4. I have been advised that I will be given a copy of this signed consent form.
5. I have been advised that I can contact Dr. Joanna Henderson, Principal Investigator, at (416) 535-8501 ext. 4959 to answer any questions I may have about this study.
6. I have been advised that I can contact Dr. Padraig Darby, Chair, Research Ethics Board, Centre for Addiction and Mental Health at (416) 535-8501 ext. 6876 to discuss my rights.

<table>
<thead>
<tr>
<th>Participant’s Name</th>
<th>Participant’s Signature</th>
<th>Date</th>
</tr>
</thead>
</table>
The following section is to be completed by the research team member who obtains consent:

The consent form was reviewed out loud and also read by _______________________, who has

Participant's name

Informed me that he/she carefully considered and understood and agreed to each point above.

**Person obtaining Consent**

Signature: __________________________________________

Date: ______________________________________________

Print Name: ___________________________

Title: ______________________________________________
CONSENT TO FOLLOW-UP FOR FUTURE RESEARCH

By signing this form, I grant permission to be contacted by a member of the research team regarding future research opportunities, for instance, for the purpose of being interviewed regarding my experiences going through the current study, or for the purposes of being informed about a future treatment study. Your consent can be withdrawn at any time.

I, __________________________ grant permission to the ‘An Evaluation of the Assessment Protocol, Treatment Participation and Outcomes in the Youth Addiction Service’ project team to contact me regarding my potential involvement in future research studies.

Research Participant:

Signature: __________________________________________
Date: ______________________________________________
Print Name: _________________________________________

Witness: (Required if participant cannot read the consent form)

Signature: __________________________________________
Date: ______________________________________________
Print Name: _________________________________________

Person Obtaining Consent:

Signature: __________________________________________
Date: ______________________________________________
Print Name: _________________________________________
Title: ______________________________________________