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**A COGNITIVE BEHAVIOURAL INTERVENTION
FOR PROBLEMATIC SUBSTANCE USE IN
ADOLESCENCE: A PILOT STUDY**

A thesis presented in partial fulfilment of the
requirements for the degree of
Master of Arts in Psychology
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ABSTRACT

Experimentation with substance use in adolescence is common, yet there is often concern when it appears to become more than experimentation. New Zealand youth, in particular, have some of the highest rates of substance abuse in the Western world. The main goal of this study was to determine if a brief manualised integration of cognitive behavioural therapy and motivational interviewing for adolescents was effective in reducing the harm caused by problematic substance use. The aim of the intervention was to reduce current and future difficulties with AOD use for adolescents. Four individual case studies and within subject comparisons were used to measure the effectiveness of this intervention in an educational setting. A battery of psychometric measures were used, including a structured diagnostic interview. Results indicated improvements in motivation and coping skills, and some short term reduction in substance use. Research issues are discussed, including the applicability of the DSM-IV criteria for substance use disorders in adolescence, and our understanding of 'risk'. The current study highlights the need for adolescent substance use interventions to be holistic and systemic in nature to successfully reduce substance related harm. The limitations of the current study are also discussed.

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1. CHAPTER ONE: INTRODUCTION

1.1 ADOLESCENCE

Adolescence is usually referred to as the period between puberty and adulthood and is characterised by various markers. Two significant markers indicating the beginnings of adolescence have been identified as puberty and starting secondary school (McLaren, 2002). Although not completely reliable, with puberty now occurring earlier and earlier in the Western world and not all young people reaching secondary school (McLaren, 2002), it is generally accepted that these are signs that a young person has moved, or is moving into, the period known as adolescence.

Adolescence has been referred to as a period of considerable physical and psychological change (Pagliaro & Pagliaro, 1996). Changes occur in physical appearance and functioning, thinking skills, morality, and the understanding of human motivation improves or becomes more complex (McLaren, 2002). Young people spend more time with their peers and become more independent and autonomous. They spend less time with their families who have previously been the most important people in their lives (McLaren, 2002).

It has also been identified that there are various challenges or crucial stage salient tasks that must be achieved for an adolescent to successfully transition into adulthood (Cicchetti & Rogosch, 2002). Key tasks identified include, but are not limited to: coping with physical and sexual development (McLaren, 2002), including consolidation of sexual identity and dealing with issues such as sexual orientation (Pagliaro & Pagliaro, 1996); mastering more complex thinking; establishing emotional, financial (McLaren, 2002), and psychological independence (Masten & Coatsworth, 1998); developing a cohesive individual sense of identity (McLaren, 2002; Masten & Coatsworth, 1998); learning to relate differently to parents and peers (McLaren, 2002), including developing close friendships within and across gender; successful transition to secondary school; and academic achievement (Masten & Coatsworth, 1998). Understandably it has been stated that “the transition from adolescence to adulthood is

one of the most critical of normative life transitions because it typically involves "pervasive and often simultaneous contextual and social role changes" (Schulenberg, Sameroff, & Cicchetti, 2004, p.799).

Given such extensive change it is no surprise that this time of transition is a source of some anxiety and stress for the adolescent, and for their family. At a time that the adolescent is struggling to become independent, parents and social institutions are often struggling to let go of the perception of the adolescent as a child. This often increases the potential for the adolescent to experience both internal and external conflict (Cicchetti & Rogosch, 2002). In the past some of the serious problems that were exhibited by some adolescents have been generalised as the normative experience of all adolescents. Although this is not the case, and most adolescents will successfully cope with developmental demands, it is accepted that adolescence does tend to generate more turmoil than both childhood and adulthood (Cicchetti & Rogosch, 2002). Arnett (1999) has identified three features that are characteristic of this turmoil: mood disruptions, risk behaviours, and conflict with parents. It is noted that these are behaviours that are often associated with internalising and externalising disorders, and as these are heightened during adolescence it becomes increasingly difficult to differentiate between normal and abnormal adolescent behaviour. It has also been found that if, in the adolescents transition to adulthood they fail to find happiness, developmental problems will prevail. These problems include: delinquency; eating disorders; parental conflict; truancy; dropping out of school; sexual promiscuity including increased risk of pregnancy and sexually transmitted infections; and various patterns of substance use (Pagliaro & Pagliaro, 1996). The question remains which behaviours are associated with the normative struggles of adolescence and which might indicate psychopathology. There is now also an increasing length of time that a young person is considered to be an adolescent; the boundaries are being blurred by less standardised normative sequences of adulthood markers (Schulenberg, Sameroff, & Cicchetti, 2004). Longer periods of study, less full time employment at a younger age, and marriage occurring later in life, all often result in a young person spending longer living at home, or being reliant on their parents for support. This often means that an adolescent is spending more time in transition, as they haven't yet achieved some of the identified tasks of the adolescent-adulthood transition.

The experience of adolescence varies greatly, and is by no means standard. Like all experiences it has to be noted that "the transition to adulthood is embedded in a

sociocultural context, and therefore may vary in occurrence, context, and meaning by gender, socioeconomic background, culture, and historical period” (Schulenberg, Sameroff, & Cicchetti, 2004, p.801).

Where adolescence is marked as a time young people begin to engage in an exploration of what it means to be adolescent, one such sociocultural context centres on substance use. However, what behaviours constitute normal adolescent exploration, and what behaviours indicate risk of pathology?

Substance use in adolescence is common, and is often explained as being only experimentation, or, at the other extreme, the young person is labelled with a substance use disorder. Substance use in adolescence is often far more complex than what these two explanations are able to offer. Although the majority of young people will use substances, and most will not develop problems relating to this use, some will. The current study attempts to provide adolescents who are currently experiencing, or are at risk of developing problematic substance use with the information and skills needed to minimise the impact of their substance use on their lives.

1.2 A BRIEF OVERVIEW OF SUBSTANCE USE IN NEW ZEALAND

1.21 ALCOHOL

Alcohol continues to be the most frequently used substance of use in New Zealand. It is estimated that the direct cost of alcohol abuse in New Zealand is between \$341 and \$589 million, with indirect costs estimated to be in the billions (Devlin, Schuffman, & Bunt, 1997). A national survey of drug use in New Zealand was conducted in 1998 (Field & Casswell, 1999). The sample consisted of 5475 people aged 15-45 years old. Alcohol was found to be the most commonly used substance. 90% of males and 85% of females had tried alcohol, and only a very small proportion of these people had not used alcohol in the last 12 months. The 2001 National Drug Use Survey (Wilkins, Casswell, Bhatta & Pledger, 2002) involved approximately 5500 people aged 15-45 years old. Of these participants, 85% had used alcohol in the last 12 months and 42% had started drinking by the time they were 15 years old. One in three males and one in five females reported heavy drinking (for males 6 or more and for females 4 or more drinks in one sitting at least weekly). The 2003 ALAC Youth Drinking Monitor

(Kalafatelis, McMillen, & Palmer, 2003) reported that in New Zealand 66% of 14-17 year olds currently drink alcohol and 20% are currently drinking at least once a week. A recent study in New Zealand investigated the reasons why people drink (McMillen, Kalafatelis, & de Bonnaire, 2003). Common reasons for adults (aged 18 years +) drinking included increased confidence, feeling happier, and the effects of alcohol making it easier to meet and get to know people. 45% of adults claimed that they drink because they “enjoy the buzz” (p.8), and 68% claimed that it helps them to wind down and relax. 8% of adults reported that they drink to get drunk, and 7% reported that they drink to escape reality. The same study investigated the alcohol use of 12-17 year olds. Of those surveyed, 70% reported that getting hold of alcohol was not a problem and 24% reported that they could afford as much alcohol as they wanted. One in three of the 12-17 year olds reported that they made no effort to limit their drinking. 30% reported that they make no effort to try to stop themselves from drinking so much that they don’t know what they were doing or what happened while they were drinking (McMillen et al, 2003).

The National Alcohol Strategy 2000-2003 (ALAC & MOH, 2001) indicated that between 1988 and 1996 there were between 130-150 deaths each year that were from alcohol-related conditions. It was also estimated that alcohol-related conditions accounted for 3.1% of male and 1.4% of female deaths in New Zealand. This same study also found that approximately one in five people in New Zealand will meet criteria for alcohol abuse or dependence during the course of their lives. It was also estimated that there are up to 360 births per year of children who will suffer from foetal alcohol effects due to their mothers drinking during pregnancy (ALAC & MOH, 2001). In the year December 1998-1999 drivers who had been drinking contributed to 23% of fatal motor vehicle accidents and 14% of all injury motor vehicle accidents (LTSA, 2000). Given these effects, alcohol has been rated as the substance of most serious community concern by those aged 20 years and over (Wilkins, Casswell, Bhatta, & Pledger, 2002).

1.22 CANNABIS

Cannabis is the third most frequently used substance in New Zealand, following alcohol and tobacco, and is the most widely used illegal substance (Public Health Group, 1996). In a 2001 national survey (Wilkins, Casswell, Bhatta, & Pledger, 2002) it was found that 52% of 15-45 year olds reported they had tried cannabis, and 15% were described

as current users. Of the 15-17 year olds 15% reported cannabis use in the last month, and 4% reported frequent use in the last month. At 15 years old 30% of those that had tried cannabis had started using it regularly. It has also been suggested that there has been a substantial increase in cannabis use by 18 years old, with as many as 45% reporting that they had used cannabis in the last year (Public Health Group, 1996). It was also found that use was highest in the 18-24 year old age group.

Another survey of cannabis users conducted by Black and Casswell (1993) found that most users reported not having any problems due to cannabis use. However those that were frequent users reported more cannabis related problems. The most common problems were: trouble with the law (14%); memory loss (10%); financial problems (10%); loss of motivation or energy (9%); and general physical health problems (7%). Furthermore, it has been found that frequent cannabis use among 15 year olds is linked to mental health problems, particularly alcohol use and behaviours typical of Conduct Disorder: truancy; lying; stealing; and some aggressive behaviour (Public Health Group, 1996). Cannabis was rated as the substance of most serious community concern by those aged less than 20 years old (Wilkins, Casswell, Bhatta, & Pledger, 2002).

1.23 OTHER DRUGS

The National Drug Use Survey, 2001 (Wilkins, Casswell, Bhatta, & Pledger, 2002) reports that of the approximately 5500 15-45 year olds surveyed 25% reported using an illicit drug, other than cannabis, at some time in their lifetime. Results showed that 5.4% of respondents had tried ecstasy, 12% had tried stimulants, and 15% had tried hallucinogens. 2.3% were described as current users of ecstasy, and 3.5% as current users of stimulants. 18% of respondents reported that they had tried 3 or more illegal substances.

Due to the current public interest in statistics relating to amphetamine, in particular pure methamphetamine or 'P' use, a reanalysis of the results of the 2001 National Drug Survey was conducted (Wilkins et al, 2004; Wilkins et al, 2005). It was reported that 6% of those surveyed had used amphetamine type stimulants (ATS, which includes methamphetamine, pure methamphetamine, and ecstasy) in the previous year, the population equivalent of 114, 000 people; and that just over 1% of New Zealanders are frequent ATS users. It was also reported that about 3% of ATS users and that 21% of frequent 'P' users had used a needle to inject drugs in the last year (Wilkins et al, 2005).

Rates of ATS use by 18-29 year olds in the last year has been reported to be as high as one in ten, and it is believed that use by 15-19 year olds in New Zealand may be higher than in Australia (Wilkins et al, 2004), which has been reported to have the highest levels of ecstasy abuse in the world, and methamphetamine abuse rates second only to Thailand (United Nations Office on Drugs and Crime, 2003).

1.3 ADOLESCENT SUBSTANCE USE

Adolescence is a period characterised by an increase in risk taking behaviour and this often includes experimentation with alcohol and other substance use. However, the sociocultural context of this experimentation has changed over time. Young people today grow up in a world where it is seen as acceptable and normal to take a pill for headaches, high cholesterol, or weight loss. Medication is available for almost every known ailment of the human condition, and medical procedures to change our appearance are becoming common place. Advertising often encourages young people to use medication as a solution to a problem. However, it is still seen as morally and socially wrong for young people to want to experiment with altering their state of consciousness. In a society that clearly encourages the use of legal drugs, and there are illegal drugs widely available and used, adolescents must find it extremely difficult to understand the policy of 'saying no to drugs', when clearly we do not (Pagliaro & Pagliaro, 1996).

Most adolescents will experiment with alcohol at some time before they finish high school, and the majority will get drunk at least once (Steinberg & Morris, 2001). It is widely recognised that experimentation with alcohol is normal part of adolescent development, and that this does not generally result in negative consequences (Bonomo, et al., 2001). Research has found that only a small subgroup of adolescents show a strong, upward trend in their intensity of substance use, whereas most adolescent users engage only in minimal experimentation with substances (Zapert, Snow, & Tebes, 2002). A study conducted by Shedler and Block (1990) followed 101 subjects from the age of 3-18 years. A drug use assessment at the age of 18 years categorised participants as abstainers, experimenters, or frequent drug users. Consistent with expectations, frequent users were found to be "relatively insecure, unable to form healthy relationships, and emotionally distressed as children" (p.624). These characteristics

were found to precede drug use. However, contrary to expectations, abstainers were found to be “anxious, emotionally constricted, and lacking in social skills” (p.624). Both abstainers and frequent users showed poor health, yet experimenters were relatively healthy. It was found that “in the case of experimenters, drug use appears to reflect age appropriate, and developmentally understandable, experimentation” (Shedler & Block, 1990 pg. 627). So, although most young people will only experiment with substance use, a few of these young people will experience on-going negative consequences as a result of their use, and some will develop serious substance use problems (Steinberg & Morris, 2001; Zapert, Snow & Tebes, 2002).

Substance abuse is an international issue, and worldwide adolescent substance abuse has been of concern for some time now, and the concern continues to increase. New Zealand youth, in particular, have some of the highest rates of drug and alcohol abuse in the western world (Watson, 2001). So, how many young people use substances, how often, and why? And if they do use substances, as most do, how ‘at risk’ are they of their use becoming problematic?

1.31 PREVALENCE OF SUBSTANCE USE IN ADOLESCENCE

In the Drugs in New Zealand National Survey (Field & Casswell, 1999) about 17% of females and 21% of males aged 15-17 years reported smoking one or more cigarettes a day. This increases to about 33% of both males and females in the 18-19 year old age group. By 19 years old over 60% of males and almost 50% of females have tried marijuana, and of those surveyed almost 50% of males and 35% of females 18-19 years old had used marijuana in the last 12 months. Approximately 18% of males and 10% of females aged 15-17 years described themselves as current users of marijuana; this increased to 35 % of males and 18% of females in the 18-19 year old age group. The survey also showed that approximately 12% of 15-17 year old and 28% of 18-19 year old males reported use of another drug (excluding alcohol, tobacco, and marijuana). About 6% of 15-17 year old and 14% of 18-19 year old females also reported this.

In the 2001 ALAC Youth Drinking Monitor (Kalafatelis & Fryer, 2001) 79% of 14-17 year olds claimed to be current drinkers and 44% were categorised as “heavier drinkers (using ALAC’s definition of five or more glasses for risky drinking)” (pg. 22). Furthermore 42% of the 14-17 year olds claimed that they had “really started drinking” when they were under the age of 15 years. Of the current drinkers 40% claimed that

they had participated in risky drinking (five or more glasses on one occasion) at least once in the last two weeks.

The 2003 ALAC Youth Drinking Monitor (Kalafatelis, McMillen, & Palmer, 2003) was expanded to include the 12-13 year old age group, possibly a recognition that adolescents are beginning to start drinking earlier. It was reported that 66% of the 14-17 year olds surveyed were current drinkers, and 20% were drinking at least once per week. 20% of the 14-17 year old respondents had engaged in at least one episode of 'risky' drinking in the two weeks prior to the survey, and 25% were classified as 'heavier drinkers'. 28% of the 14-17 year olds reported that they had begun drinking 'more than the occasional sip' of alcohol before they were 14 years old. Results for the 12-13 year old age group were reported separately. 69% of the 12-13 year olds surveyed reported that they had tried alcohol. Of the 12-13 year olds that reported that they had consumed more than a 'full glass' of alcohol, 92% claimed that they were current drinkers (Kalafatelis, McMillen, & Palmer, 2003).

The 2001 National Drug Use Survey (Wilkins, Casswell, Bhatta, & Pledger, 2002) reported that 15% of 15-17 year olds had used cannabis in the month prior to the survey, 4% were also found to be frequent (10+ uses in past month) users. 6% of 15-17 year olds reported that they had used stimulants in the last year, 5.3% reported that they had used either amphetamines or methamphetamine.

In Britain it has been suggested that adolescent substance misuse is escalating (Swadi, 2000). In the USA researchers report that adolescent substance abuse remains "a major health and safety problem" (Monti, Colby, & O'Leary, 2001, p.1). One of the most recent national surveys of the USA, Monitoring the Future (Johnston, O'Malley, & Bachman, 1999) reported that 80% of senior high school students had consumed alcohol, and that over half of those had done so by the time they were in the 8th grade. It was also reported that 65% of senior students had tried smoking cigarettes, and 35% described themselves as current smokers. 38% of senior high school students reported that they had used marijuana in the previous 12 months. Another study conducted in the United States reported that 73.9% of high school students reported that they had engaged in binge drinking (Wechsler, Lee, Kuo, & Lee, 2000). Approximately 50% of secondary school students in the United States indicate that they have used marijuana (Van den Bree & Pickworth, 2005). These statistics support a possible increase in adolescent substance use, and indicate use from an earlier age, supporting the idea that adolescence is a broader category (12-25 years) in the Western world.

1.32 FUNCTIONALITY OF SUBSTANCE USE

So why do adolescents use substances? “It is generally accepted that the best predictor of experimentation with both illicit and licit substances by young people is being young” according to Howard (1997, p.18). However, contrary to the common perception that substance use by young people is for mindless or psychological reasons, many young people use various substances for functional reasons. Surveys conducted in both developed and developing countries cite various reasons for substance use, including boredom, curiosity, and wanting to feel good (or better) (Howard, 1997). Other functions of substance use that have been identified include: relief of hunger; taking a rebellious stance; peer/social acceptance; relief of pain; to keep awake or get to sleep; and to dream. Often, it appears that substance use is seen by young people as a solution rather than a problem (Howard, 1997).

Research has indicated that young people see substance use quite differently from how is commonly perceived. It is often suggested that adolescent substance use is all about risk-taking and rebelling against society. However, research has suggested that adolescent approaches to their substance use are very matter-of-fact and rational, and that young people often view drugs as consumer goods, and view drug use as an integral part of youth culture (Allen & Clarke, 2003). Further research found that substance users generally considered five individual-level influences when considering their substance use: the function of the substance, their own expectations about its effects, their physical or psychological state, their commitments, and any personal boundaries that they may have. Further social and contextual influences were identified, including the environment, availability, finance, friends/peers, and media (Boys et al., 1999).

Very little research has been conducted looking at the reasons for substance use by New Zealand’s young people. However, in a survey conducted by the Ministry of Youth Affairs (2003) young people identified controlling moods and establishing friendships as two of the main reasons for substance use. Research conducted through focus groups identified a wider range of reasons including: identity formation; risk taking; challenging parents; stress management; weight control; increasing self esteem; being accepted by peers; and establishing a sense of belonging (MOYA, 2003).

It appears that there are a variety of reasons for adolescent substance use, and that the possible reasons for use are socioculturally and psychologically diverse. Substances are not used just for reasons that are specific to the drug, nor are they necessarily used for pathological reasons, as is often believed. Substances are used by different people for different reasons, at different times (Thomas, Nicholson, Duncan, & White, 2002). These trends suggest that further research is necessary to establish which of these contextual factors are more likely to increase psychological 'risk'.

1.33 DEVELOPMENTAL MODELS OF ADOLESCENT SUBSTANCE USE

There are several models that have linked the transition of adolescence with the increased risk of substance use. Five of the relevant models are briefly discussed in this section.

1.33.1 The Overload Model

The overload model focuses on the period of adolescence being a time of time of numerous transitions, many of which occur simultaneously and in a short period of time. Because of this, the adolescent may struggle to cope using their usual strategies, and may become overwhelmed. This may result in the adolescent seeking alternative coping strategies, and substance use may be one of these (Damphousse & Kaplan, 1998).

1.33.2 The Developmental Mismatch Model

The developmental mismatch model suggests that health opportunities and health risks, such as substance use, depend on the developmental match of individuals and their contexts (Eccles et al, 1993; Schulenberg et al, 2001). In this model adolescent's health behaviour is affected by the match of their developmental stage and their environment. If an adolescent's need for independence and self-expression is not catered for by their current context, such as their home or school environment, the adolescent may seek alternative means to gain independence, and substance use may be one of those means. Alternatively, if an adolescent's environment is suited to their developmental needs they are more likely to take advantage of opportunities to increase their wellbeing (Schulenberg et al., 2001).

1.33.3 The Increased Heterogeneity Model

The increased heterogeneity model views developmental transitions as moderators of health risk (Schulenberg et al. 2001). This model suggests that developmental transitions increase interindividual variability in functioning and adjustment. Studies

have shown that there is an increase in diversity during adolescence, and the gap widens between those who can cope effectively with the changes that occur in adolescence and those that can not (Kazdin, 1993; Schulenberg et al., 2001).

1.33.4 The Transition Catalyst Model

According to the transition catalyst model risk taking and substance use are important in negotiating the developmental transition of adolescence (Schulenberg et al., 2001). Research supports the idea that adolescent risk taking is normal, with high prevalence rates and evidence that risk taking, including experimentation with substance use, is part of healthy personality development (Shedler & Block, 1990; Schulenberg et al., 2001). Numerous studies have suggested that adolescent risk taking can be both constructive and destructive in adolescent health and development (Schulenberg et al., 2001). This model is also supported by Erikson's (1950, 1968, cited in Schulenberg et al., 2001) psychosocial theory of life course development, for which adolescent's experiment with alternative identities, some of which may include risk taking and substance use, in their struggle to develop their own cohesive sense of identity. Failure to explore all of their possible options may result in premature identity foreclosure (Schulenberg et al., 2001). Research has also suggested that attempts to completely eliminate adolescent risk taking in adolescence may have adverse consequences for their identity formation (Schulenberg et al., 2001).

1.33.5 The Heightened Vulnerability to Chance Events Model

The heightened vulnerability to chance model is based on the premise that at certain times in the lifespan people are more vulnerable to the effects of chance encounters or events (Schulenberg et al., 2001). Specifically, young people going through the transitions of adolescence may be more open to novel experiences, and that these chance events may take on special significance. This model suggests that just as young people are more open to novel experiences due to this transition period, they are also more vulnerable to both the positive and negative consequences of the experience (Schulenberg et al., 2001).

It is likely that each of these models can be useful in understanding the developmental context of adolescent drug use.

1.34 THE NEGATIVE RESULTS OF SUBSTANCE USE IN ADOLESCENCE

Although the majority of young people will only experiment with substance use, and will not experience any detrimental effects, there are the few that will suffer negative consequences as a result of their substance use. Adolescent substance use may be linked to immediate dangers, such as accidents and violence, as well as more long-term consequences. So, while substance *use* in adolescence has been found to have few long-term detrimental effects on mental health (Thomas, Nicholson, Duncan, & White, 2002), substance *abuse*, has been linked to higher prevalence rates of psychopathology (Myers, et al., 2001).

Adolescent substance misuse/abuse has been linked to an increase in risk of alcohol dependence in adulthood (Monti, Colby, & O'Leary, 2001), earlier sexual maturation and activity (Brown & Lourie, 2001) and risky sexual behaviour with an increased chance of contracting HIV (Weinberg et al., 1998), increased risk of dropping out of school, and living independently from parents or guardians prematurely (Ferguson, Horwood, & Lynskey, 1994; Monti, Colby, & O'Leary, 2001). Marijuana use has been associated with lack of motivation; greater involvement with and inability to quit other substances; psychiatric problems, including depression, schizophrenia, anxiety, suicide, conduct problems, antisocial behaviour and criminal behaviour; and a reduction in chances for participation and stability in adult roles (Van den Bree & Pickworth, 2005). For a significant subgroup drug use clusters with delinquency, early sexual behaviour, and pregnancy (Weinberg et al., 1998). Long-term effects of frequent substance use include neurobehavioral and cognitive problems, and respiratory problems in adulthood (Schiffman, 2004).

It has been estimated that each year in Australia alcohol-related injuries result in over 1600 deaths and more than 60 000 hospitalisations in males aged 15-29 years (Bonomo, et al., 2001). New Zealand research has identified associations between alcohol abuse, psychiatric morbidity (depression, anxiety, and suicidal behaviour) and early on-set sexual activity (Lynskey & Fergusson, 1993) and in 2001 there were 2618 stand-downs and 1800 suspensions from New Zealand schools that were for substance use (drugs, alcohol, and tobacco) (Drugs in Schools: Discussion Document, 2002).

Because of the possible consequences of adolescent substance use it is important to provide interventions for adolescents that are experiencing, or are at risk of, problematic

substance use. The current study utilises a programme designed to intervene with a sample of those young people that are already using substances problematically. This programme also holds promise as a targeted prevention programme for those young people at risk of problematic substance use. Research on adolescent substance use over the last decade has focused on identifying the risk and protective factors involved. The following section outlines these in more detail.

1.4 AETIOLOGY

Substance abuse is a heterogeneous phenomenon, with diverse drugs, patterns, and aetiologies. Recent research on adolescent substance use disorders has focused on risk and protective factors and multiple etiological pathways. Although adolescent drug use appears to be more a function of social and peer factors, adolescent substance abuse and dependence appears to be more related to biological and psychological processes (Weinberg et al, 1998). Pathways for young people who develop patterns of regular and problematic or harmful use appear to differ from those who merely experiment or maintain irregular use (Howard, 1997). Adolescent substance abuse appears to be a result of multiple factors that suggest biological and psychological processes also impact on sociocultural, intrapersonal, and developmental processes that are specific to adolescence.

1.41 RISK FACTORS

For the last twenty years, research into adolescent substance use has focused on risk and protective factors for substance use, abuse, and dependence. Generally, there has been a consensus that when there are certain factors present in a young person's life, the risk of substance use, abuse, or dependence may be increased. The following is an overview of the most commonly identified risk factors for adolescent substance use, abuse, and dependence.

- Laws, restrictions and availability

Research has shown that community norms that are favourable to drug use predict higher levels of adolescent substance use and abuse (Beyers et al., 2004). Historical studies have linked laws dictating the minimum drinking age and increases, or decreases in adolescent drinking and driving and motor vehicle accident fatalities. The

availability of alcohol and other substances is also linked to increases in use, even after controlling for the amount of money available, and individual characteristics of participants (Hawkins et al., 1992).

- Neighbourhood and community

Community disorganisation has been associated with increased problem behaviour, and is expected to raise the risk for adolescent substance use (Beyers, et al., 2004). Neighbourhoods with a high population density, high mobility, high crime rates, poverty, and poor housing are often linked with childhood conduct problems and delinquency, and are therefore hypothesised to also contribute to an increase in risk for adolescent substance use (Hawkins et al., 1992). Levels of perceived and actual community drug use and availability have been identified as significant risk factors for drug related harm (Allen & Clarke, 2003).

- Genetics

Historically, numerous studies have identified a genetic predisposition to substance abuse for children of alcoholics (Hawkins et al., 1992). Similarly, for children of parents with any psychiatric disorder substance abuse or dependence may be one of several possible outcomes through increased genetic risk (Weinberg et al., 1998). Research has also linked sensation seeking, low harm avoidance, and impulsivity to substance use (Shedler & Block, 1990). In the past, Zuckerman (1987, cited in Hawkins et al, 1992) has suggested that sensation seeking may have a biological basis.

- Psychopathology and Psychology

Various psychological features have been identified as increasing the risk for adolescent substance use and abuse. Some have a biological basis, such as executive cognitive dysfunction, or disorders of behavioural self regulation i.e. difficulty with planning, attention, abstract reasoning, foresight, judgement, self-monitoring, and motor-control (Giancola et al., 1996). Other cognitive and temperament features may also underlie the more obvious risk factors (Weinberg et al., 1998).

Psychological disorders such as conduct disorder and depression have been identified as increasing the risk of adolescent substance abuse (Pagliaro & Pagliaro, 1996; Weinberg et al., 1998), as has childhood problem behaviour (Hawkins et al., 1992).

Personal attitudes that are favourable to drug use (Allen & Clarke, 2003; Beyers et al., 2004), tolerance of deviance, alienation, and rebelliousness (Beyers et al., 2004; Hawkins et al., 1992) have all been identified as increasing the risk of adolescent substance abuse.

- Family Factors

Historically numerous studies have identified parental or family attitudes and substance use as being significant factors in an adolescents substance use patterns (Hawkins et al., 1992). Parental psychopathology, as noted earlier, is also a risk factor, not only due to genetic vulnerability, but also because of the parenting style, family stress, and possibility of child victimisation (Weinberg et al., 1998).

Other parent and family factors identified as impacting on adolescent substance abuse include: poor or inconsistent discipline, and family management; the quality of the parent child relationship; low bonding to family; and parental conflict and breakdown in relationship, or single parent families (Allen & Clarke, 2003; Hawkins et al., 1992). Parent-adolescent conflict has also been identified as a significant risk factor for drug related harm (Allen & Clarke, 2003).

- School

School failure (Allen & Clarke, 2003) and low school bonding (Beyers et al., 2004) have been identified as risk factors for adolescent substance use. Historically poor school and academic performance, and a low commitment to education (Hawkins et al., 1992) have also been identified as risk factors.

- Peer substance use

Historically, peer use of substances has been indicated as the strongest predictor of substance use among adolescents (Hawkins et al., 1992). However, more recently peers have been found to be less significant in predicting substance use and abuse (Weinberg et al, 1998). It is still agreed, however, that interaction with peers who use substances enable an adolescent to observe, learn, reinforce attitudes favourable to substance use, and have easier access to substances (Beyers at al., 2004).

- Previous Substance Use

Use of alcohol and/or other drugs at an early age has consistently been linked to a higher risk of developing problem use later in life (Allen & Clarke, 2003; Bonomo et al., 2001; Hawkins et al., 1992). Studies have also indicated that there is a sequential pattern to adolescent substance use, where adolescents progress from use of one substance to another. Research shows that adolescents who have tried marijuana have most likely previously used alcohol and/or cigarettes, and those who have tried harder drugs have generally previously used marijuana (Zapert, Snow, & Tebes, 2002).

Longitudinal research, including studies conducted in New Zealand, has also supported the theory of a developmental pathway of substance abuse (Allen & Clarke, 2003).

1.42 PROTECTIVE FACTORS

Protective factors mediate or moderate the effects of exposure to risk (Allen & Clarke, 2003; Hawkins et al., 1992). It is not yet clear whether protective factors are simply the opposite of identified risk factors, or whether they are distinct independent factors (Hawkins et al., 1992). Historical research has identified numerous protective factors, some of which appear to be merely the opposite extreme, or absence of specific risk factors, and some of which appear to 'stand alone' as protective factors. Identified protective factors include: strong attachment to parents; commitment to schooling; outstanding performance at school; regular involvement in church activities; and belief in the generalised expectations, norms, and values of society (Hawkins et al., 1992).

More recently individual factors that have been identified include: intelligence; problem solving ability; positive self-esteem; affect regulation (Weinberg et al., 1998); religiosity; and social or refusal skills (Beyers et al., 2004). Community and environmental factors that protect against adolescent substance abuse include supportive family relationships, more opportunities and recognition for prosocial involvement in community and school (Beyers et al., 2004), and positive role models (Weinberg et al., 1998).

Identified above are numerous risk and protective factors for adolescent substance use. Most young people have at least some of the risk factors listed above present in their lives. It is, of course, of some concern when numerous risk factors and very few protective factors are present in a young person's life. This puts a young person at risk of not just substance use, but of possible substance abuse and dependence. The current study identifies risk and protective factors that are present in the lives of the young people that participate in this programme. It is anticipated that the study participants will have many risk factors and few protective factors. One of the aims of the current study is to improve the participant's skills, such as problem solving, which is an identified protective factor. This study seeks to increase these protective factors to reduce the risk of developing a substance disorder. So, if adolescent substance use disorders are the issue of concern, how are they defined? The following section will address the issues of diagnosis.

1.5 DIAGNOSTIC ISSUES

1.51 DEFINITIONS

Traditionally substance ‘abuse’ has been defined as use of substances that increases risk of harmful and hazardous consequences, and substance ‘dependence’ has been defined as a pattern of compulsive seeking and using of substances despite the presence of severe personal negative consequences (Winters, 2001). Adolescent substance abuse and dependence is not so clearly defined. Definitions have ranged from the common perspective that any use of substances in adolescence constitutes abuse (Jenson, Howard, & Yaffe, 1998), possibly based on a legal perspective, or the belief that any use in adolescence is ‘abuse’ of a developing body and personality (Winters, 2001), to defining abuse in terms of how it affects development (Jenson et al., 1998). It has been indicated that there is a lack of precision in and agreement on the definition of substance abuse and dependence in adolescents (Jenson et al. 1998). As discussed previously adolescent substance use has a heterogeneous quality that is not as present in adult populations. However, given the lack of clear definitions, clinicians often have no option but to use adult definitions of substance use disorders, such as the criterion for abuse and dependence in the DSM-IV (American Psychiatric Association, 2000).

1.52 DSM-IV: DIAGNOSING ABUSE AND DEPENDENCE

The current ‘gold standard’ (Deas, Roberts, & Grindlinger, 2005) for diagnosis of substance use disorders is the DSM-IV (APA, 2000). The DSM-IV classifications of disorders enable psychiatrists, clinicians, and researchers to have comparable terms. The DSM-IV is the most commonly used diagnostic tool, although its use is generally supported through training and research.

The DSM-IV (APA, 2000) defines Substance Abuse as “a maladaptive pattern of substance use leading to clinically significant impairment or distress” (p.199) characterised by one or more of the following symptoms occurring within a 12 month period: recurrent substance use resulting a failure to fulfil major role obligations; recurrent use in situations that are physically hazardous; recurrent substance-related legal problems; and continued substance use despite persistent or recurring social or interpersonal problems caused, or made worse by the effects of the substance.

Substance Dependence is also defined as above but is characterised by three or more of the following symptoms occurring in the same 12 month period: tolerance; withdrawal; substance use occurring in larger amounts or over longer periods of time than intended; a persistent desire or unsuccessful attempts to control use; a great deal of time spent obtaining, using, or recovering from use; giving up or reducing time spent on important social, occupational, or recreational activities because of use; and continued substance use despite knowledge that use has caused or is exacerbating a physical or psychological problem. Substance Dependence can occur with or without physiological dependence (APA, 2000).

1.53 DSM-IV DIAGNOSES AND THEIR APPLICATION TO ADOLESCENTS

The DSM-IV criteria for substance use disorders were developed based on clinical experience, research and observations of adult populations (Deas, Roberts, & Grindlinger, 2005; Martin & Winter, 1998). Measures have been developed to assess adolescent substance use, without using DSM-IV criteria (Harrison, Fulkerson, & Beebe, 1998; Deas et al., 2005); however, the DSM-IV still remains the standard tool for classifying adolescent substance users. There are, however, concerns about the DSM-IV, particularly when used with children and adolescents, in its failure to take into consideration the effect of etiologic factors, experience, developmental history, and context on the young persons functioning (Jensen & Hoagwood, 1997). Similarly, there are criticisms of the ability of the DSM-IV criteria to be used to accurately diagnose substance use disorders in the adolescent population.

Research conducted by Deas, Roberts, and Grindlinger (2005) suggests that the DSM-IV criteria may not be sensitive enough to differentiate between abuse and dependence symptoms in adolescents, and more importantly, reported extremely low sensitivity in differentiating between abuse, and no diagnosis. This low sensitivity could result in adolescents with early onset symptoms of abuse being undiagnosed, which could result in their exclusion or withdrawal from much needed services and interventions.

Further research has posed questions about the sequencing of abuse and dependence symptoms. Because substance abuse is considered to be a lesser category than substance dependence, abuse symptoms are expected to precede dependence symptoms. There are several arguments surrounding these assumptions in relation to the diagnosis of adolescent substance use disorders. Firstly, a study that looked at the sequencing of symptom onset found that in some adolescents alcohol dependence symptoms preceded some alcohol abuse symptoms (Martin & Winter, 1998). Similarly, further research has

identified what have been referred to as ‘diagnostic orphans’, young people who may exhibit 1 or 2 dependence symptoms and no abuse symptoms, therefore they do not qualify for either diagnosis (Deas et al., 2005). Alternatively, research has indicated that the substance dependence diagnostic criterion of tolerance, which also indicates physiological dependence, is highly prevalent in adolescent substance users (Deas et al., 2005; Martin & Winter, 1998). It is likely that this is normal developmental phenomena, rather than an indication of a high prevalence of substance dependence. This is also supported by the low prevalence of further dependence related symptoms, such as withdrawal (Martin & Winters, 1995).

There is some support for the use of the DSM-IV in diagnosing adolescent substance use disorders (Deas et al., 2005; Martin & Winters, 1995). However, there are also many concerns and some suggestion that due to the heterogeneity among adolescent substance users the DSM-IV does not clearly distinguish among the various levels of problems that adolescents may be experiencing (Martin & Winters, 1995). In a large epidemiological study conducted by Harrison et al (1998) the DSM-IV diagnostic criteria were not found to be the most appropriate framework for identifying substance abusing and dependent adolescents, and the authors suggested an alternative diagnostic classification based on a continuum of problem severity.

1.54 PREVALENCE OF SUBSTANCE USE DISORDERS IN ADOLESCENCE

Much of the research that has been conducted on the prevalence of adolescent substance use has focused only on use, and the prevalence rates of substance use disorders in adolescence have not been widely reported. This may be due to on-going issues around the definitions of substance use in adolescence, with many believing that any use in adolescence constitutes abuse (Jensen, Howard & Yaffe, 1998). The research that has been conducted on the prevalence of substance use disorders in adolescence has generally focused on alcohol and cannabis use disorders, or results have often been presented in groupings of ‘adolescent substance use disorders’, without further elaboration on specific substances of use. The following is a brief review of some of the literature available regarding the prevalence of adolescent substance use disorders.

In New Zealand the Christchurch and Dunedin longitudinal birth cohort studies are recognised for their huge contribution to the literature on prevalence of psychiatric disorders in New Zealand youth. Some of this research has estimated at 15 years old 25% of young people will have met the criteria for at least one DSM-III-R disorder with

an estimated prevalence of between 5.2% and 7.7% for substance use disorders (Fergusson, Horwood, & Lynskey, 1993). Later research has suggested that of the two-thirds of young people in New Zealand that try cannabis, nearly 10% will develop cannabis dependence (Fergusson, Horwood, & Swain-Campbell, 2003).

International literature estimates higher prevalence rates, with Costello et al (2003) reporting 36.7% of young people meeting the criteria for one or more DSM-IV diagnoses at the age of 16 years. 12.2% of young people were predicted to have had a substance use disorder by this age (Costello et al., 2003). High school surveys estimated that of those that reported substance use in the previous year 13.8% of the 9th graders (13yrs) and 22.7% of the 12th graders (16yrs) met criteria for abuse, and that 8.2% of the 9th graders (13yrs) and 10.5% of the 12th graders (16yrs) met criteria for dependence (Gilvarry, 2000). It has also been suggested that studies such as this would largely underestimate the prevalence of substance use disorders due to the exclusion of adolescents at high risk for substance use through educational failure and homelessness. Alcohol and/or illicit drug abuse disorders have been reported in up to 71% of homeless youth (Gilvarry, 2000). Other community samples have estimated the lifetime prevalence of alcohol abuse or dependence to range from 5.3-32.4% for 15-17 year olds, with lifetime prevalence of drug abuse or dependence estimated to be in the range of 3.3-9.8% for the same age group (Gilvarry, 2000). Further research has estimated that 6% of 14-18 year olds met criteria for alcohol abuse or dependence and it has been estimated that there is a 9.7% prevalence of lifetime alcohol abuse or dependence, and 6.2% prevalence of illicit drug abuse or dependence in 15-18 year old US youth (Young et al., 2002).

1.55 COMORBIDITY OF SUBSTANCE USE DISORDERS AND OTHER DSM-IV DIAGNOSES

The term co morbidity has generally been accepted as meaning “the presence of more than one disorder in a person in a defined period of time” (Wittchen & Essau, 1993, p.61). Those with co morbid disorders generally utilize more services, have increased risk of suicide and self-harm, and are expected to have a worsened clinical course and outcomes (Gilvarry, 2000). Adolescent substance abuse and dependence are commonly associated with co-occurring mental disorders. It has been reported that of a community sample of non-treatment seeking adolescents 7% met the criteria for a DSM-III-R diagnosis of a substance use disorder. Of those that received a substance

use disorder diagnosis 90% also met criteria for another DSM-III-R diagnosis (Monti, Colby, & O'Leary, 2001). In a more recent study, adolescents with an alcohol use disorder were found to have rates 10 times higher for disruptive behavior disorders, three times higher for mood disorders and twice as high for anxiety disorders, compared with alcohol abstainers in the sample (Colby et al., 2004).

New Zealand literature has indicated that substance use disorders and disruptive behavior disorders often occur together, with a strong association between conduct disorder and substance use disorders, and a slightly weaker association between attention deficit hyperactivity disorder and substance use disorders (Fergusson, Horwood, & Lynskey, 1993). International literature also indicates strong correlations between substance use disorders and disruptive disorders (Gilvarry, 2000). Research involving adolescents entering treatment for substance use problems has reported rates of co morbid psychiatric disorders as high 82% for DSM-IV axis one disorders, and 74% for two or more co-existing psychiatric disorders (Shane, Jasiukaitis, & Green, 2003).

It therefore appears that substance use disorders are often complicated by numerous other factors, and this may be even more so if they occur during adolescence. For this reason it is of the utmost importance that a comprehensive assessment be conducted when any young person is receiving treatment for substance use. The following section provides a brief overview of the recommendations in the literature regarding assessment of adolescent substance use disorders.

1.6 ASSESSMENT

As outlined above, adolescent substance use is a complex set of behaviours, with a range of severity, aetiology, consequences, and presentation. Subsequently, the assessment of adolescent substance use must adequately address the complexity of this behaviour. The literature regarding assessment of adolescent substance use recommends areas that must be covered when conducting a comprehensive assessment of an adolescent with identified problematic substance use. Areas that are consistently identified include: substance use severity, significance, function, history, and consequences of use; psychopathology/co morbidity; current functioning in all areas, in particular social, academic, and vocational; family environment, functioning and

support; risk and protective factors/strengths and weaknesses; and physical health (Meyers et al., 1999; Spooner et al., 1996; Swadi, 2000; Weinberg et al., 1998; Winters, 2001; Winters & Stinchfield, 1995). Other areas are recommended including: motivation or readiness to change (Spooner et al., 1996; Swadi, 2000; Winters, 2001); trauma and adverse life events, including victimisation and loss (Meyers et al., 1999; Spooner et al., 1996; Swadi, 2000); sexual behaviour (Meyers et al., 1999); community and neighbourhood (Winters, 2001); and use of recreation/leisure time (Spooner et al., 1996). To obtain this information it is recommended that clinicians utilise a variety of assessment methods. The clinical interview is described as the “cornerstone” of the assessment process by Meyers and colleagues (1999). Use of a standardised semi-structured interview is recommended as it is reported that this increases opportunities for clinical observation, can improve the quality and reliability of diagnoses, and is more likely to provide a comprehensive clinical evaluation (Meyers et al., 1999). It is also recommended that additional information is gathered through adolescent self-report measures and assessment tools with demonstrated psychometric properties. This information can also be supported through further sources such as parents or guardians, archival records, and biological measures such as urinalysis (Meyers et al., 1999).

It is important to note that historically a lot of the measures used for adolescent substance use assessment have been adapted versions of adult measures, many of which have not been sufficiently researched in their application to adolescents (Deas et al., 2005). It has also been noted that there is some overlap between symptoms exhibited by adolescents and adults, and in some cases adolescents may present with many of the classic symptoms of adult substance abuse or dependence. However, it is also quite possible that an adolescent with problematic substance use could present with symptoms that have little or no resemblance to the traditional adult symptoms of a substance use disorder (Leccese & Waldron, 1994). It is for this reason that adolescent specific assessment tools are necessary. In more recent times assessment tools specifically for use with adolescents have been developed, and there is now an increased availability of sound and proven self-report assessment instruments that are able to objectively, efficiently, and meaningfully document the information that is needed (Winters & Stinchfield, 1995).

The current study utilises a structured clinical interview, the Adolescent Diagnostic Interview (Winters & Henley, 1993) that has been specifically designed for use with adolescents. Further information is gathered through self-report questionnaires, all of

which have either been designed specifically for use with adolescents, or research has supported their use with adolescents. The assessment tools used are described in more detail in the method section.

Comprehensive assessment is necessary to determine firstly, whether treatment is needed, and secondly the type of treatment that would be most beneficial for the adolescent (Meyers et al, 1999; Spooner et al, 1996; Swadi, 2000). Currently there is a growing interest in what treatments are effective in treating adolescent substance use disorders. The following section reviews the current literature on the treatment of adolescent substance use disorders.

1.7 TREATMENT

1.71 TREATMENT OF SUBSTANCE USE AND ABUSE – AN OVERVIEW

With substance use in adolescence often being viewed as a normative behaviour, an often asked question is whether or not treatment is necessary, or even worthwhile. Is it not possible that an adolescent will just grow out of the habit of using substances? There have been several reasons identified for early intervention with adolescent substance users (Swadi, 2000). Firstly although most adolescents will grow out of it, some will become substance-dependent adults. Also substance misuse can spread throughout peer groups through association and peer influence. Substance use in adolescence is associated with an increase in co morbidity, and psychosocial and health risks. It has also been suggested that substance misuse is possibly more likely to be treated successfully in adolescence than in adulthood and the associated value of treating substance misuse successfully in adolescents should result in a reduction on the demand for adult substance misuse services (Swadi, 2000). However, despite adolescent substance misuse being a concern, and the reasons for successful interventions being outlined above, research into treatment is still relatively scarce. Research into effective treatments for adult substance abusers is relatively widespread. From the adult literature it appears that there is good evidence for the effectiveness of motivational enhancement therapy (MET), cognitive behavioural therapy (CBT), and 12-step facilitation (Crome, 1999).

Spooner, Mattick, Howard, & Noffs (1996) conducted a review of research literature on adolescent substance use. This review revealed a limited amount of material, and found

that there was a lack of research evaluating adolescent treatment programmes in a systematic manner. Adult treatment outcome research was included in their review because of the lack of adolescent specific research. They found that the most common treatment approaches in the literature were behaviour therapy, skills training, family therapy, and Alcoholics Anonymous/Narcotics Anonymous. Positive treatment results were obtained in all of the reviewed studies. The Spooner et al (1996) review found reliable and notable evidence that the addition of social skills training and cognitive restructuring techniques (especially in combination) to alcohol treatment programmes helped reduce participant alcohol consumption in the short and long term. Family therapy was also found to be an effective intervention with selected clients in drug-treatment programmes, when this was delivered by adequately trained therapists. The review concluded that effective treatment strategies for adolescents appear to be family therapy, skills training, and CBT (Spooner et al., 1996).

In another review of adolescent substance abuse treatment outcome research Weinberg, Rahdert, Collier and Glantz (1998) found that family-oriented therapies had received the most attention over the prior 10 years. Their review found support for the superiority of family therapy over other modalities of treatment, and the addition of family therapy was found to enhance the effectiveness of other approaches. They found that patient centred approaches had been less researched, but that adolescent peer group therapy, and cognitive behavioural approaches such as rehearsal, social contracting, problem solving, coping skills training, and relapse prevention techniques show promise for at least the first few months after finishing treatment (Weinberg et al., 1998).

A review of clinical trials over the previous 25 years conducted by Kaminer (2001) again noted the lack of adolescent focused research compared to adult focused research. Kaminer (2001) also concluded that little is known about the effectiveness of various treatments for adolescent substance use disorders. The review did however note some promising approaches which include: family therapies, including MST; functional family therapy; motivational interviewing; the community reinforcement approach; the 12-step approach; CBT; and contingency management reinforcement. More recent evidence has also suggested promise when using a combination of these therapies based on integrative models (Kaminer, 2001).

A more recent review of secondary prevention interventions for adolescent substance users was conducted by Elliot, Orr, Watson and Jackson (2005). This review identified

interventions effective in reducing drug use as: behaviour therapy; culturally sensitive counselling in residential settings; family therapy; Minnesota 12-step programs; residential care; and general treatment programs. Austin, Macgowan and Wagner (2005) reviewed family based interventions for adolescent substance use and found that Multidimensional Family Therapy and Brief Strategic Family Therapy demonstrate efficacy in treating adolescents with multiple problems including substance use problems. Also Family Behaviour Therapy and Functional Family Therapy were associated with large reductions in substance use at post-treatment, Multidimensional Family Therapy was associated with reductions in substance use at post, 6, and 12 month follow-up, and Multisystemic Therapy and Family Behaviour Therapy was successful in minimising treatment drop-out. This review identified that treatment for adolescent substance use is characterised by high rates of treatment drop-out and post-treatment relapse to use and also noted that although treatment for adolescent substance use problems has been shown to be effective, there is still insufficient evidence to draw conclusions about what intervention works for whom, and under what conditions (Austin, Macgowan, & Wagner, 2005). Further empirical studies have shown family-based therapy can produce engagement and retention of drug users and their families; reduction or elimination of drug use; decreased involvement in delinquent activities; improvement in multiple domains of psychosocial functioning such as school grades, school attendance, and family functioning; and increased quality of parenting behaviour (Hogue, Liddle, Dauber, & Samuolis, 2004). There is also evidence that these gains were maintained at follow-up, and that family-based approaches are cost-effective in comparison to treatment as usual. Further support for family interventions, specifically multisystemic therapy (MST) has been indicated by Curtis, Ronan, Reid and Harris (2002). Research conducted in the New Zealand context found empirical support for the long-term efficacy of MST in treating serious anti-social behaviour in adolescents, along with a variety of co-occurring problems such as substance abuse, sexual offending, and severe emotional disturbance. MST was found to reduce long term rates of substance use and substance related arrests (Curtis et al, 2002). It has also been noted that another highly regarded treatment approach for adolescent drug abuse is CBT (Hogue et al, 2004).

1.72 FRAMEWORKS FOR PREVENTION AND INTERVENTION

Interventions for adolescent substance use disorders presumably have some basis in underlying theories about their aetiology. The treatment of adult disorders has typically been based on the disease model; however this has not been supported in the treatment of adolescent substance use disorders (Palmer & Liddle, 1992). The following are four conceptual frameworks commonly used to explain adolescent substance abuse and dependence.

Social Learning Theory: Social learning theory was proposed by Bandura (1977, cited in Palmer & Liddle, 1992), and suggests that behaviour is learning through modelling and reinforcement. It is proposed that substance use is a socially learned and purposeful behaviour (Palmer & Liddle, 1992). Prevention and intervention techniques based on this model help adolescents develop skills to make them less vulnerable to influences that may promote substance use or abuse, and suggests strengthening young peoples bonds with pro-social influences (Hawkins, et al., 1992).

Problem Behaviour Theory: Jessor & Jessor (1977, cited in Palmer & Liddle, 1992) suggest that adolescent substance use is one of a cluster of behaviours that make up a syndrome of problem behaviour. This theory suggests that substance use is a functional behaviour, aimed at achieving a goal. It is postulated that to deter substance use adolescents must learn alternative ways to accomplish their goals. Interventions may consist of generic social and coping skills, domain specific skills and knowledge, and/or looking at attitudes and expectations about drug use (Palmer & Liddle, 1992).

Social Stress Theory: The social stress theory is based on Albee's (1982, cited in Palmer & Liddle, 1992) concept of psychopathology. This theory suggests that risk of substance use is a function of stress levels, and the extent that protective factors such as positive attachments and coping skills are present. It also considers broader social variables that affect behaviour. Substance abuse is seen as the result of the interactions between the individual, significant others, and the social system, over the long term. Interventions would therefore target the individual and other ecological variables (Palmer & Liddle, 1992).

Family Systems Theory: Numerous familial aetiological factors for adolescent substance use have been identified. Family models attempt to address these factors, and tend to be more treatment than prevention oriented. Family models generally target

factors that have been identified in the aetiology literature, such as parenting, parent-child relationship, and family management practices (Palmer & Liddle, 1992).

It has been suggested that these theories underlie most of the interventions available for adolescent substance use disorders (Palmer & Liddle, 1992). Cognitive-behavioural interventions, for example, are based on social learning theory. The underlying theory and components of the two treatments of interest to this study, cognitive behavioural therapy and motivational interviewing, are described in more detail below.

1.73 COGNITIVE BEHAVIOURAL THERAPY

Cognitive behavioural therapy is based on the idea that to understand an individual's motivation to use or abuse alcohol or other substances an understanding of their behaviour, patterns, perceptions, and cognitions must be established (Kadden, 1994). Cognitive behavioural therapy (CBT) is based on the principles of social learning theory (Bandura, 1986 cited in Monti et al, 1989). Cognitive behavioural theory views substance use as a maladaptive coping skill that is acquired the same way as any other learned behaviour, through imitation of role models, positive reinforcement, and/or positive expectations (Monti et al., 1989). Common CBT approaches are structured and focus on identifying the cognitive and environmental factors that are controlling the problem behaviour, then developing and rehearsing the skills required to achieve change. Cognitive techniques such as challenging negative thinking are used alongside behavioural work including behavioural experiments, and increasing mastery of new skills (Wanigaratne et al., 2005). All CBT programmes tend to use some form of coping skills training to improve cognitive and behavioural coping skills. Generally CBT programmes will use a standard set of techniques to teach coping skills including identifying specific situations where difficulty in coping occurs. Instruction, modelling, role-plays and behavioural rehearsal are then used to develop more effective ways of coping (Morgenstern & Longabaugh, 2000).

As described earlier CBT has been identified as having promise in working with adolescent substance users, and a series of reviews has suggested that cognitive behavioural strategies have the most evidence of efficacy for outcomes in alcohol treatment (Miller & Brown, 1997). Further evidence has identified that cognitive behavioural approaches have demonstrated efficacy in reducing adolescent substance use, and also co morbid psychiatric problems. Hogue and colleagues (2004) found that manualised CBT was effective in reducing marijuana use, externalising symptoms, and

internalising symptoms at post treatment, and up to one year later. It has also been stated that interventions that focus on cognitive and behavioural coping skills training may reduce relapse (Catalano et al., 1990) and tend to be more effective (Crome, 1999).

1.74 MOTIVATIONAL INTERVIEWING

Miller and Rollnick (1991, 2002) developed Motivational Interviewing (MI), which has been described as the most influential and widely used brief intervention (O'Leary Tevyaw & Monti, 2004). The term 'motivational interviewing' can be used to describe both a therapist style and specific techniques to facilitate therapy. There are five main techniques used in MI: having an empathic, non-judgemental stance; listening reflectively; developing discrepancy; rolling with resistance and avoiding argument; and supporting self-efficacy for change (Miller & Rollnick 1991, 2002). Although MI was originally developed for therapists working with addiction it is now also being used to address other behaviours, such as: HIV and risky sexual behaviour; eating disorders; smoking; sexual offending; gambling; and medication compliance.

The aim of MI is to move individuals through the stages of change described in Prochaska and DiClemente's (1982) transtheoretical model of change. The transtheoretical model of change describes five stages that individuals move through in relation to changing their behaviour: pre-contemplation; contemplation; preparation/determination; action; maintenance; and (although not always) relapse. The aim of MI is to move individuals who are in the pre-contemplative or contemplative stages, into the preparation and action stages. In MI based interventions the therapist, rather than taking the position of the expert, takes the position of a collaborative partner. Therapists will then use specific skills, such as open questions, listening, summarising ideas, reflecting, and providing affirmation. This aims to help the client identify their own problems with substance use, label these problems, and feel like they are able to change (Wanigaratne et al., 2005). Because the MI style and interventions are based on acceptance, understanding and increasing motivation to change, they hold promise as a treatment for adolescent substance misuse (O'Leary Tevyaw & Monti, 2004).

There is increasing evidence supporting the use of motivational enhancement interventions for reducing alcohol use and alcohol-related problems among adolescents and young adults (O'Leary Tevyaw & Monti, 2004) and another recent report states that there is a substantial evidence base for the efficacy of MI, particularly with problem and

risky drinking, cannabis use, and heroin dependence (Wanigaratne et al., 2005). Further, it has been suggested that MI may be particularly appropriate for targeted prevention or intervention programmes for young people who are engaging in risky behaviours (Baer & Peterson, 2002). Studies have also identified that brief interventions for adolescents and young adults that include MI techniques may reduce risk behaviour, and may improve engagement, retention, and treatment outcomes (Baer & Peterson, 2002).

1.75 COMBINING CBT AND MI

As discussed previously it has been demonstrated that the addition of cognitive behavioural techniques to treatment programmes can help reduce alcohol consumption (Spooner et al, 1996), and that interventions that focus on cognitive and behavioural coping skills training may be more effective (Crome, 1999) and reduce relapse (Catalano et al, 1990). It is also noted above those using MI techniques as part of an intervention for adolescent substance abuse may reduce risk behaviour, and improve engagement, retention, and treatment outcomes (Baer & Peterson, 2002). Kaminer (2001) suggested that combining effective therapeutic models using integrative models of treatment may also be a promising approach to the treatment of adolescent substance use disorders. Initial support for the integration of CBT and MI has been demonstrated by Dennis and colleagues (2002; 2004), in the treatment of adolescents with cannabis use disorders.

1.76 MANUALISED TREATMENT

Treatment manuals have been described as being a revolution in psychotherapy research (Godley et al., 2001). Research manuals generally provide detailed descriptions of treatment delivery. It has been stated that research projects that do not follow a treatment manual are very limited in terms of assessing treatment efficacy (Chambless & Hollon, 1998). Research has shown that when existing substance abuse treatments, such as CBT and MI, are manualised and delivered with the rigorous standards of a research study they can be just as, if not more effective than other research based treatments (Godley et al., 2001).

Cognitive Behavioural Therapy (CBT) and Motivational Interviewing (MI) are both techniques that are widely supported as being effective when working with adult substance abusers/dependents. Research as indicated above has also suggested that

these two approaches show promise when working with adolescents that are also experiencing symptoms of substance abuse or dependence. The current study uses a combination of cognitive behavioural and motivational interviewing techniques, adapted for use with adolescents in a New Zealand context, in the form of a manualised intervention.

1.8 THE PRESENT STUDY

It was the purpose of the current study to explore the effectiveness of a brief manualised integration of cognitive behavioural therapy and motivational interviewing (Vilke & Ronan, 2002) for adolescents at risk of, or currently experiencing difficulties with, problematic AOD use. The intervention was modified specifically for use with New Zealand adolescents and is adapted from Carroll's (1998) and Monti, Abrams, Kadden, and Cooney's (1989) cognitive behavioural interventions for treating cocaine (Carroll, 1998) and alcohol (Monti et al., 1989) addiction in adults. The present study is one of two pilot studies to assess this intervention, and was designed as part of a larger scale study.

The intervention consists of eight sessions that utilise both cognitive-behavioural and motivational interviewing strategies. As described in the previous section CBT and MI are both promising interventions in the treatment of adolescent substance use disorders. There is also preliminary support for interventions using an integration of the two models of treatment (Dennis et al, 2000; Dennis et al, 2004). The manual (Vilke & Ronan, 2002) enables flexibility in duration to be extended to nine or ten sessions to suit individual need. Strategies include skills for coping with cravings, functional analysis of substance use, problem solving, and understanding seemingly irrelevant decisions.

The aim of the intervention is to reduce current and/or future difficulties with AOD use for adolescents. Individual case studies and within subject comparisons are used to measure the effectiveness of this intervention in an educational setting. The current study will provide detailed information about the results of treatment for four young people, and contribute towards determining the effectiveness of this intervention for substance use/abuse for adolescent populations.

It was hypothesised that upon completing the programme participants would have reduced their substance use, and consequently substance use related problems. It was also anticipated that this reduction in use would continue over a 12 month period. It was also anticipated that participants would move through the stages of change during treatment, from pre-contemplation or contemplation, to action. It was also anticipated that benefits for the participants would be that beliefs about the perceived benefits of alcohol and drug use would change, and that their skills for coping with high risk situations would be increased.

2. CHAPTER TWO: METHOD

2.1 ETHICS CONSENT

Before research could start consent was obtained from the Massey University Human Ethics Committee: PN Protocol 02/102.

2.2 DESIGN

A multiple baseline within subjects design was used. The participants started the intervention at staggered intervals with baseline periods of 2, 3, 4, and 8 weeks.

2.3 PROCEDURE

Initial contact was made through liaison between school guidance counsellors and WellTrust, an organization that provides alcohol and drug education and treatment for High School students. WellTrust supported this research and referred interested school guidance counsellors directly to the researcher. The school guidance counsellors arranged the first contact between potential participants and the researcher. On first contact with the participants the study was explained and a letter of invitation to participate (Appendix A) and the participant information sheet (Appendix B) was given to participants. If they were interested in participating an information session with the participant and a parent or caregiver was organised by sending a letter (Appendix C), the parent/caregiver information sheet (Appendix D), and a parent/caregiver response form (Appendix E), home with the potential participant. Once the parent/caregiver response form was returned a confirmation of the time and location of the information session was sent to the parents/caregivers (Appendix F).

At the information session the researcher covered all the details of the study given in the information sheet to ensure the understanding of both participants and parents. Both the parent and the participant then signed a consent form (Appendix G).

2.4 INFORMATION SHEETS

Individual information sheets were given to the parent/caregiver (Appendix C) and the participant (Appendix A) to read. These information sheets were almost identical, with slightly different wording for the participant's information sheet to take into account reading ability.

2.5 PARTICIPANTS

The participants were four males between the ages of 15 and 17 years old. Two of the participants identified as New Zealand European, and two as New Zealand Māori. All four of the participants were attending some form of educational programme or training course.

2.6 ASSESSMENT

During the first two sessions the assessment battery was administered to each participant by a Massey University research assistant. Each session was approximately 1 ½ hours long. During this time the participants completed the Adolescent Diagnostic Interview (ADI), Personal Experience Inventory (PEI), and Adolescent Relapse Coping Questionnaire (ARCQ). The participants were asked to complete the Perceived Benefit of Drinking and Drug use Scale (PBDDS) and Readiness to Change Questionnaire (RTCQ) weekly, along with keeping weekly record of substance use (see Appendix D). Once assessment was completed the participants took part in eight one-hour individual sessions of the Cognitive-Behavioural Intervention for Substance Abuse treatment manual (Vilke & Ronan, 2002) once per week, with some variation due to absence and school holidays. During this time the participants were asked to continue keeping weekly records of substance use and complete the PBDDS and RTCQ weekly. The

assessment battery was administered again at completion of the intervention. Six month, twelve month, and eighteen month follow-up assessments were planned.

2.7 MEASURES

2.71 ADOLESCENT DIAGNOSTIC INTERVIEW (ADI)

The Adolescent Diagnostic Interview (ADI) (Winters & Henly, 1993) is a structured interview that takes approximately 60 minutes to complete. The ADI covers the range of symptoms associated with psychoactive substance use disorders as listed in the DSM-III-R (APA, 1987). The interview assesses Sociodemographic information, substance abuse history, and signs of current abuse or dependence in all of the major drug categories. The ADI also screens for other mental health disorders, and provides measures of several domains of functioning (i.e. school performance, peer and family relationships, leisure activities, and legal difficulties), and psychosocial stressors. Research on the effectiveness of the ADI indicates that it has high inter-rater agreement, stability of diagnoses, concurrent and criterion validity, and high reliability (Winters & Henly, 1993; Winters & Stinchfield, 1995; Leccese & Waldron, 1994). The ADI is listed in a recent publication of adolescent alcohol and drug assessment measures as one of “the most reliable and valid comprehensive assessment instruments” (Leccese & Waldron, 1994, p.561).

2.72 PERSONAL EXPERIENCE INVENTORY (PEI)

The Personal Experience Inventory (PEI) (Winters & Henly, 1989) is a 276 item self-administered questionnaire. The questionnaire takes approximately 45-60 minutes to complete. The paper-and-pencil PEI has two sections: Chemical Involvement Problem Severity, and Psychosocial Risk Factors. The Chemical Involvement Problem Severity section assesses drug use severity, drug use frequency and onset, and response distortion tendencies. The Psychosocial risk factors section assesses inter-personal risk factors (e.g. negative self image, social isolation, and absence of goals), and environmental risk factors (e.g. parent and sibling drug abuse, physical and sexual abuse, and estrangement from the family). The PEI also screens for eating disorders, suicide potential, other mental health symptoms, and a history of parental drug abuse (Winters & Henly, 1989). Research into the psychometric properties of the PEI has

found that its scores are highly correlated with other measures of drug abuse problem severity and psychosocial risk, independent recommendations for drug abuse treatment, and independent clinical diagnoses (Henly & Winters, 1988, 1989; Winters and Henly, 1989; Winters & Stinchfield, 1995). More recently the PEI basic problem severity scales were found to be significantly related to groupings made on the basis of DSM-III-R substance use criteria and by recommendations for treatment referral (Leccese & Waldron, 1994).

The PEI has two parts. The Chemical Involvement Problem Severity Section (Part I) consists of a total of 153 questions, organised into five basic scales, five clinical scales, and three validity indices. The Psychosocial Section (Part II) consists of 147 items and is divided into eight personal risk factor scales, four environmental risk factor scales, five problem screens, and two validity indices.

The results of the PEI are provided in a computer generated report. T-scores are generated through comparison to both a sample of adolescents presenting to a drug clinic and a sample of high school students. All t-scores have a mean of 50 and standard deviation (SD) of 10. High school sample T-scores on both sections are considered significantly elevated if they are above 70. However, drug clinic t-scores are considered significantly elevated if over 50 on the Chemical Involvement Problem Severity Scales or over 60 on the Psychosocial Scales. Strengths and weaknesses can also be identified by calculating the average t-score on each section and then identifying which t-scores are more than 1SD (strength) and less than 1SD (weakness) above the mean (Winters & Henly, 1994).

2.73 PERCEIVED BENEFITS OF DRINKING AND DRUG USE SCALE

The Perceived Benefit of Drinking and Drug Use Scale (PBDDS) (Petchers & Singer, 1990) is a 10 item instrument based on the idea that an individual's perception of the benefits of alcohol or drug use is a gauge of their actual use (Winters & Stinchfield, 1995). Five perceived benefit questions are asked about alcohol use and then repeated for other drug use. Scores on the earlier version of this instrument the Perceived Benefits of Drinking Scale (PBDS), which only asked about perceived benefits of alcohol use, were found to be significantly related to key indicators of drinking behaviour (Petchers & Singer, 1987). Research on the PBDDS has also found that the scales are related to several key indicators of drug use behaviour when tested in school and adolescent inpatient psychiatric samples (Winters & Stinchfield, 1995).

2.74 ADOLESCENT RELAPSE COPING QUESTIONNAIRE (ARCQ)

The Adolescent Relapse Coping Questionnaire (ARCQ) (Myers & Brown, 1990) was developed to measure teen coping responses in situations that posed a high risk for relapse. The ARCQ gives the respondent a situation that is commonly encountered by adolescent substance users and asks that they select from various coping responses what they would be more likely and less likely to do in this situation. Studies using the ARCQ have found a consistent relation between self-reported coping responses and patterns of adolescent post-treatment alcohol and drug use (Myers & Brown, 1990). Further studies have identified three factors within the ARCQ. The first factor consists of items using cognitive and behavioural problem solving strategies. These strategies do not appear to focus specifically on situational demands and it has been suggested that these items may represent more 'generic' coping skills. These items had a small but significant relationship with the importance of abstinence and a non-significant correlation with concurrent and future alcohol and drug use (Myers & Brown, 1990). The second factor is based on items that describe self-critical statements. This factor had significant correlations with difficulty of coping and concurrent alcohol and drug use and significant inverse correlations with self-efficacy and self-esteem (Myers & Brown, 1990). Research suggests that utilizing the factor two responses may lead to negative cognitions of guilt or self-blame in high-risk situations and that this may decrease the likelihood of successfully resisting substance use (Myers and Brown, 1990). The third factor consisted of abstinence focused cognitive and behavioural coping items. These items were significantly related to concurrent and future alcohol and drug use (Myers & Brown, 1990). All three factors demonstrated adequate internal consistency and account for similar proportions of variance.

2.75 READINESS TO CHANGE QUESTIONNAIRE (RTCQ)

The Readiness to Change Questionnaire (RTCQ) (Rollnick, Heather, Gold, & Hall, 1992) is a 15 item questionnaire based on Prochaska and DiClemente's transtheoretical model. The RTCQ consists of questions about motivation and attitude towards alcohol use. Responses range on a five point scale from 'strongly agree' to 'strongly disagree'. The RTCQ gives respondents scores on three scales that are representative of stages of the model, precontemplation, contemplation, and action. A respondent can score between -10 and +10 on each scale, indicating the presence or absence of attitudes

suggestive of each stage. Research into the psychometric properties of the RTCQ has found that it has adequate internal consistency, test-retest reliability, and concurrent validity (Rollnick et al., 1992). The current study also uses an adapted version of the RTCQ for Participants 2, 3, and 4 to gauge their motivation and attitudes towards other substance use. In the modified questionnaire 'alcohol' is replaced with 'drug use' in all questions.

2.8 THE INTERVENTION

2.81 SETTING AND THERAPIST

The intervention was conducted in a room provided by the participant's school, or course, during school hours. At all times rooms that were provided were private and free from interruption or distraction. The therapist was the researcher during her second and third year of a Master of Arts degree in Psychology.

2.82 TREATMENT MANUAL

The intervention followed a 40-page treatment manual, Cognitive-Behavioural Intervention for Substance Abuse (Vilke & Ronan, 2002). This manual is based on well known cognitive behavioural intervention strategies that have been modified for use with adolescents. The manual describes tasks, goals, key interventions, and practice exercises for each session. The manual was administered with some flexibility according to individual needs.

2.83 INTERVENTION PROCEDURE

The intervention consisted of eight individual one-hour long sessions with the therapist. Tasks included coping with cravings, learning substance refusal skills, and identifying seemingly irrelevant decisions. Role-plays and out of session exercises are used to practice new techniques. A brief outline of the main tasks of each session is included below.

Session 1: Begin to establish a relationship and gather history of substance use.
 Introduce the CBT model and functional analysis of substance.
 Discuss initial treatment goals.

- Session 2: Describing and understanding craving. Identifying triggers for craving. How to avoid triggers and cope with craving.
- Session 3: Clarifying and prioritising treatment goals. Addressing ambivalence about cutting down or stopping substance use. Identifying and coping with thoughts about substance use.
- Session 4: Reducing substance availability. Practising substance refusal skills and the difference between passive, aggressive, and assertive responding.
- Session 5: Understanding seemingly irrelevant decisions and their relationships to high-risk situations.
- Session 6: Developing a personal coping plan. Introducing and practicing problem solving skills.
- Sessions 7: Reviewing problem solving. Developing an ongoing support plan.
- Session 8: Reviewing treatment goals. Provide and receive feedback.

More details of the treatment sessions can be found in the treatment manual (Vilke & Ronan, 2002).

Treatment sessions were based on a 20-20-20 format. Allowing the first 20 minutes of the session to review what had happened since the last session, discussing how any out of session exercises had gone, and clarifying any questions from the last session. The following 20 minutes consisted of introducing the new concept or tasks of the current session. The final 20 minutes was used for practice exercises and discussion of what out of session exercises the participant should attempt before the next session.

2.84 TREATMENT MATERIALS

Throughout the intervention participants were given out of session exercise sheets and handouts that reiterated important information or skills discussed in session. These materials can be found in the treatment manual (Vilke & Ronan, 2002).

3. CHAPTER THREE: RESEARCH ISSUES

3.1 RECRUITMENT

One of the first difficulties that the researcher encountered was recruiting participants for the study. Fourteen high schools, alternative education programmes and training programmes were made aware of the research, and given the contact details for the researcher. Of these fourteen, nine counsellors or tutors made contact with the researcher regarding the study. Three participants were referred directly to the researcher. Two school counsellors and four tutors requested that the researcher present information to groups of students, who could then volunteer for the study if they chose to do so. Information regarding the study was presented to approximately 70-80 high school age students, at six different locations (2 high schools, 2 alternative education programmes, and 2 life skill courses). Of those students four indicated that they were interested in participating in the study, and subsequently received individual information sessions. The three young people that were referred directly also received individual information sessions. Therefore, individual information sessions were provided for seven young people. Of these seven, four young people chose to participate in the research.

Due to the difficulties in finding schools and young people that were willing to participate in the research the recruitment process in itself took over 18 months.

3.2 RETENTION

During the treatment programme one participant left the course that he had been attending. As contact had always been made via his course, and he had chosen not to have his parents informed about his participation in the programme further contact was difficult, and therefore he did not continue with the programme.

3.3 FOLLOW-UP

Follow-up was planned for six month, twelve month, and eighteen month intervals. The researcher attempted to contact all participants that completed the programme both six months, twelve months, and eighteen months after programme completion. The researcher was unable to obtain contact details for Participant 1, who did not complete the programme.

Six months after completing the programme Participant 2 was still attending school and therefore was able to be contacted for follow-up and assessment was completed. At twelve month follow-up Participant 2 had left school. The researcher made numerous attempts to contact Participant 2, both by letter and phone, but was unable to schedule an appointment for assessment. The researcher attempted to make contact again at eighteen months. Contact was made with both Participant 2 and his mother, and an appointment for assessment was scheduled but he did not attend. Further attempts were made to re-schedule with no success.

At six month follow-up Participants 3 and 4 both remained at school, however were on summer holidays. The researcher attempted to contact them both during this time, but was unable to make contact or schedule the six month follow-up assessment.

At twelve month follow-up the researcher made contact with Participant 3's father who provided contact details for his son. Participant 3 has left school and was attending a life skills course. Contact was made with him, and twelve month follow-up assessment was completed. At eighteen month follow-up Participant 3 had left his previous course. Numerous phone messages were left asking Participant 3 to contact the researcher with no success.

At twelve month follow-up Participant 4 remained at school, contact was made with him and follow-up assessment was completed. At eighteen month follow-up Participant 4 had left school. Participant 4's location was unknown, and his contact details were unable to be obtained.

4. CHAPTER FOUR: RESULTS

4.1 PARTICIPANT ONE: PAUL

Although Paul completed six sessions of treatment he did not complete the programme. Therefore his results are incomplete. Results of the full assessment administered prior to treatment and ongoing assessment measures during treatment are included here.

4.11 ADOLESCENT DIAGNOSTIC INTERVIEW (ADI)

Paul presented as a 17 year old NZ European who currently lives with his parents. Paul has two brothers aged 19 years and 11 years, and a sister aged 7 years. Paul was attending a life skills course after leaving school through his own choice. Results from the Sociodemographic Factors section of the ADI indicated that Paul's parents were both employed, one full-time and one part-time. It did not appear that there was a family history of alcohol and/or drug abuse, or mental health problems. Paul had not been treated for alcohol or drug problems in the past, but had previously had counselling for behavioural problems and truancy. He had never been prescribed any medication, and had never lived away from home. The Psychosocial Stressors section of the ADI indicated that in the previous 12 months Paul had experienced several psychosocial stressors that had made him unhappy, including receiving poor grades at school, getting in trouble with the law, seeing a therapist, and running away from home. He also had several experiences that had made him happy and these included meeting a teacher that he liked, and becoming involved in a new hobby.

Results of the Substance Use/Consumption History section of the ADI indicated that Paul had tried alcohol, cannabis, and amphetamines more than five times each. He reported that he had tried some form of hallucinogen, but not more than five times. Paul first got drunk when he was 16 years old, first tried cannabis and amphetamines when he was 15 years old, and hallucinogens when he was 16 years old.

Sections D (alcohol use symptoms), E (cannabis use symptoms) and F (additional drug use symptoms) of the ADI were administered and indicated that Paul met the criteria for

a diagnosis of cannabis abuse disorder. He did not meet the criteria for any other substance use disorder.

Paul's scores on the Level of Functioning domains indicate that Paul was functioning well in almost all areas of his life including: Peer and opposite sex relations; academic functioning; leisure activities; home behaviour; and home environment. Scores on the school social functioning and legal status domains indicated areas of concern. More specifically Paul had been sent to the principal when he was at school, and had been in trouble with the law and was completing community service. Paul's score on the Psychiatric Status domain of the ADI was poor, with areas of concern indicated in the screens for depression, and attention deficit disorder. It was also indicated that Paul had previously attempted suicide, but that this had occurred over 12 months ago, and it was not indicated that Paul was currently experiencing any suicidal ideation. Paul's Global Assessment of Functioning (GAF) score was estimated to be in the 70-61 range, indicating mild symptoms of a psychiatric disorder, or some mild impairment in social functioning. Paul's score on the memory and orientation screen was excellent.

4.12 PERSONAL EXPERIENCE INVENTORY (PEI)

Unless stated otherwise the following results are based on comparison of Paul's scores to those of the High School sample described in the PEI manual (Winters & Henly, 1994). A sample of young people presenting for treatment at a drug clinic is also provided in the manual (Winters & Henly, 1994) and is referred to at times in these results.

The Drug Use History section of the PEI indicated some differences from the ADI in Paul's reported substance use. This section indicated that in addition to alcohol, cannabis, amphetamines, and hallucinogens, Paul had also tried some form of opiate. It also indicated that Paul had used LSD 20-39 times in his lifetime and another form of psychedelic substance 10-19 times in his lifetime. Paul's duration of substance use appeared quite limited, with all of his substance use starting after he was in Year 11 (approx 15 yrs old). However, in that time, although he had not used any one substance extremely frequently (results suggest he has not used any substance more than 39 times), he had used a large number of different substances (six).

Paul's results on the psychosocial problem screens did not indicate that he was experiencing any psychosocial problems. The results of the Residential Treatment Indicators were all negative.

The remaining responses are divided into two sections: Chemical Involvement Problem Severity and Psychosocial Adjustment.

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

The validity scales for this section of the PEI suggest that Paul may have attempted to portray himself in a somewhat unrealistically positive light, and this should be kept in mind when considering his results.

The Chemical Involvement Problem Severity section is divided into two sections, basic scales and clinical scales. On the basic scales Paul's t-score (42, see Figure 1) on the Social Benefits of Drug Use scale is highlighted as a strength, suggesting that he does not experience social benefits from substance use, and that this is unlikely to be a motivating factor in his substance use. However, Paul's t-score (69, see Figure 1) on the Polydrug Use scale is identified as a weakness. It indicates use of drugs other than alcohol, and suggests that Paul uses a variety of drugs regularly. His t-score on this scale is nearly 2 standard deviations (SDs) above the mean, and is considered to be significantly elevated when compared to the drug clinic sample. Also Paul's t-score (60, see Figure 1) on the Personal Involvement with Chemicals scale is 1 SD above the mean, indicating that Paul has more involvement with substance use than the average student in a High School sample. This suggests that he often uses in settings that are inappropriate, may self-medicate, and is more likely to restructure his activities to accommodate his substance use.

On the clinical scales Paul's t-score (68, see Figure 1) on the Transsituational Drug Use scale suggests that this is an area of weakness. Paul's score is nearly two standard deviations above the mean, indicating that he uses drugs in a variety of physical and temporal settings.

PART TWO: PSYCHOSOCIAL ADJUSTMENT

The validity scales for this section indicate that Paul attempted to portray himself in both an unrealistically positive and unrealistically negative light; this may have contributed to results that, on some scales, appear to be somewhat conflicting. These results are outlined below.

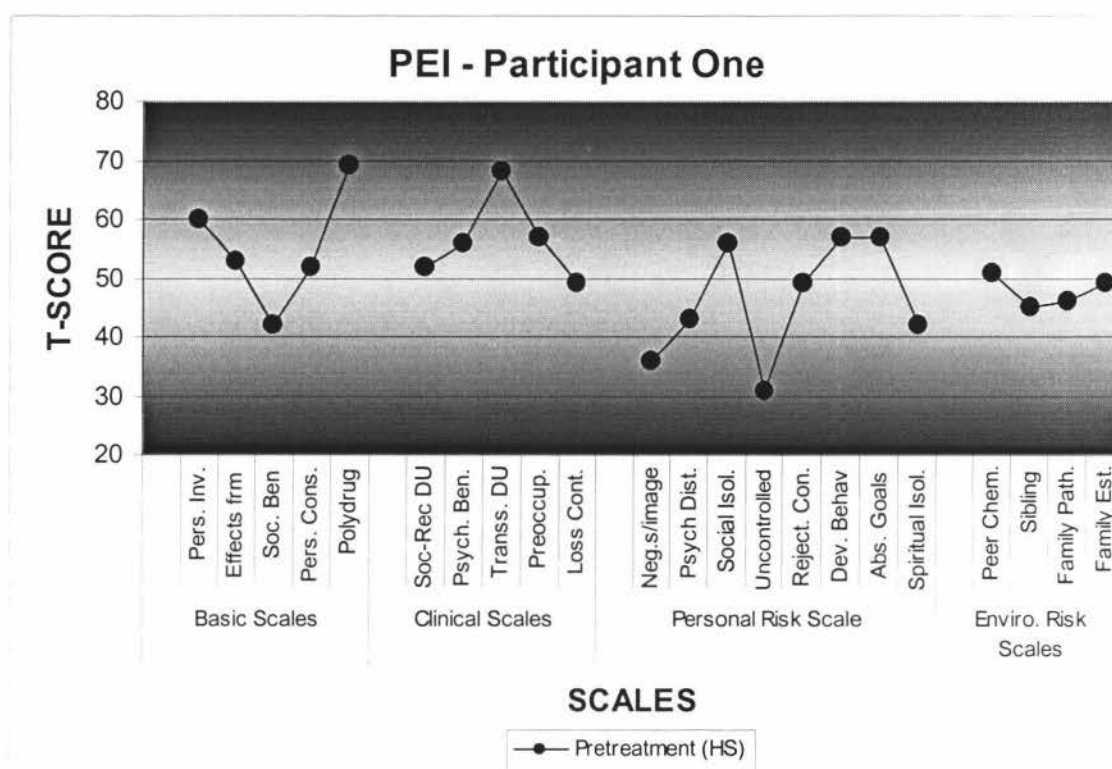


Figure 1: Participant One – Personal Experience Inventory T-Scores

HS – Scores based on High School standardisation sample

The Psychosocial Adjustment Section is divided into two sections: Personal Risk Scales (PRS), and Environmental Risk Scales (ERS). On the PRS the Negative Self Image scale suggests that one of Paul's strengths is having good self esteem, his t-score (36, see Figure 1) on this scale is over 1 SD below the mean. However Paul's t-score (56, see Figure 1) on the Social Isolation scale suggests that he sometimes has feelings of social isolation and ineptness.

A similar contradiction was between Paul's t-score (31, see Figure 1) on the Uncontrolled scale which identifies a strength, and is nearly 2 SDs below the mean. This indicates that Paul very rarely acts out, and tends to be cooperative and respectful. Contrary to this, Paul's t-score (57, see Figure 1) on the Deviant Behaviour scale indicates a weakness, in that he is likely to engage in some unlawful and oppositional behaviour. Another possible weakness is indicated in Paul's t-score (57, see Figure 1)

on the Absence of Goals scale, suggesting that Paul fails to plan or think about future aspirations, goals, and expectations.

4.13 ADOLESCENT RELAPSE COPING QUESTIONNAIRE

Paul completed the Adolescent Relapse Coping Questionnaire (ARCQ) prior to treatment. On the three coping skills scales Paul scored 34 (see Figure 2) out of a total possible score of 84 on Scale 1, which is indicative of Cognitive and Behavioural Problem Solving (CBPS). His score was 16 (see Figure 2) on Scale 2 out of a total possible score of 49, which indicates Self-critical Thinking (SCT).

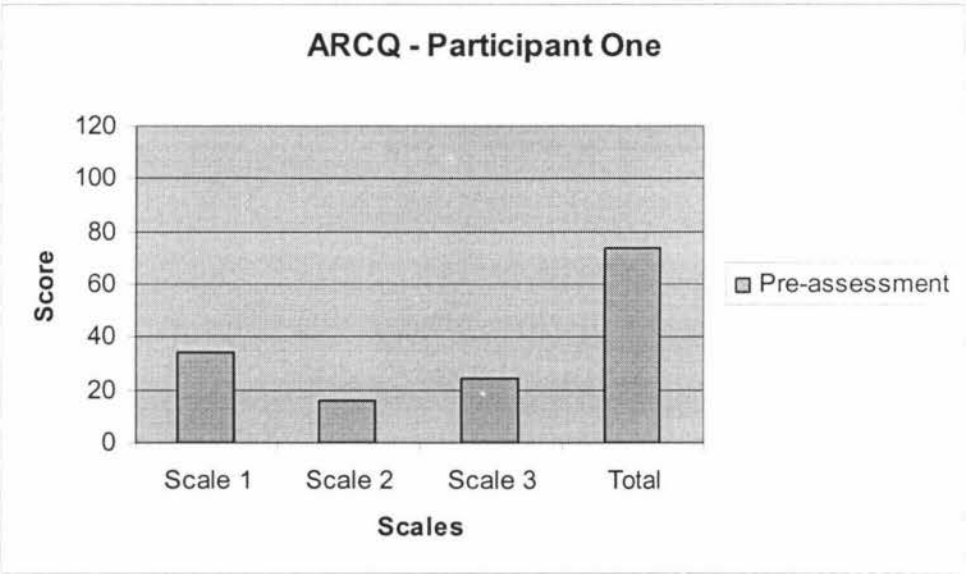


Figure 2: Participant One - Adolescent Relapse Coping Questionnaire

On Scale 3 Paul scored 24 (see Figure 2) out of a total possible score of 63 that is suggestive of Abstinence Focused Coping skills (AFCS). His total score was 74 (see Figure 2) out of a possible total score of 196. Scale 3, which indicates AFCS, is the best predictor of concurrent and future substance use. Unfortunately due to no post or follow-up assessment results being available little is able to be derived from these results.

4.14 PERCEIVED BENEFITS OF DRINKING AND DRUG USE SCALE

Paul completed the Perceived Benefit of Drinking and Drug Use Scale (PBDDS) three times before beginning treatment to form a baseline. His score on the drinking scale

steadily reduced from three to one. On the drug scale Paul's score reduced from two to one (see Figure 3). Low scores on the PBDDS suggest that Paul is less likely to be using substances regularly, and is not likely to be experiencing substance use related problems.

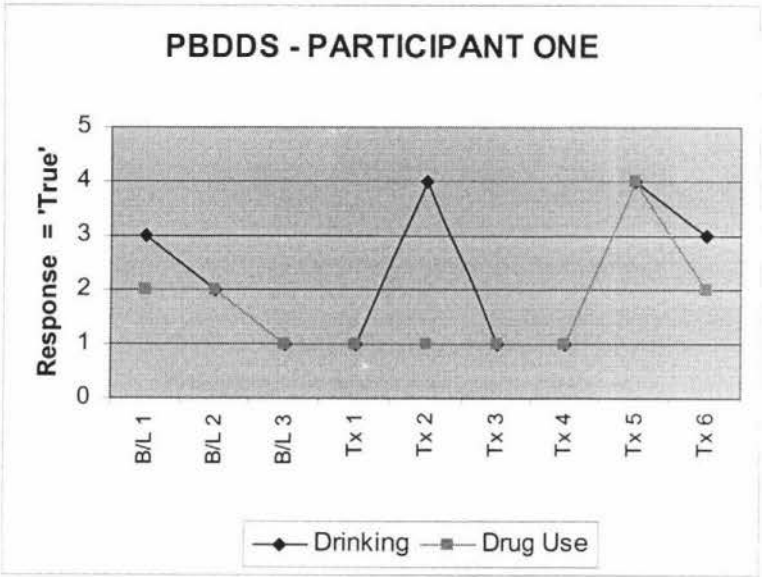


Figure 3: Participant One - Perceived Benefits of Drinking and Drug Use Scale

Paul's responses to statements about the perceived benefits of alcohol use varied during treatment. His mode score on the alcohol scale (during treatment) was one; however the range was between one and four (see Figure 3). On the drug use scale Paul's mode score during treatment was one, however his scores also ranged between one and four (see Figure 3).

4.15 READINESS TO CHANGE QUESTIONNAIRE

Paul completed the Readiness to Change Questionnaire (RTCQ) (for alcohol use only) three times prior to treatment. His scores during this baseline measure indicated that he was in the action stage of change regarding his alcohol use, with a mean score of 3. However, as shown in Figure 4, Paul's score on the precontemplation scale increased during baseline, with his score on precontemplation (4) at the final baseline assessment surpassing his score on the action scale (1). This suggests that prior to treatment beginning Paul's motivation to make changes to his alcohol use had dropped.

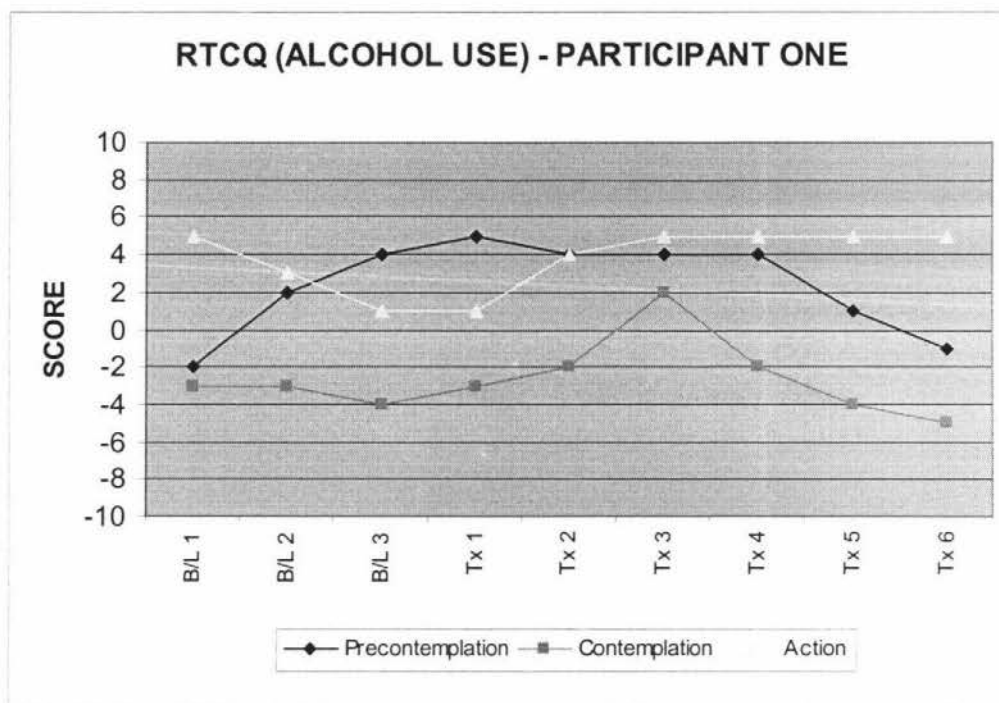


Figure 4: Participant One - Readiness to Change Questionnaire (Alcohol Use)

Paul continued to complete the RTCQ during treatment. Paul's score on the precontemplation scale (mean score 2.8) decreased during treatment from 5 to -1 (see Figure 4). During treatment his scores on the contemplation scale (mean score of -2.3) initially increased over the first three treatment sessions from -3 to 2, however then decreased from 2 at treatment session three to -5 at treatment sessions 6 (see Figure 4). Paul's scores on the action scale (mean score 4.2) also increased over the first three treatment sessions from 1 to 5, and for the following three treatment sessions his action score stayed at 5 (see Figure 4). These scores indicate that the treatment sessions may have increased Paul's motivation to make changes regarding his alcohol use.

4.16 SUBSTANCE USE RECORDS

Paul's substance use was self-reported for 14 days prior to beginning treatment. During this time he reported no substance use (0%, see Figure 5). Paul completed weekly records of substance use for 27 days during treatment. Of these days Paul used alcohol on 4 days (15%), cannabis on 2 days (7%), and also reported use of caffeine pills on 1 day (4%, see Figure 5).

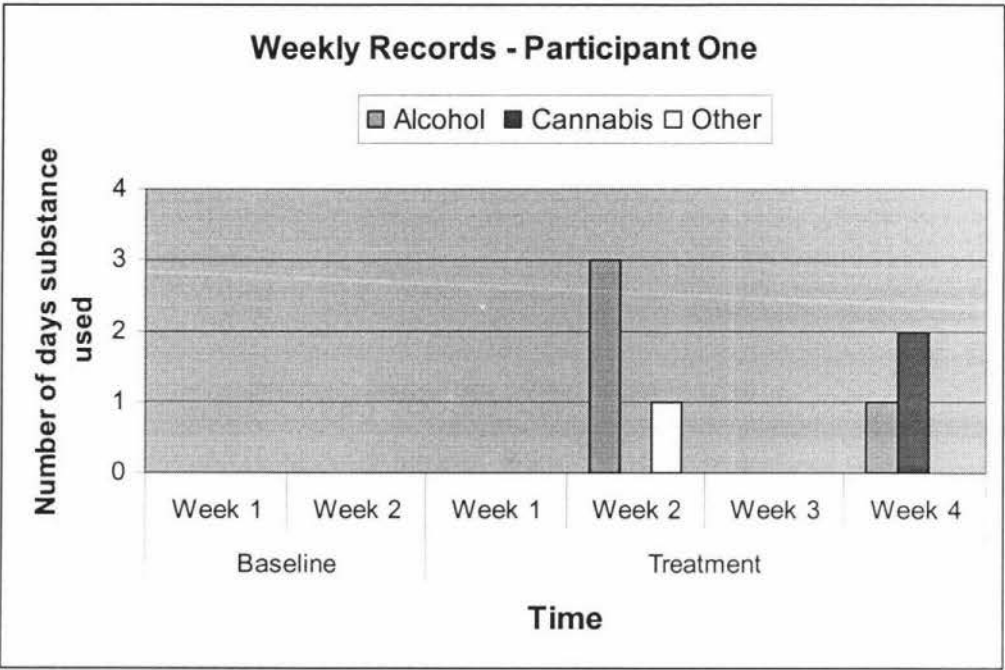


Figure 5: Participant One - Weekly Substance Use

4.2 PARTICIPANT TWO: JOHN

John reported that he had difficulties with reading and writing, and subsequently received extra support when completing the assessment battery, with questionnaires being read to him and completed for him by the research assistant that completed the assessment.

4.21 ADOLESENT DIAGNOSTIC INTERVIEW

Pre-treatment Assessment

John presented as a 15 year old male of New Zealand Māori descent. He lived with his mother, and was in Year 11 at his local High School. John does not have any contact with his father, or his half sister. The Sociodemographic Factors section of the Adolescent Diagnostic Interview (ADI) indicated that no one in John’s immediate family has had an alcohol and drug or mental health problem. It did however indicate that John was being prescribed Ritalin to treat his diagnosed ADHD. The Psychosocial Stressors section did not indicate that there had been any stressors in John’s life in the last 12 months that had made him unhappy. Experiences that had occurred had made

John feel happy, such as starting to earn his own money, and becoming involved in a new hobby. Other experiences that had occurred he reported feeling neutral about, such as finding a new group of friends, getting into trouble with the law, and having medication prescribed for him.

According to John's responses on the Substance Use/Consumption History section John has used alcohol, cannabis, amphetamines, and hallucinogens. The results indicated that John's substance use began at a young age, with him first using cannabis at age 8 years, alcohol at 9 years, and mushrooms (psilocybin, a hallucinogen) at 11 years old. John reported that he had used amphetamines about 4 times, all other substances he had used more than 5 times in his lifetime. Sections D (alcohol use symptoms), E (cannabis use symptoms) and F (additional drug use symptoms) of the ADI were administered and the results indicated that John met the criteria for a diagnosis of alcohol dependence disorder with physiological dependence, and cannabis dependence disorder with physiological dependence.

The results of the level of functioning section generally indicated that John's functioning was about average or good in most areas. Areas of concern were academic functioning and legal status. More specifically John had been placed in special classes at school, and had also previously been arrested and charged with a misdemeanour. The results suggest that John's Psychiatric Status domain was poor, and the screens for Attention Deficit Disorder and Conduct Disorder indicated that he may be experiencing some symptoms that would warrant further investigation. It was estimated that John's Global Assessment of Functioning Score (GAF) would be in the 70-61 range, indicating that he may be experiencing some mild symptoms of a psychiatric disorder, or some minimal difficulty in everyday functioning. John's orientation and memory screen score was average.

Post-treatment Assessment

At post-treatment and follow-up assessment sections D, E, and F of the ADI were re-administered, to establish if any substance disorder diagnostic criterion were met. At post-treatment assessment John no longer met the criteria for a diagnosis of alcohol dependence disorder with physiological dependence, however he did meet criteria for a diagnosis of alcohol abuse disorder. The results show that John met the criteria for a diagnosis of cannabis dependence disorder, however he no longer met the criteria for physiological dependence, and dependence symptoms had not been present for a period of one month.

6 Month Follow-Up

At six month follow-up assessment John met the criteria for a diagnosis of alcohol dependence disorder with physiological dependence. He did not meet the criteria for any cannabis related disorder.

4.22 PERSONAL EXPERIENCE INVENTORY

Unless stated otherwise the following results are based on comparison of John's scores to those of the High School sample described in the PEI manual (Winters & Henly, 1994). A sample of young people presenting for treatment at a drug clinic is also provided in the manual (Winters & Henly, 1994) and is referred to at times in these results.

Pre-treatment Assessment

The Drug Use History Section of the Personal Experience Inventory (PEI) indicated that John had consumed alcohol, and had used cannabis, LSD, other psychedelics, amphetamines, and also inhalants, which were not found in the results of the ADI. This section indicated that John's drug use began early in life, with his cannabis and alcohol use starting when he was in Year 7-8 (11-12yrs) and experimentation with other drugs starting when he was in Year 9-10 (13-14yrs). Several areas of concern were indicated by the Psychosocial Problem Screens. Physical abuse was indicted, with John responding 'sometimes' to the item 'members of my family get so angry they hit each other'. A Family Chemical Dependency History was indicated through the responses to several items asking about parent and sibling substance use. Other items of note were in response to questions about hyperactivity and being prescribed medication. Three of the four Residential Treatment Indicators were negative. The one indicator that was positive was for Severe Family Problems.

The remaining responses are divided into two sections, Chemical Involvement Problem Severity and Psychosocial Adjustment.

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

The validity scales for this section of the PEI indicated that John may have attempted to portray himself in an unrealistically positive and an extremely negative light. This should be kept in mind when considering his results.

The Chemical Problem Severity scale is divided into basic scales and clinical scales. On the basic scales John's t-score (64, see Figure 6) on the Personal Involvement with Chemicals scale is over 1 SD above the mean indicating that he uses substances at times

and in settings that are inappropriate, that he uses for psychological benefit, or to self-medicate, and that he often re-structures activities to accommodate his substance use. John's t-score (44, see Figure 6) on the Social Benefits of Drug Use scale is identified as a strength, suggesting that he is unlikely to use for social benefit. On the Polydrug Use scale John's t-score (73, see Figure 6) was significantly elevated when compared to both the high school and the drug clinic norms, it was over 2 SDs above the mean and was identified as a weakness. This indicates that John may have had experience with and is probably a regular user of a wide variety of substances.

As shown in Figure 6, all of John's t-scores on the clinical scales were over 1 SD above the mean. These scales are indicative of John using drugs as a recreational activity, usually with his peers, and also using as a way to alleviate depression, boredom, and other undesirable emotional states, or to enhance pleasurable states. This is also suggestive of John's substance use occurring in a variety of physical and temporal settings, with preoccupation about substance use, including pre-planning use, restructuring of activities, rumination about use, and an inability to abstain or maintain moderate use.

PART TWO: PSYCHOSOCIAL ADJUSTMENT

The validity scales for this section of the PEI indicated that John answered openly and honestly with no attempt to distort the results.

On the Personal Risk Scales John's t-score (43, see Figure 6) on the Negative Self-image scale suggests that one of John's strengths is good self-esteem. John's t-score (65, see Figure 6) on the Deviant Behaviour scale was over 1 SD above the mean, suggesting that he has engaged in unlawful or delinquent behaviour more often than most high school students. John's t-score (61, see Figure 6) on the Rejecting Convention scale was over 1 SD above the mean. This indicates that John holds some unconventional or antisocial moral beliefs, more than the average high school student. The Absence of Goals scale indicates a failure to plan or think about the future. John's t-score (65, see Figure 6) on this scale was over 1 SD above the mean.

On the Environmental Risk Scales John's t-score (62, see Figure 6) on the Sibling Chemical Use scale is over 1 SD higher than the mean. This suggests that he has a sibling that is involved in substance use. John's t-score (63, see Figure 6) on the Family Pathology scale was also over 1 SD above the mean. The Family Pathology scale is indicative of possible chemical dependency, physical or sexual abuse, or other dysfunction within the family.

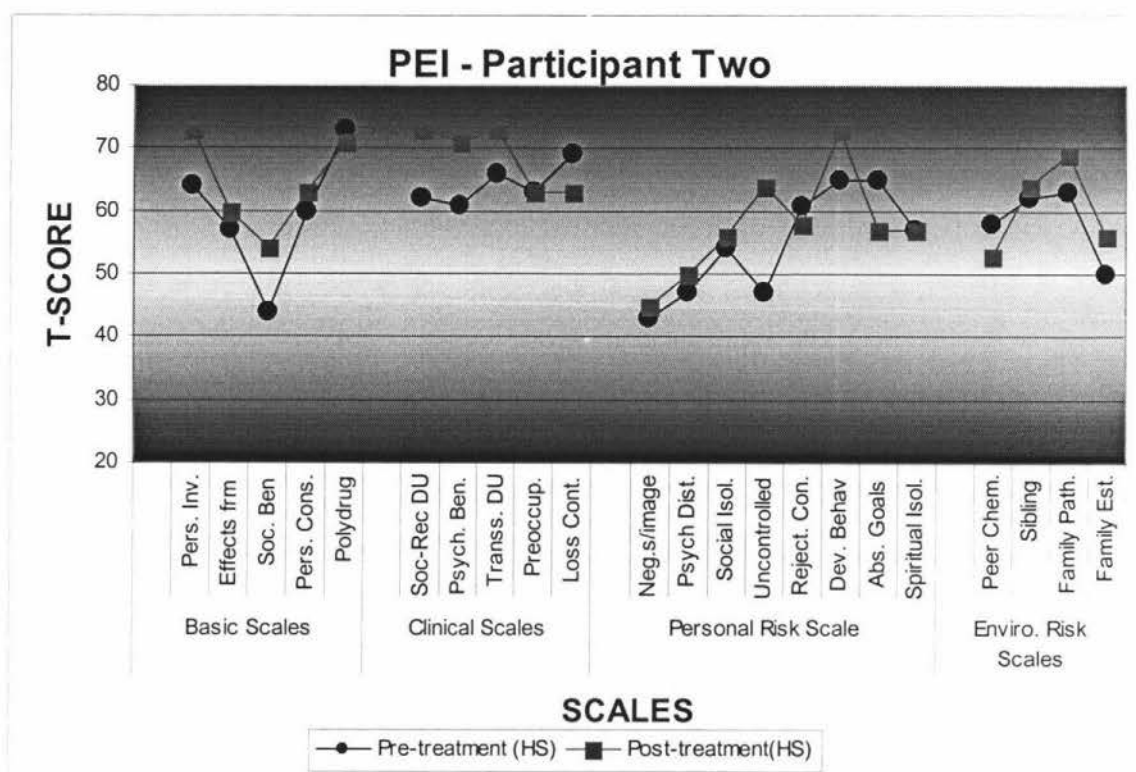


Figure 6: Participant Two – Personal Experience Inventory T-Scores
 HS – Scores based on High School standardisation sample

Post-treatment Assessment

At post-treatment assessment John’s responses on the drug use history section of the PEI were more consistent with his original responses on the ADI. Results indicated that John had tried alcohol, cannabis, LSD, and amphetamines. It was not indicated that John had tried other psychedelics, or inhalants. John’s responses continued to indicate concern in the Psychosocial Screens for Physical Abuse and Family Chemical Dependency History. The Residential Treatment Indicator for Severe Family Problems also remained positive.

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

At post-treatment assessment many of John’s t-scores on the Chemical Involvement Problem Severity section had increased. However it should be noted that the validity scales for this section suggest that John may have attempted to portray himself in a negative light. John’s t-scores on the Personal Involvement with Chemicals Scale (73), Social Recreational Drug Use (73), and Transsituational Drug Use (73) scale had all increased (see Figure 6) to over 2 SDs above the mean, and were considered to be

significantly elevated when compared to both high school and drug clinic norms. His t-score (71, see Figure 6) on the Psychological Benefits of Drug Use scale had also increased to over 2 SDs above the mean, and was considered significantly elevated. John's t-score (71, see Figure 6) on the Polydrug Use scale had decreased slightly however continued to be significantly elevated when compared to both high school and drug clinic norms. His t-score (63, see Figure 6) on the Loss of Control scale had also decreased slightly and was no longer considered significantly elevated when compared to drug clinic norms.

PART TWO: PSYCHOSOCIAL ADJUSTMENT

At post-treatment assessment there were not any significant changes in John's t-scores on this section of the PEI. His t-score (73, see Figure 6) on the Deviant Behaviour scale had increased to over 2 SD's above the mean, and was considered to be significantly elevated compared to both high school and drug clinic norms. Also, John's t-score (64, see Figure 6) on the Uncontrolled scale, which was below the mean (47, see Figure 6) at pre-treatment assessment and is indicative of low frustration tolerance and anger, was over 1 SD above the mean. John's t-score (69) on the Family Pathology scale was nearly 2 SDs above the mean and considered to be a weakness and was significantly elevated when compared to drug clinic norms.

6 Month Follow-Up

As John needed extra assistance with reading and answering questionnaires his assessment took a lot longer than the other participants. Unfortunately at the 6 month follow-up assessment due to the limited time that was available John was not able to complete the PEI.

4.23 ADOLESCENT RELAPSE COPING QUESTIONNAIRE

John completed the Adolescent Relapse Coping Questionnaire (ARCQ) prior to treatment. John scored a 51 on Scale 1 out of a possible 84, indicating Cognitive and Behavioural Problem Solving Skills (CBPS). He scored 13 of a possible 49 on Scale 2, indicating Self Critical Thinking (SCT), and 16 of a possible 63 on Scale 3 which indicates Abstinence Focused Coping Skills (AFCS). John's total score on the ARCQ was 80 out of a total possible score of 196 (see Figure 7).

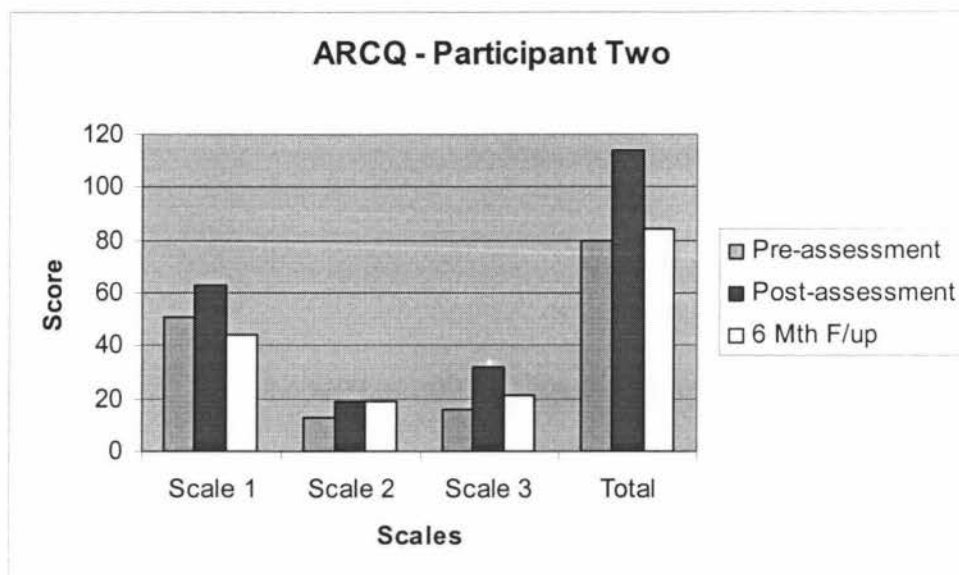


Figure 7: Participant Two - Adolescent Relapse Coping Questionnaire

As shown in Figure 7 at post-treatment assessment all of John's scores on the ARCQ scales had increased. John scored 63 on Scale 1 (CBPS), 19 on Scale 2 (SCT), and 32 on Scale 3 (AFC). John's total score on the ARCQ at post-treatment assessment was 114. John's score on Scale 3 (AFC) had increased by 100% at post-treatment assessment. Scale 3 is the strongest predictor of concurrent and future substance use, and suggests that John is increasingly utilising strategies that are effective in avoiding or minimising his substance use.

At 6 month follow-up John's score on Scale 1 (CBPS) of the ARCQ was 44, Scale 2 (SCT) was 19, and Scale 3 (AFC) was 21 (see Figure 7). John's score on Scale 3 remains higher than it was at pre-treatment assessment (16, see Figure 7). John's total score on the ARCQ scales was 84. John's results on Scale 3 suggest that he continues to utilise strategies that have been shown to be correlated with a reduction in substance use.

4.24 PERCEIVED BENEFITS OF DRINKING AND DRUG USE SCALE

John completed the Perceived Benefits of Drinking and Drug Use Scale (PBDDS) three times prior to commencing the treatment programme to establish a baseline. John's scores on Figure 8 show that he consistently agreed with three of the five statements about the perceived benefits of both drinking and drug use. It was also the same three statements that he consistently endorsed as true. The higher the perceived benefits of

drinking and drug use, as indicated by a higher score, the more likely it is that substances are being used and that negative consequences are being experienced. John's scores suggest that he is moderately involved in substance use, and may be experiencing some negative consequences as a result of this.

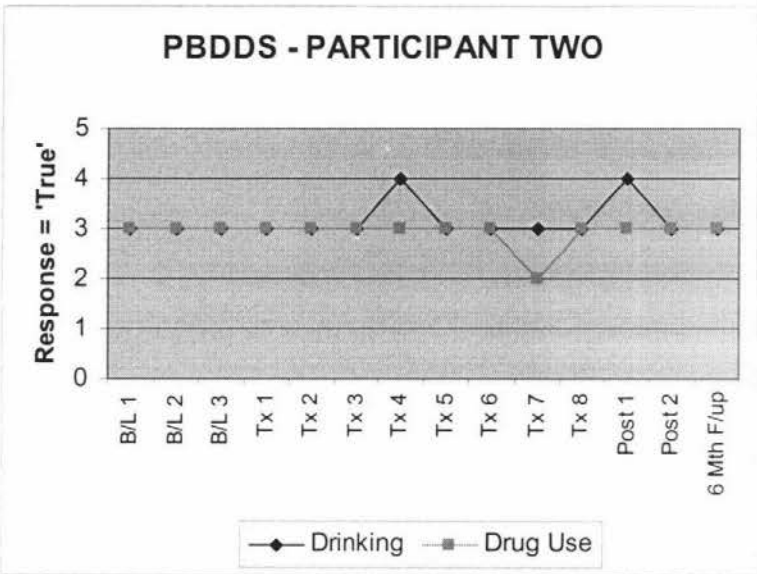


Figure 8: Participant Two - Perceived Benefits of Drinking and Drug Use Scale

John's scores on the PBDDS remained almost constant throughout treatment, with three being the mode score for both the drinking and drug use scale (see Figure 8). However there was some variation with the range on the drinking scale being 3-4, and the range on the drug use scale being 2-3.

At post-treatment assessment John's score on the PBDDS indicated that he agreed with three of the five statements about the perceived benefits of drug use. His score on the drinking scale was initially four and then three (see Figure 8).

As shown in Figure 8, at 6 month follow-up John's score was three on both the drinking and drug use scales. These scores suggest that the treatment programme did not have any short or long term effect on John's perceived benefits of drinking and drug use, which have in turn been shown to be correlated with substance use and the possibility of related negative consequences.

4.25 READINESS TO CHANGE QUESTIONNAIRE

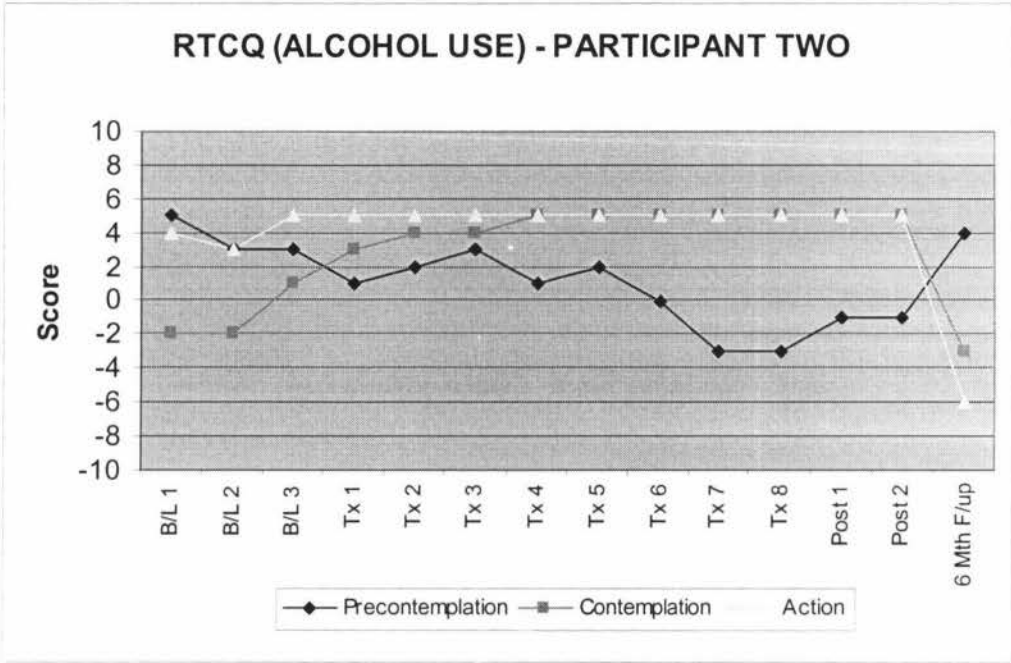


Figure 9: Participant Two - Readiness to Change Questionnaire (Alcohol Use)

John completed the Readiness to Change Questionnaire (RTCQ) for both his alcohol and drug use three times prior to treatment. The results shown in Figure 9 suggest that prior to treatment John was most likely in between the action stage ($M=4$) and the precontemplation stage ($M=3.7$) for his alcohol use. John's score's on the drug use version of the RTCQ, as seen in Figure 10, indicate that he was also in between the action ($M=3$) and precontemplation ($M=2.3$) stages regarding his drug use, although his scores are not particularly high on either scale.

During treatment John completed the RTCQ weekly for both alcohol and other drug use. His scores on the alcohol scale, as shown in Figure 9, indicate that he was most likely in between the contemplation ($M=4.5$) and the action ($M=5$) stages of change. This suggests that John may have been thinking about, and actually started to make some changes regarding his alcohol use. On the drug use scale, as shown in Figure 10, it appears that John was also in between the stages of contemplation ($M=4.4$) and action ($M= 4.1$).

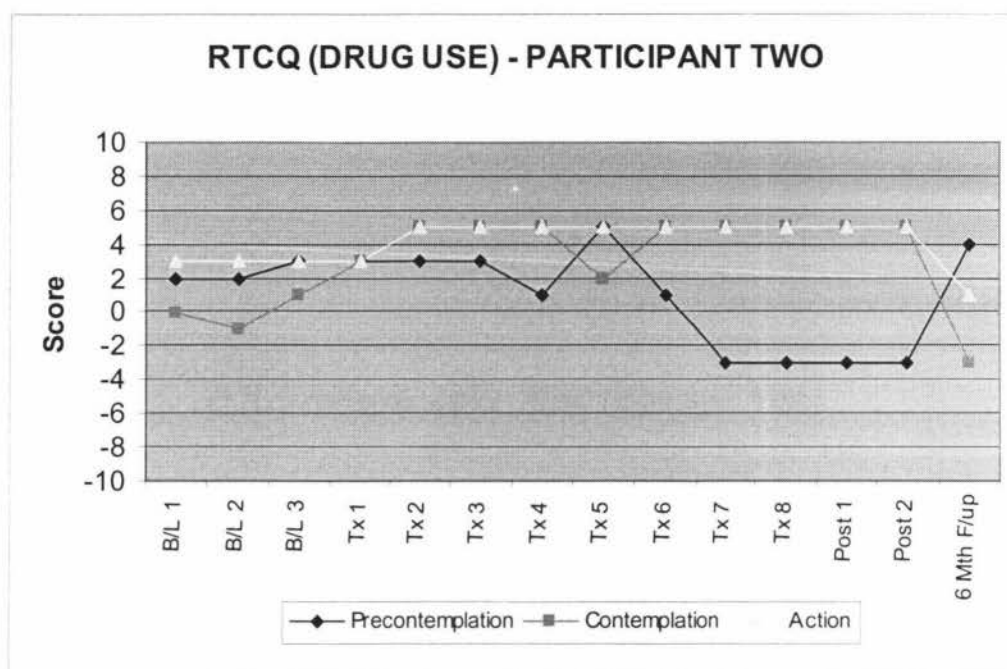


Figure 10: Participant Two - Readiness to Change Questionnaire (Drug Use)

At post-treatment assessment John's scores on the RTCQ indicate that he remains in between the contemplation (alcohol M=5, drug use M=5) and action (alcohol M=5, drug use M=5) stages for both his alcohol (see Figure 9) and his drug use (see Figure 10).

At 6 month follow-up John's score on the RTCQ indicates that he was in the pre-contemplative stage with regard to both his alcohol (M=4, see Figure 9), and his other drug use (M=4, see Figure 10). This suggests that John no longer believed he needed to make any changes to his substance use. This needs to be considered in the context of John's substance use, as at 6 month follow-up John's results on the substance use records indicate that he was not using any substances other than alcohol.

4.26 SUBSTANCE USE RECORDS

John's daily use of substances was recorded for 43 days prior to treatment. During this time John reported using alcohol on 3 of 43 days (7%) and cannabis on 6 of 43 days (14%) as shown in Figure 11. He did not report any other substance use.

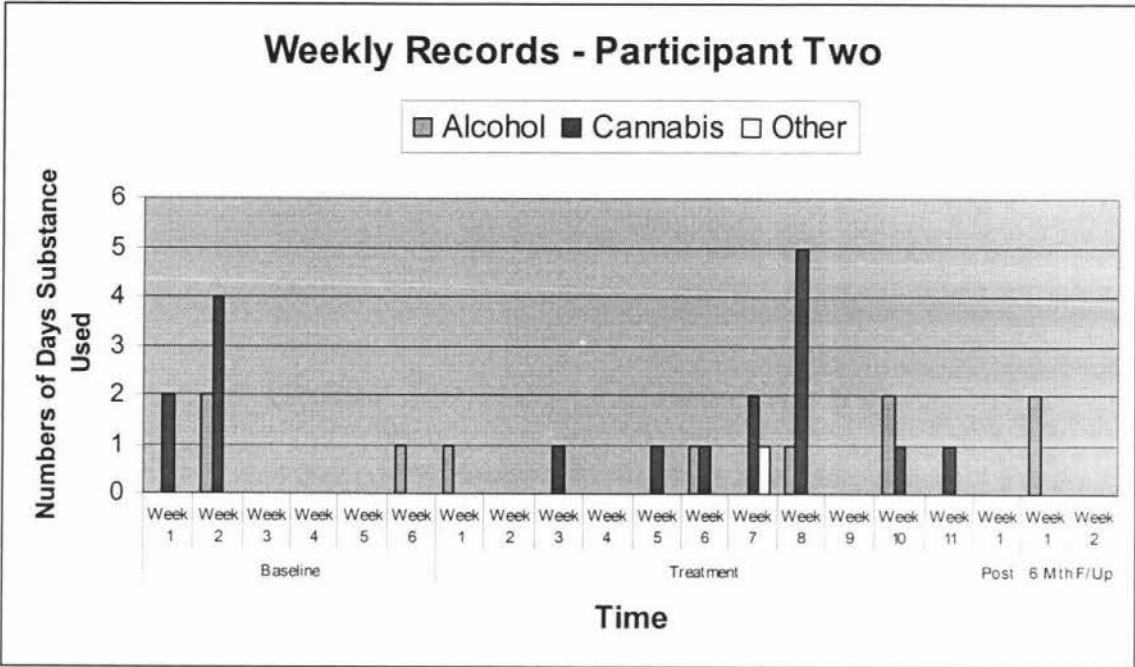


Figure 11: Participant Two - Weekly Substance Use

During treatment John recorded his daily substance use over a period of 78 days. As shown in Figure 11, of those 78 days John used alcohol on 5 days (6%) and cannabis on 12 days (15%). He reported using amphetamines on 1 day (1%). These results suggest there was little change in his alcohol or cannabis consumption during the treatment programme.

At post-treatment assessment, over a period of 14 days, John used alcohol on 2 days (14%), and did not use cannabis at all (0%) as shown in figure 11. This is a 100% decrease in John’s reported level of cannabis use over the baseline and treatment period. As can be seen in figure 11, at 6 month follow-up, over a period of 14 days John reported use of alcohol on 2 days (14%). He did not report any use of cannabis in those 14 days (0%). This indicates that John’s alcohol consumption had remained relatively stable, but that, if this sample is typical of his average cannabis consumption, his cannabis use had ceased completely.

4.3 PARTICIPANT THREE: MICHAEL

4.31 ADOLESCENT DIAGNOSTIC INTERVIEW

Pre-treatment Assessment

Michael presented as a 15 year old New Zealand European who was currently living with his father, step-mother, step-brother (15yrs), and step-sister (13yrs). Michael had been expelled from his local High School for truancy and swearing at teachers, and was attending an alternative education programme. Michael's mother lives overseas. Results from the Sociodemographic factors section of the ADI indicate that both Michael's father and step-mother are in regular employment. There was no indication that Michael, or anyone else in his family, had been treated for alcohol and drug or mental health problems. Michael's results did not indicate that any of the experiences on the list of psychosocial stressors had made him unhappy. The results did indicate that Michael had experienced some of the listed experiences and some of these items made him happy or very happy including terminating a dating relationship and having trouble with a teacher, and some that he had felt neutral about including: changing schools; receiving poor grades; getting into trouble with the law; getting suspended or expelled from school; becoming heavily involved in a new hobby; and having trouble with classmates. The results of the Substance Use/Consumption History section of the ADI indicated that Michael had consumed alcohol and used cannabis. He did not report use of any other substances. Michael reported that the first time he got drunk he was 12 years old, and the first time he tried cannabis he was 13 years old.

Section D (alcohol use symptoms) and Section E (cannabis use symptoms) of the ADI were completed. Results indicated that Michael met the criteria for a diagnosis of Alcohol Abuse Disorder.

Most of Michael's scores on the Level of Functioning Domains were average. One of the areas of concern was School Social Functioning. The results indicated that in the past Michael had been sent to the principal, had been suspended, and had been expelled from high school. Another area of concern was Academic Functioning, specifically because Michael had failed a year, and had been placed in special classes at school. According to the results of another at risk domain for Michael was Legal Status which indicated that Michael had been in trouble with the law. The Psychiatric screens

indicated that symptoms of Attention Deficit Disorder and Conduct Disorder may need further investigation. It was also indicated that Michael had made a suicide attempt in the past. It was indicated that Michael had not experienced any suicidal ideation for over 12 months. It was estimated that Michael's Global Assessment of Functioning (GAF) score would be in the 70-61 range. This suggests that he may be experiencing some minor symptoms of a psychiatric disorder or occasional difficulty in daily functioning, but that generally he is functioning quite well.

Michael's Orientation and Memory Screen score was average, suggesting that there was no significant impairment in his thinking at the time of the interview.

Post-treatment Assessment

At post-treatment assessment Section's D and E of the ADI were re-administered to establish if diagnostic criteria for any substance use disorders were met. Michael met the criteria for a diagnosis of alcohol dependence disorder without physiological dependence.

12 Month Follow-Up

At 12 month follow-up Section's D and E of the ADI were again re-administered. The results indicated that Michael did not meet the criteria for any substance use disorder.

4.32 PERSONAL EXPERIENCE INVENTORY

Unless stated otherwise the following results are based on comparison of Michael's scores to those of the High School sample described in the PEI manual (Winters & Henly, 1994). A sample of young people presenting for treatment at a drug clinic is also provided in the manual (Winters & Henly, 1994) and is referred to at times in these results.

Pre-treatment Assessment

The Drug Use History Section of the PEI indicated that Michael had consumed both alcohol and cannabis, and that he had used inhalants once or twice, which had not been indicated in the ADI. It was indicated that alcohol is the only substance that Michael has ever used regularly, and that he started drinking regularly when he was Year 9 or 10 (13-14 yrs). There were no areas of concern indicated by the Psychosocial Problem Screens, and all of the Residential Treatment Indicators were negative.

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

According to the validity scales for the chemical involvement problem severity section of the PEI Michael was open and honest in his response to these questions.

As shown in Figure 12 on the Basic Scales of the PEI all of Michael's t-scores, except for on the Social Benefits of Drug Use scale (t-score 58), were over 1 or more SDs above the mean. His t-score (71) on the Personal Involvement with Chemicals scale was over 2 SDs above the mean, and was considered to be significantly elevated. This is indicative of frequent substance use at inappropriate times or in inappropriate places, use for psychological benefit or self-medication, and suggests that Michael may re-structure activities to accommodate his substance use. Michael's t-score (66) on the Personal Consequences of Drug Use scale is considered significantly elevated (more than 2 SDs above the mean) when compared to drug clinic norms, suggesting that Michael has had difficulties, or undesirable consequences relating to his substance use, more than the average adolescent presenting at a drug clinic.

On the Clinical Scales the Psychological Benefits of Drug Use scale t-score (71, see Figure 12) was over 2 SDs above the mean, and considered to be significantly elevated when compared to both high school and drug clinic norms. As shown in Figure 12 Michael's t-scores on the Transsituational Drug Use scale (69) and Preoccupation with Drug Use scale (66) were both more than 1 SD above the mean, and significantly elevated when compared to drug clinic norms. These scales are suggestive of substance use occurring in a variety of settings, and the preplanning of future substance use. Michael's t-score (63) on the Social Recreational Drug Use scale was over 1 SD above the mean, indicating that Michael's substance use is often a form of recreational activity that usually occurs with friends. Michael's t-score (54) on the Loss of Control scale indicates that one of Michael's strengths is his ability to maintain control of his substance use (see Figure 12).

PART TWO: PSYCHOSOCIAL ADJUSTMENT

The validity scales on the psychosocial adjustment section of the PEI also indicated that Michael was open and honest in his responses.

On the Personal Risk Scales (PRS) two t-scores were over 2 SDs above the mean, and considered to be significantly elevated. These were on the Uncontrolled scale (73), and Absence of Goals scale (73), indicating that Michael may have a low frustration tolerance, and that he may have made little plans for the future. Both of these scales were identified as possible weaknesses. As shown in Figure 12 on the PRS Michael's t-scores on the Rejecting Convention (66), Deviant Behaviour (68), and Spiritual Isolation (63) scales were also all over 1 SD above the mean. This suggests that Michael holds some unconventional beliefs, may engage in some deviant behaviour,

and does not utilise prayer or spirituality in his life. Strengths were identified through Michael’s low t-scores on the Negative Self-Image (48) and Social Isolation (42) scales, suggesting Michael has good self-esteem and feels he is socially competent.

On the Environmental Risk Scales (ERS), as shown in Figure 12, Michael’s t-score (46) on the Sibling Chemical Use scale suggested that this was an area of strength, with minimal or no substance use by Michael’s siblings. His t-score (65) on the Peer Chemical Environment scale, however, suggests that Michael generally tends to associate with peers that use substances.

Post-treatment Assessment

Michael’s responses on the Drug Use History section of the PEI were consistent with his earlier responses at pre-treatment assessment, indicating that he had consumed alcohol, and used cannabis and inhalants. There continued to be no areas of concern as indicated by the Psychosocial Problem Screens, and all Residential Treatment Indicators remained negative.

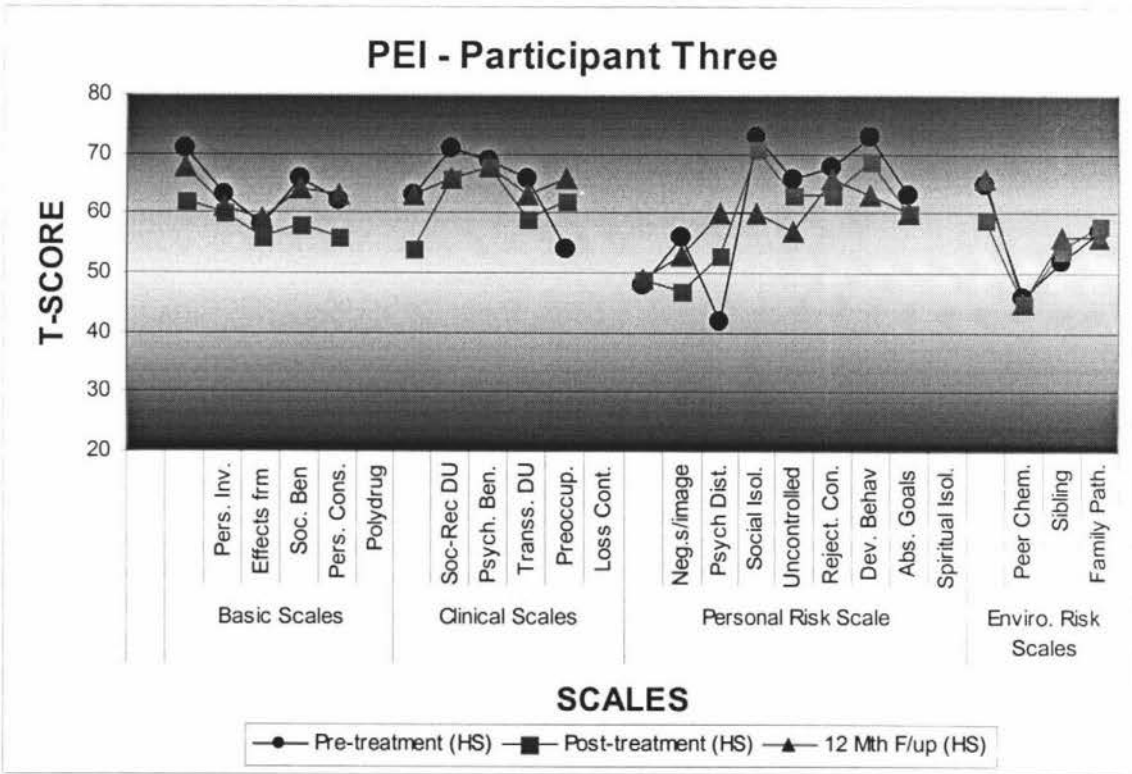


Figure 12: Participant Three – Personal Experience Inventory T-Scores

HS – Scores based on High School standardisation sample

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

The validity scales for the chemical involvement problem severity section indicated that Michael answered this section of the PEI openly and honestly, with no deliberate attempts to distort his results. At post-treatment assessment all of Michael's t-scores on the basic scales and four of the five clinical scales had reduced, as shown in Figure 12. Also his t-score (62) on the Personal Involvement with Chemicals scale was no longer significantly elevated when compared to either high school or drug clinic norms, although it did remain more than 1 SD above the mean. The only t-score (62) that had not reduced was on the Loss of Control scale, however this was still below the mean when compared to a sample of young people presenting to a drug clinic.

PART TWO: PSYCHOSOCIAL ADJUSTMENT

The validity scales for the psychosocial adjustment section of the PEI indicate that Michael continued to answer questions open and honestly, and it was indicated that Michael was particularly candid in his responses. As shown in Figure 12 Michael's t-score (71) on the Uncontrolled scale was the only score on the PRS that remained significantly elevated, suggesting that Michael continues to have a low frustration tolerance. Michael's t-scores on the Rejecting Convention (63), Deviant Behaviour (63), Absence of Goals (69), and Spiritual Isolation (60) scales had reduced, however all remained 1 SD or more above the mean (see Figure 12). On the Environmental Risk scales Michael's t-score (59) on the Peer Chemical environment scale had reduced, suggesting that he may be spending less time with friends that use substances, although this reduction was not statistically significant.

12 Month Follow-Up

At the 12 Month Follow-up assessment Michael's responses on the Drug Use History section of the PEI were consistent with earlier assessments in that it was indicated that he had used alcohol, cannabis, and inhalants, but it was also indicated that he had used LSD 3-5 times in the last twelve months, and 20-39 times in his lifetime. This result suggests that LSD has been consumed prior or during treatment but had not been identified in previous test results. It also indicated that he had tried tranquilisers 1-2 times in his lifetime. The results of the Psychosocial Problem Screen section of the PEI suggested some concern about possible physical abuse in the home, as Michael responded 'sometimes' to the item 'members of my family get so angry they hit each other'. The Residential Treatment Indicator for Severe Family Problems was also now positive.

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

At 12 month follow-up there were not any t-scores on the basic and clinical scales, as shown in Figure 12, that were significantly elevated when compared to a high school sample. Almost all of the t-scores, however, remained more than 1 SD above the mean, suggesting that Michael continues to be more involved with substance use than the average high school student. Michael's t-score (66) on the Loss of Control scale had significantly increased since pre-treatment assessment, suggesting that Michael may be having difficulty maintaining abstinence or moderate use. The validity scales for this section indicated that Michael answered openly and honestly.

PART TWO: PSYCHOSOCIAL ADJUSTMENT

As shown in Figure 12 on the PRS there were no longer any t-scores that were significantly elevated. Michael's t-score (60) on the Uncontrolled scale had significantly reduced since pre-treatment assessment, suggesting Michael is now more likely to be able to cope with frustration. Michael's t-score (60) on the Social Isolation scale also showed that his feelings of social isolation had significantly increased since pre-treatment assessment as shown in Figure 12. However, his t-score (49) on the Negative Self-Image scale of the PRS remained below the mean. Michael's t-score (63) on the Absence of Goals scale had significantly decreased since pre-treatment assessment, indicating that Michael may now be planning or thinking about the future. On the ERS Michael's t-score (66) on the Peer Chemical Environment scale had increased since post-treatment assessment, and was now higher than at pre-treatment assessment, as shown in Figure 12, and was more than 1 SD above the mean. This suggests that Michael is again spending time with peers that are significantly involved in substance use.

4.33 ADOLESCENT RELAPSE COPING QUESTIONNAIRE

Michael completed the Adolescent Relapse Coping Questionnaire (ARCQ) as part of the pre-treatment assessment. Michael scored 34 on Scale 1, measuring Cognitive and Behavioural Problem Solving Skills (CBPS), 14 on Scale 2 which is suggestive of Self-critical thinking (SCT), and 24 on Scale 3, indicative of Abstinence Focused Coping skills (AFC). Michael's total score on the ARCQ was 72, as shown in Figure 13.

At post-treatment assessment Michael's score on the on Scale 1 (CBPS) was 39, Scale 2 (SCT) was 14, and Scale 3 (AFC) was 29. Michael's scores on Scale 1 and Scale 3 had

increased suggesting that Michael had gained skills in both cognitive and behavioural problem solving and abstinence focused coping skills. Michael’s total score was 82.

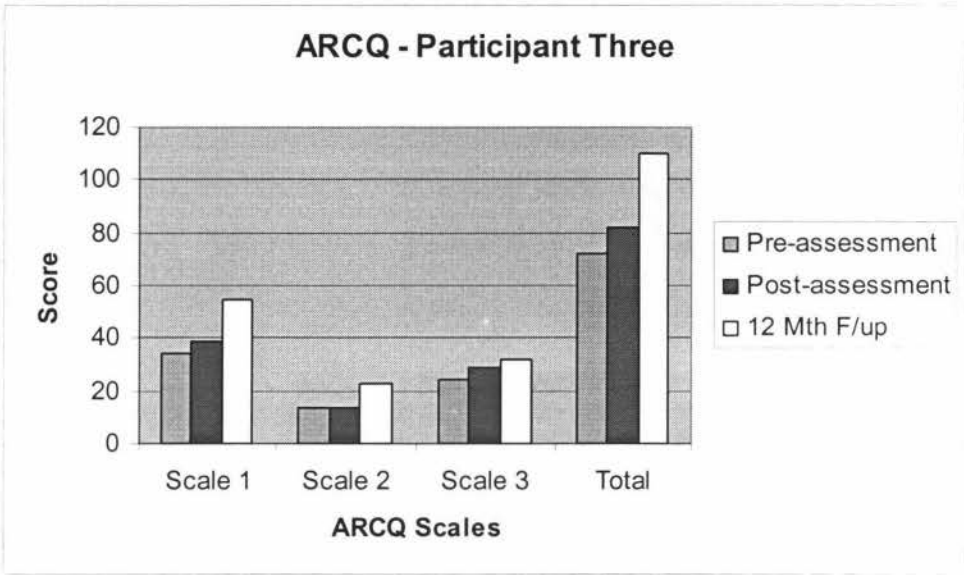


Figure 13: Participant Three - Adolescent Relapse Coping Questionnaire

As shown in Figure 13, at 12 month follow-up assessment Michael’s total score was 110. He scored 55 on Scale 1 (CBPS), 23 on Scale 2 (SCT), and 32 on Scale 3 (AFC). This indicates that following treatment Michael’s skills in coping and behavioural problem solving and abstinence focused coping skills, both of which are associated with decreased risk of relapse, have continued to increase. However, his score on Scale 3 (AFC) has also increased, and this decreases the likelihood of Michael successfully resisting substance use.

4.34 PERCEIVED BENEFITS OF DRINKING AND DRUG USE SCALE

Michael completed the Perceived Benefits of Drinking and Drug Use Scale (PBDDS) four times prior to beginning treatment to establish a baseline. As shown in Figure 14 on the drinking version of the scale Michael scored three twice, and then two twice. On the drug use version Michael initially scored three, and then consistently scored two. Michael’s responses to the PBDDS during treatment varied slightly. As shown in Figure 12 on the drinking version of the questionnaire Michael’s mode score was two, with a range of 2-3. Michael’s mode score on the drug use version was three, also with a range of 2-3.

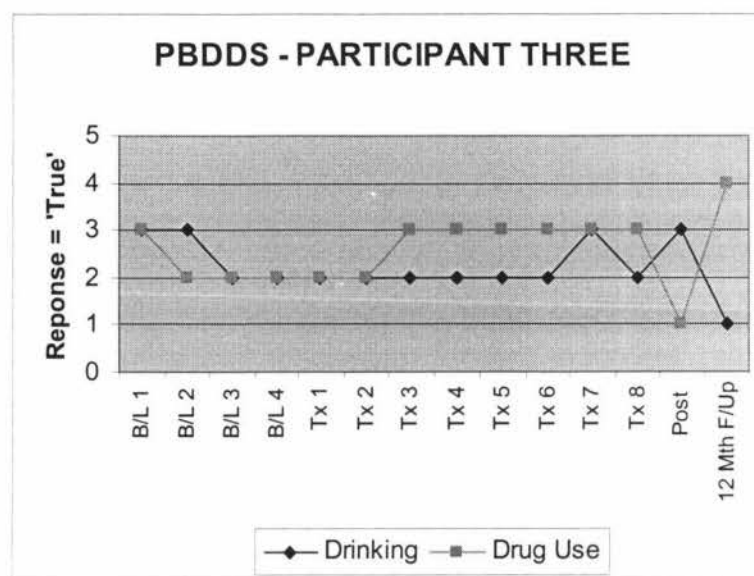


Figure 14: Participant Three - Perceived Benefits of Drinking and Drug Use Scale

As shown in Figure 14 at post-treatment assessment Michael endorsed three of the five statements about the perceived benefits of alcohol use. However, he only endorsed one of the five statements about the perceived benefits of other drug use, compared to regular endorsement of two or three statements during treatment. A high score on the PBDDS is indicative of substance use and associated problems. These results suggest that Michael is moderately involved with substance use. It does not appear that the treatment programme changed any of Michael's perceived beliefs about the benefits of drinking, but that it may have had some effect on his perceived beliefs about the benefits of drug use.

At 12 month follow-up Michael endorsed only 1 of 5 statements about the perceived benefits of alcohol use. However, he endorsed 4 of 5 statements about the perceived benefits of drug use (See Figure 14), however this is not reflected in his substance use at this time.

4.35 READINESS TO CHANGE QUESTIONNAIRE

Prior to treatment Michael completed the Readiness to Change Questionnaire (RTCQ) four times to form a baseline. The results indicate that Michael was in the pre-contemplation stage for his alcohol use, with a mean score of 4.75, as shown in figure 15. Michael's results on the drug use scale, shown in Figure 16, also show that Michael was in the pre-contemplation stage, with a mean score of 3.25. However the substance

use records, as shown in Figure 17, indicate that he was not using any substances other than alcohol at this time.

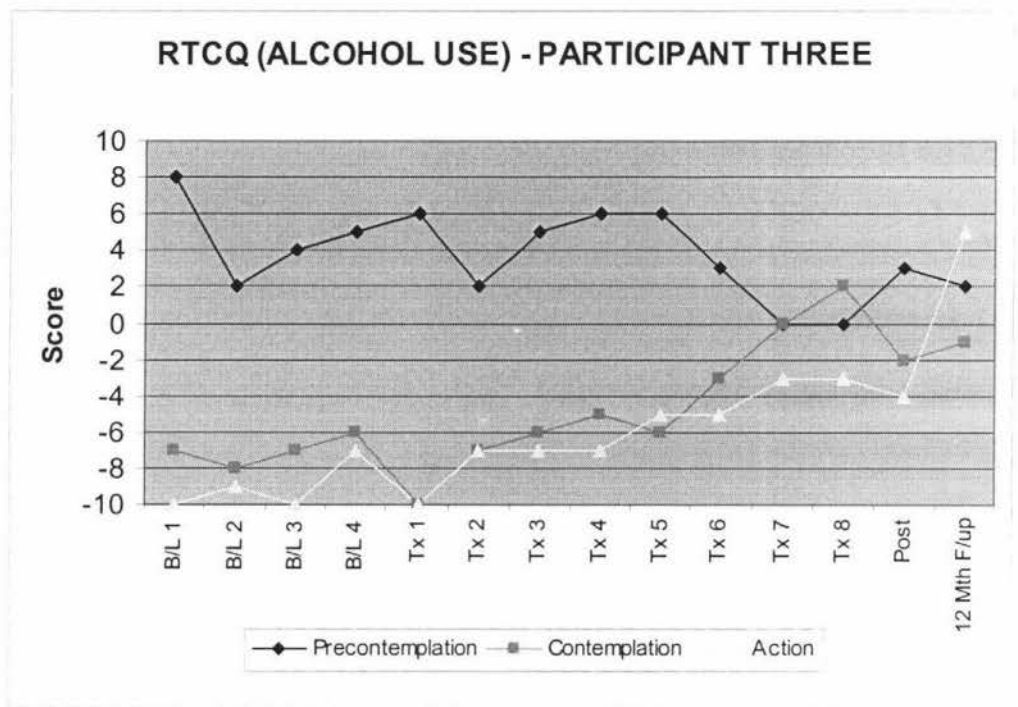


Figure 15: Participant Three - Readiness to Change Questionnaire (Alcohol Use)

As shown in Figure 15 during treatment Michaels scores on the RTCQ indicated that he was in the pre-contemplation stage for his alcohol use, with a mean score of 3.5. However, as treatment progressed Michaels score on the contemplation scale increased, from a mean score of -7 in the first four treatment sessions, to a mean score of -1.75 in the last four treatment sessions. His score on the action scale also increased from a mean score of -7.75 over the first four treatment sessions, to a mean score of -4 over the last four treatment sessions. Also during treatment Michael's scores on the RTCQ indicate that he was in the pre-contemplation stage regarding his drug use, with a mean score of 2.5, as shown in Figure 16. This should again be considered in context, as substance use records, as shown in Figure 17, indicate that Michael did not use any substance other than alcohol throughout treatment.

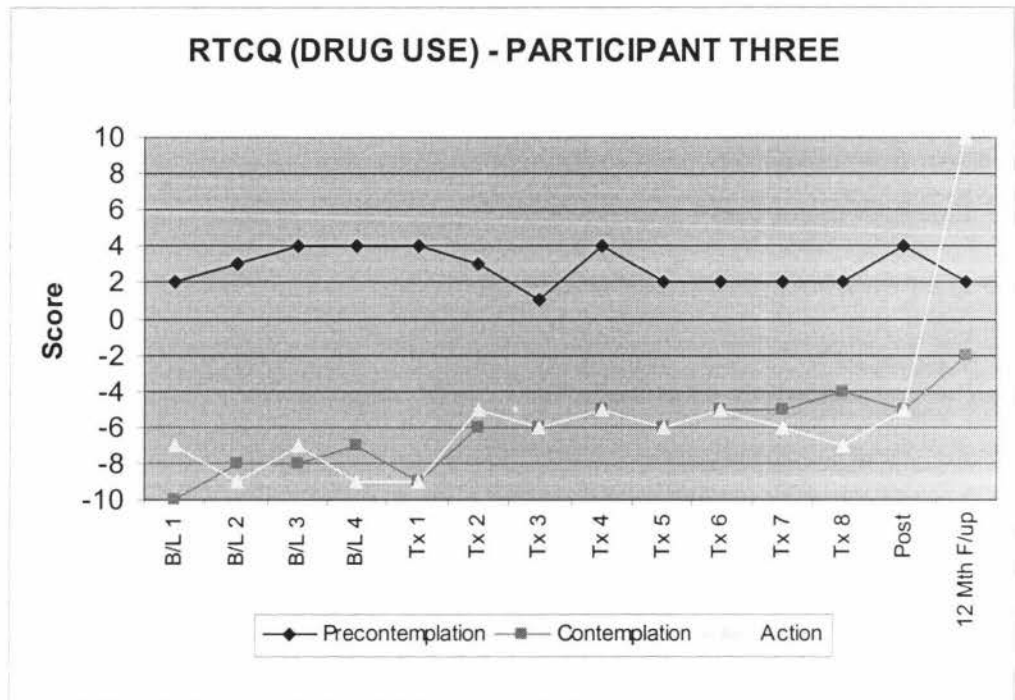


Figure 16: Participant Three - Readiness to Change Questionnaire (Drug Use)

As shown in Figure 15 at post-treatment assessment Michael's scores on the RTCQ indicated that he was in the pre-contemplation stage for his alcohol use, however his score had fallen from a mean score of 4.75 at pre-treatment assessment, and a mean score of 3.5 during treatment to a score of 3. His scores for both the contemplation (-2) and action (-4) stages were consistent with the increase that had occurred over the last four treatment sessions. Michael's results at post-treatment assessment, as shown in Figure 16, also indicated that he was in the pre-contemplation stage for his drug use; however as noted previously substance use records, as shown in Figure 17, do not indicate any recent use of substances other than alcohol.

At 12 month follow-up Michael's scores on the RTCQ for alcohol use indicated that he was in the action stage. His score on the pre-contemplation scale had reduced to 2, and his score on the action scale had increased to 5, as shown in Figure 15. Michael's scores on the drug use version of the RTCQ, as shown in Figure 16, show a significant increase on the action scale, from -5 at post-treatment assessment to 10 at 12 month follow-up. This indicates that Michael was also in the action stage of change for his other drug use.

4.36 SUBSTANCE USE RECORDS

Michael completed weekly records of his substance use for 43 days prior to treatment to establish a baseline. Michael recorded use of alcohol on 5 of these days (12%) as seen in Figure 17.

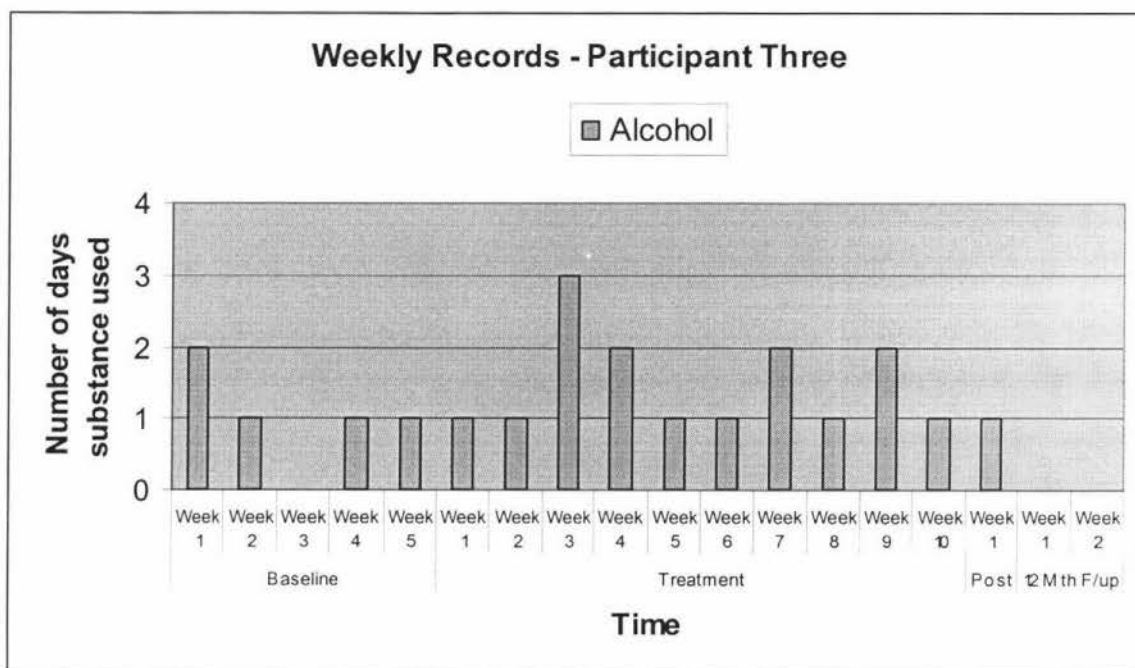


Figure 17: Participant Three - Weekly Substance Use

During treatment Michael recorded his weekly substance use. Of 72 days Michael used alcohol on 13 days (18%), an increase from his previous alcohol use. As can be seen in Figure 17 he did not report use of any other substances.

As shown in Figure 17 at post-treatment assessment Michael completed a record of weekly substance use. Of those 7 days Michael used alcohol on 1 day (14%). He did not use any other substances. These results do not show a significant change in alcohol use from pre-treatment, or treatment assessment.

At 12 month follow-up Michael completed records of his substance use for 14 days. Michael did not use any alcohol or other substances in those 14 days (0%), as shown in Figure 17. This is a 100% decrease in the alcohol use that was reported in the previous assessments.

4.4 PARTICIPANT FOUR: CHRIS

4.41 ADOLESCENT DIAGNOSTIC INTERVIEW

Pre-treatment Assessment

Chris presented as a 15 year old NZ Māori male who lives with his father, step-mother and 14 year old step-brother. Chris had been expelled from his local high school and attended an alternative education programme. Results from the Sociodemographic Factors section of the ADI indicate that Chris's father has a substance use (cannabis) problem, however has never received treatment. It also identified that Chris's step-mother uses cannabis. This section indicated that Chris had never had previous treatment for a substance use problem, but that he had been to counselling for anger management and behavioural problems. Chris has also previously been sent to boarding school by his family.

Results from the Psychosocial Stressors section of the ADI suggest that Chris experienced a number of psychosocial stressors over the last twelve months. The ones that he identified on this measure as making him 'very unhappy' were: an important friend leaving; changing schools; parents arguing or fighting; being expelled or suspended from school; and having a close friend die. Further stressors that had occurred that had made Chris 'unhappy' included: a member of his family having a serious accident or illness; getting in trouble with the law; having trouble with a teacher; running away from home; and having trouble with classmates. Psychosocial Stressors that Chris identified as making him 'happy' or 'very happy' include: becoming heavily involved in religion; starting to earn his own money; finding a new group of friends; moving to a new home; becoming heavily involved in a new hobby; joining a club or group; and having sex with many different partners.

Chris's results on the Substance Use/Consumption History of the ADI indicated that he had used alcohol and cannabis. Chris reported that he had first become drunk when he was 12 years old, and had first tried cannabis when he was 14 years old. Chris reported that he had not used cannabis more than 5 times in his lifetime. Section D (Alcohol Use Symptoms) of the ADI was administered and the results suggest that Chris met the diagnostic criteria for alcohol dependence disorder with physiological dependence.

The results of the Level of Functioning Section of the ADI indicated that Chris's functioning was good or average in most areas of his life. There were some areas in which Chris's functioning was indicated to be of some concern. School social functioning was identified as an area of concern due to Chris being sent to the principal, his parents being called in for a family conference, and being suspended and subsequently expelled. Chris's home environment was another area of concern, more specifically Chris responded positively to an item that asked if family members have hit each other. The results of the Legal Status items in the Level of Functioning section indicated that Chris had come to the attention of the law. Chris also had positive responses to items in the screens for mania, attention deficit disorder, anxiety, and conduct disorder. Chris's Global Assessment of Functioning (GAF) score was estimated to be in the 70-61 range suggesting that he was experiencing some minor symptoms of a psychiatric disorder, or mild impairment in functioning. Chris's Orientation and Memory Screen score was average.

Post-treatment Assessment

At post-treatment assessment Section D of the ADI was re-administered to determine if there had been any change in Chris's previous presentation of the symptoms for alcohol dependence disorder. Chris's results indicated that he continued to meet criteria for alcohol dependence disorder with physiological dependence.

12 Month Follow-Up

At 12 month follow-up according to the results of Section D of the ADI Chris continued to meet criteria for alcohol dependence disorder with physiological dependence.

4.42 PERSONAL EXPERIENCE INVENTORY

Unless stated otherwise the following results are based on comparison of Chris's scores to those of the High School sample described in the PEI manual (Winters & Henly, 1994). A sample of young people presenting for treatment at a drug clinic is also provided in the manual (Winters & Henly, 1994) and is referred to at times in these results.

Pre-treatment Assessment

The Drug Use History section of the PEI at pre-treatment assessment indicated that Chris had used alcohol and cannabis, and had tried inhalants 1-2 times in the last 12 months. Inhalant use was not previously indicated in the results of the ADI. Chris reported that he had not started using alcohol or cannabis regularly until recently.

Chris's reported cannabis use was very minimal, only 3-5 times in his lifetime. Chris's responses on the Psychosocial Problem Screens Section indicate some areas of concern. In this section the screen for physical abuse in the home highlighted Chris's response of 'sometimes' to the item 'members of my family get so angry they hit each other'. Also the screen for Family Chemical Dependency History was positive, with numerous responses suggesting substance use by one or both parents and siblings. The Residential Treatment Indicators for Severe Family Problems and Psychiatric Problems were both positive.

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

The validity scales for the Chemical Involvement Problem Severity section indicate that Chris has responded in a somewhat distorted manner, and may have attempted to portray himself in both an unrealistically positive and unrealistically negative light. As can be seen in Figure 18 the results show that for the Basic Scales Chris's t-score (73) on the Social Benefits of Drug Use scale was over 2 SDs above the mean and was significantly elevated when compared to both high school and drug clinic norms. This scale is indicative of Chris using substances as a way to increase his confidence and be accepted by peers. Chris's t-scores on the Personal Involvement with Chemicals scale (69) and Personal Consequences of Drug Use scale (69), as shown in Figure 18, were both nearly two SDs above the mean. This suggests that Chris is likely to use substances in more settings, uses to self-medicate, restructures activities around substance use, and has had more difficulties as a result of his substance use than the majority of a sample of high school students.

As can be seen in Figure 18 on all of the Clinical Scales Chris's t-scores were more than 1 SD above the mean. Chris's t-scores on the Social Recreational Drug Use scale (68) and Psychological Benefits of Drug Use scale (68) were significantly elevated when compared to drug clinic norms. This indicated that Chris is more likely to use substances as a recreational activity and as a way to alleviate feelings such as depression or boredom than most young people that are presenting at a drug clinic for treatment.

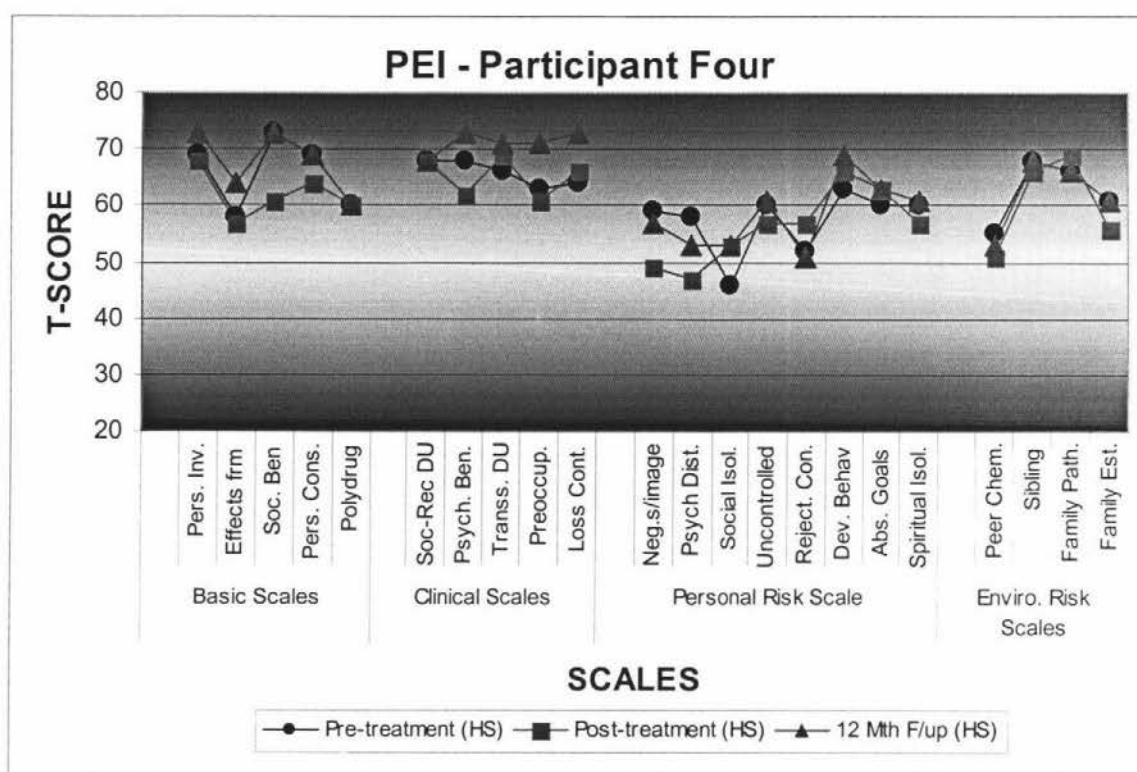


Figure 18: Participant Four – Personal Experience Inventory T-Scores

HS – Scores based on High School standardisation sample

PART TWO: PSYCHOSOCIAL ADJUSTMENT

The validity scales for this section of the PEI indicate that Chris may have attempted to portray himself in a somewhat unrealistically positive light.

On the Personal Risk Scales Chris's t-score (63) on the Deviant Behaviour scale was over 1 SD above the mean, suggesting that Chris engages in unlawful activity more than the average high school student. As shown in Figure 18 Chris's t-score (46) on the Social Isolation scale suggests that one of Chris's strengths is his feelings of social competence.

Chris's t-scores on three of the four Environmental Risk Scales were more than 1 SD above the mean, the Sibling Chemical Use (68), Family Pathology (66), and Family Estrangement scales (61). Chris's t-score (68) on the Sibling Chemical Use scale was considered to be significantly elevated when compared to a drug clinic sample. These results suggest that Chris is likely to have a sibling or siblings that are involved in substance use. These results also suggest that Chris is more likely to experience more

family dysfunction and conflicted family interactions than the average high school student.

Post-treatment Assessment

At post-treatment assessment Chris's responses on the Drug Use History section of the PEI were consistent with his responses at pre-treatment assessment. On the Psychosocial Problem Screens items remained positive for the Family Chemical Dependency History, but there was no longer a positive response for the Physical Abuse screen. Of note was the response 'agree' to the item 'my family has some unpleasant secrets'. One of the Residential Treatment Indicators, Severe Family Problems, remained positive.

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

The validity scale on the Chemical Involvement Problem Severity section indicates that Chris responded in a way that may portray him in a somewhat unrealistically positive light. On the Basic Scales at post-treatment assessment all t-scores except for the Effects from Drug Use scale (57) remained 1 SD or more above the mean, as seen in Figure 18. The Polydrug Use scale t-score (60), however, was the only one that had not reduced, and Chris's t-score (61) on the Social Benefits of Drug Use scale was no longer significantly elevated.

As can be seen in Figure 18 on the Clinical scales all of Chris's t-scores remained over 1 SD above the mean, however, his t-score (62) on the Psychological Benefits of Drug Use scale was no longer significantly elevated when compared to the drug clinic sample.

PART TWO: PSYCHOSOCIAL ADJUSTMENT

Chris's t-scores on the Negative Self-Image (49) and Psychological Disturbance (47) scales had both significantly reduced at post-treatment assessment and were both below the mean, as shown in Figure 18. On the Personal Risk Scales only two of Chris's t-scores, on the Deviant Behaviour (66) and Absence of Goals scales (63), remained more than 1 SD above the mean suggesting that Chris continues to engage in deviant behaviour, and fails to think about or plan for the future. As can be seen in Figure 18 on the Environmental Risk Scales both the t-scores on the Sibling Chemical Use (66) and Family Pathology (69) scales remained over 1 SD above the mean, and were significantly elevated when compared to the drug clinic norms. This suggests that Chris is more likely to have a sibling or siblings that engage in substance use, and more family dysfunction than most adolescents that present to a drug clinic for treatment.

12 Month Follow-Up

At 12 month follow-up assessment Chris's responses on the Drug Use History indicated that he had used alcohol and cannabis, but inhalants were not indicated. Chris did not report using any cannabis in the last 12 months. Items were positive in the Psychosocial Problem Screens for Physical Abuse and Family Chemical Dependency History. Chris also continued to respond 'agree' to the item 'my family has some unpleasant secrets'. The Residential Treatment Indicator for Psychiatric problems was positive.

PART ONE: CHEMICAL INVOLVEMENT PROBLEM SEVERITY

It should be noted that the validity scales for this section of the PEI suggest that Chris may have attempted to portray himself in a negative light. Chris's t-scores on all of the basic scales were 1 SD or more over the mean, with the t-scores for both the Personal Involvement with Chemicals (73) and Social Benefits of Drug Use (73) scales over 2 SD's above the mean. This is a significant elevation and suggests that Chris has more involvement with substance use, and sees more benefits of substance use than most high school students. As can be seen in Figure 18 there was a significant increase on the Social Benefits of Drug Use (73) scale since post-treatment assessment, suggesting that Chris may now derive more social benefit from substance use than in the past, and that this may be a motivating factor in his use.

On all of the Clinical Scales, except for the Social Recreational Drug Use scale (68), Chris's t-scores were significantly elevated, and over 2 SDs above the mean. As can be seen in Figure 18 these scores were consistent with, and no significant differences were found between, any of the pre-treatment t-scores and follow-up t-scores on these scales.

PART TWO: PSYCHOSOCIAL ADJUSTMENT

On the Personal Risk Scales of the PEI the Uncontrolled (61), Deviant Behaviour (69), Absence of Goals (63), and Spiritual Isolation (61) scales were all over 1 SD above the mean, and the Spiritual Isolation scale was significantly elevated when compared to drug clinic norms. These scores suggest that Chris is more likely to have been having trouble controlling anger, and engaging in deviant behaviour more than the average high school student. It is also suggestive of Chris not planning or thinking about the future, and having little belief in spirituality.

On the Environmental Risk scales Chris’s t-scores on the Sibling Chemical Use (68), Family Pathology (66), and Family Estrangement (61) scales were consistent with the scores as at pre-treatment assessment, as shown in Figure 18.

4.43 ADOLESCENT RELAPSE COPING QUESTIONNAIRE

Chris completed the Adolescent Relapse Coping Questionnaire (ARCQ) prior to treatment. As shown in Figure 19 he scored 45, out of a possible score of 84, on Scale 1 which is indicative of Cognitive and Behavioural Problem Solving (CBPS). His score on Scale 2, which is suggestive of Self Critical Thinking (SCT), was 21 out of a possible score of 49, and on Scale 3 Chris scored 26 out of a possible score of 63. Scale 3 indicated Abstinence focused coping skills (AFC). Out of a possible total score of 196 Chris’s total score on the ARCQ was 92.

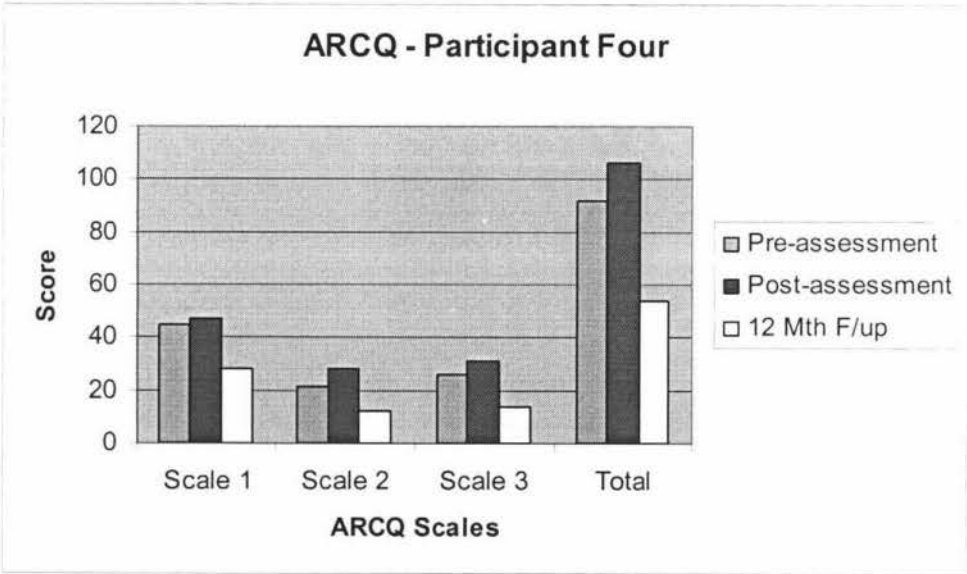


Figure 19: Participant Four - Adolescent Relapse Coping Questionnaire

At post-treatment assessment all of Chris’s scores had increased by a small percentage, as can be seen in Figure 19. Chris scored 47 on Scale 1 (CBPS) an increase of only 2. His score of 28 on Scale 2 (SCT) was an increase of 7, and 31 on Scale 3 (AFC) an increase of 5. His total score on the ARCQ was 106 a 15% increase on his total pre-treatment score. However, Chris’s most significant increase was on Scale 2, which indicates self-critical thinking, and is correlated with difficulty in coping and inversely correlated with current and future substance use.

As shown in Figure 19, at 12 month follow-up assessment Chris's scores on all three scales had decreased significantly, and were lower than his scores at pre-treatment assessment. He scored 28 on Scale 1 (CBPS), 12 on Scale 2 (SCT), and 14 on Scale 3 (AFC). Chris's total score was 54, an overall decrease of 49% of his pre-treatment score. These results suggest that any improvement in Chris's coping skills was evident at post-treatment assessment had not been maintained.

4.44 PERCEIVED BENEFITS OF DRINKING AND DRUG USE SCALE

To establish a baseline Chris completed the Perceived Benefits of Drinking and Drug Use Scale (PBDDS) eight times prior to treatment, as can be seen in Figure 20. During baseline on the drinking version of the PBDDS Chris's results varied with a mean score of 4 (mode scores = 3, 5) and range of 3-5. On the drug use version of the PBDDS Chris's mode score during baseline was 2, with a range of 2-3. The higher the score on the PBDDS the more likely it is that a young person is using substances, and is experiencing negative consequences as a result of their use. These results suggest that Chris is more likely to be involved in using alcohol, as he perceives more benefits of alcohol use than drug use.

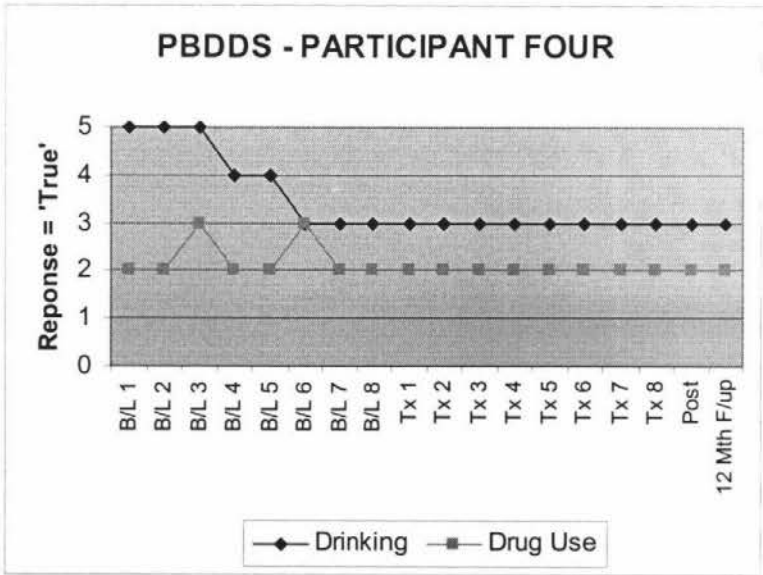


Figure 20: Participant Four - Perceived Benefits of Drinking and Drug Use Scale

As shown in Figure 20 throughout treatment, at post-treatment assessment, and at follow-up Chris consistently endorsed the same 3 of five statements about the perceived

benefits of alcohol use, and 2 of five statements about the perceived benefits of drug use.

4.45 READINESS TO CHANGE QUESTIONNAIRE

Chris completed the Readiness to Change Questionnaire (RTCQ) eight times prior to treatment to form a baseline. As can be seen in Figure 21 his scores on the alcohol version of the RTCQ indicate that he was in the pre-contemplation stage, with a mean score of 1.4. Results during baseline on the drug use version of the RTCQ, shown in Figure 22, also suggest that Chris was most likely in the pre-contemplative stage, regarding his drug use with a mean score of 0.9, although his scores on this scale for both drug use and alcohol were quite low.

Chris’s scores on the RTCQ indicated that throughout treatment he was most likely in the pre-contemplative stage for both his alcohol, and his other substance use, with a mean score of 1 on both, as shown in Figure 21 and Figure 22. However, as Chris did not report any other substance use during treatment, as can be seen in Figure 23, it is not expected that he would be motivated to change his drug use.

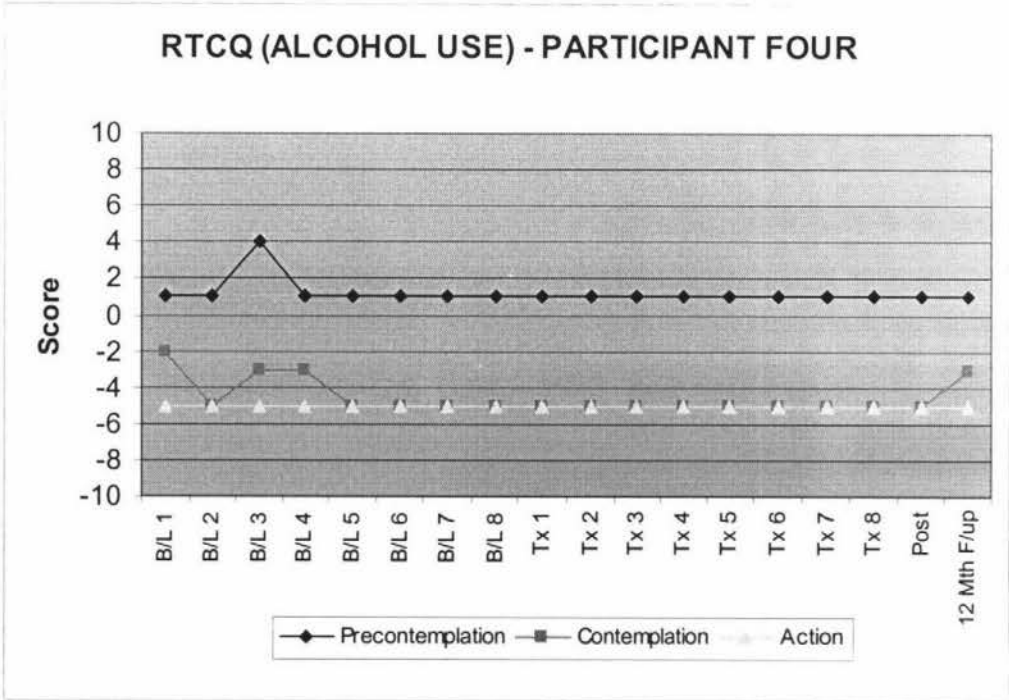


Figure 21: Participant Four - Readiness to Change Questionnaire (Alcohol Use)

At post-treatment assessment Chris's scores on the RTCQ indicated that he remained in the pre-contemplation stage for both his alcohol and other substance use, with no change in score, as seen in Figures 21 and 22. However, as noted earlier Chris reported he had not used any substance, other than alcohol.

At 12 month follow-up Chris's score on the alcohol version of the RTCQ indicate that he remains pre-contemplative about his alcohol use, with a score of 1 on the precontemplation scale, as can be seen in Figure 21. His score on the drug use version of the RTCQ, as shown in Figure 22, also indicates that he remains pre-contemplative (1) regarding drug use, however, he continued to report that he has not used any other substances, as can be seen in Figure 23.

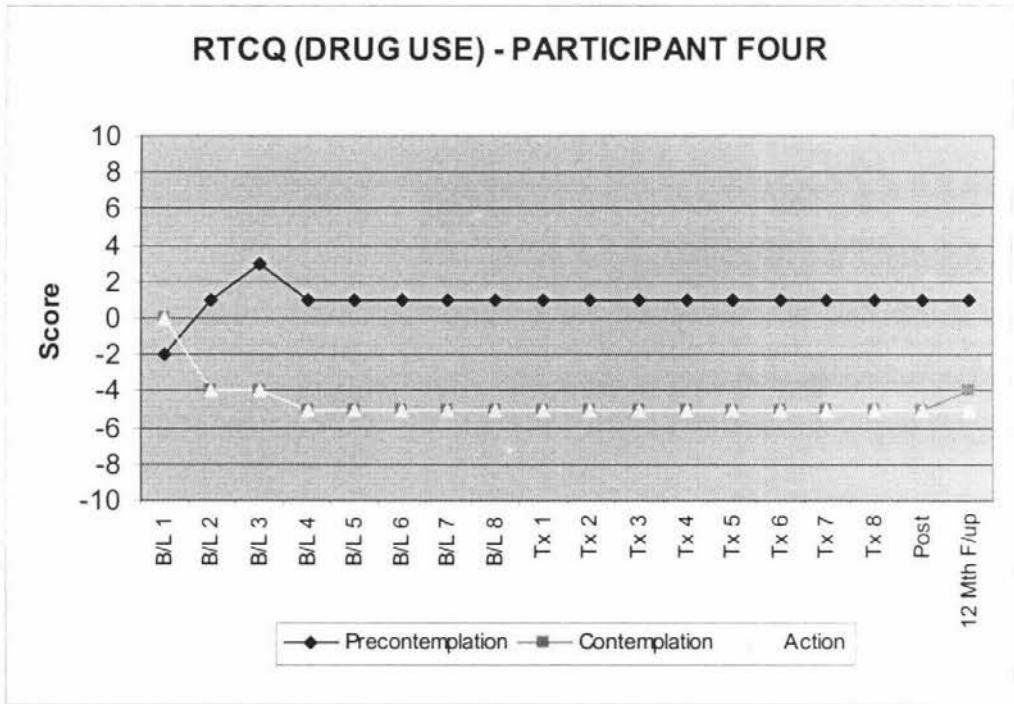


Figure 22: Participant Four - Readiness to Change Questionnaire (Drug Use)

4.46 SUBSTANCE USE RECORDS

Chris completed daily records of substance use for 66 days prior to treatment to develop a substance use baseline. During this time Chris reported using alcohol on 18 days (27%) and cannabis on 1 day (2%) as shown in Figure 23.

During treatment Chris recorded his daily substance use over a period of 79 days. Of those 79 days Chris used alcohol on 10 days (13%), a reduction of 50%. He did not use any other substances during this time.

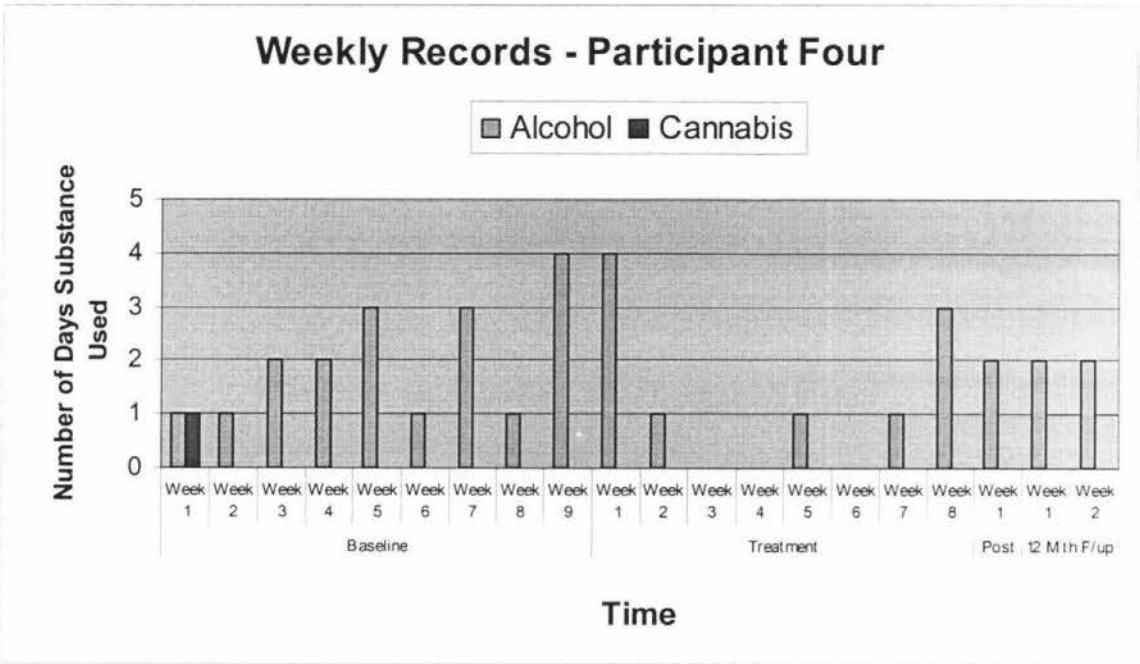


Figure 23: Participant Four - Weekly Substance Use

At post-treatment assessment Chris recorded his substance use for 7 days. Of those 7 days Chris used alcohol on 2 days (28%), as shown in Figure 23. He did not report use of any other substances.

At 12 month follow-up Chris recorded his substance use for 14 days. As shown in Figure 23, of those days Chris used alcohol on 4 days (29%). He did not report any other substance use in those 14 days, however reported that he had previously used legal party pills (herbal highs).

4.5 SUMMARIES

4.51 PARTICIPANT ONE: PAUL

As Paul did not complete the programme no conclusions can be drawn from his results. The assessment indicated that there were some factors in Paul’s life that increased his risk of ongoing difficulties with his substance use, including a history of behavioural

problems, and possible co-morbid psychopathology. It was also identified that although Paul's had only begun to use substances recently he had used a large number of substances, and it was possible that his substance use was escalating. His scores on the RTCQ suggest that the treatment programme may have increased his motivation, with an increase in score on the action scale from one to five.

4.52 PARTICIPANT TWO: JOHN

John appeared to have numerous risk factors for substance related problems present in his life. It was identified that John began using substances at a very early age, that substance use occurred within his family, and that John had a high level of involvement in substance use. John was out of mainstream education, and had grown up in a single parent family. John had also been diagnosed with ADHD which has a strong link to an increase in risk of substance use.

For John the most significant change was his reduction in cannabis use following treatment. This meant that at post-treatment assessment, although the criterion for a diagnosis of cannabis dependence was still met, symptoms had not been present for over 1 month. Also criteria for alcohol dependence with physiological dependence was no longer met, rather criteria for alcohol abuse was met, theoretically a lesser diagnosis. At 12 month follow up although John again met the criteria for a diagnosis of alcohol dependence with physiological dependence, criteria were no longer met for any cannabis related disorder. This was consistent with the goal set by John to give up cannabis use completely.

Results on the PEI showed some increases and some decreases, with the only clinically significant change being an increase on the Uncontrolled scale, which is indicative of low frustration tolerance and angry outbursts, from a t-score of 47 at pre-treatment assessment to 64 at post-treatment assessment. The results on the validity scale suggest that these results may have been compromised due to some deliberate distortion by John.

The results on the RTCQ suggest that the intervention may have had some effect in consolidating John's commitment to giving up his cannabis use, with an increase in his mean score on the action scale from 4.1 at pre-treatment assessment to 5 at post-treatment assessment. More noticeably there was a decrease in his score on the pre-contemplation scale, with the mean score decreasing from 2.5 over the first four sessions of treatment to a mean score of 0 over the last four treatment sessions.

Results from the PBDDS show that for John the intervention had little or no effect on his perceived beliefs about alcohol or drug use.

John's coping skills increased from pre to post treatment, and an overall increase was maintained at six month follow-up. The largest increase from pre to post treatment assessment was on Scale 3 indicating abstinence focused coping skills (100%), and a 31% increase was also maintained at follow-up. This scale is the best predictor of concurrent and future substance use (Myers & Brown, 1995).

4.53 PARTICIPANT THREE: MICHAEL

Numerous risk factors for substance related problems were present in Michael's life. Michael had a history of behavioural difficulties, was out of mainstream education, and had a peer group that were significantly involved in substance use.

For Michael a change from alcohol abuse to alcohol dependence occurred during treatment. This needs to be considered in context, and should be considered in relation to developmental changes. Michael had a relatively limited substance use history in comparison to the other participants, and had recently been placed in alternative education, possibly putting him at higher risk of increasing substance use (peer group etc). Given his age, and situation, it would not be surprising if Michael's alcohol use was increasing prior to the beginning of the programme. However, at 12 month follow-up Michael no longer met criteria for any substance use disorder, and his alcohol use had decreased by 100%.

On the Chemical Severity Problem Index almost all of Participant Michael's t-scores had reduced at post-treatment assessment, however none of these changes could be considered clinically significant. Of interest were Michael's t-scores on the Personal Involvement with Chemicals (71) and Psychological Benefits of Drug Use (71) scales which were no longer significantly elevated at post-treatment (61,66) or follow-up (68,66) assessment. On the Psychosocial Adjustment Index results were mixed, with the only clinically significant change being an increase of more than 1 SD on the Social Isolation scale t-score from pre-treatment (42) to post-treatment (53) assessment. Also of note were the t-scores on the Absence of Goals scale (73), which was no longer elevated by post-treatment assessment (69), and the Uncontrolled scale (73), which was no longer elevated by 12 month follow-up (60).

Michael's coping skills showed an overall increase of 14% on the ARCQ total score at post-treatment assessment, with the most significant increase being a 21% increase in

score on Scale 3 from pre (24) to post (29) treatment assessment. At 12 month follow-up Michael's overall score on the ARCQ had increased a further 34%, with the most significant increase being on Scale 2 from 14 to 23, a 64% increase in score from pre-treatment assessment. Unfortunately Scale 2 is correlated with difficulty of coping and concurrent alcohol and drug use. However scores on both Scale 1 and Scale 3 had also continued to increase by 62% and 58% respectively (since pre-treatment).

In terms of motivation Michael remained in the pre-contemplation stage throughout treatment, for both the alcohol and drug versions of the questionnaire. However, it is worth noting that his scores on the contemplation and action scales increased throughout treatment, most noticeably for contemplation. Also it is expected that Michael would be, and would remain in the pre-contemplation stage for other substance use, as no use was reported at baseline, during or following treatment, or at follow-up. Again, for Michael, it did not appear that the intervention had any effect on his perceived benefits of alcohol or drug use.

4.54 PARTICIPANT FOUR: CHRIS

Similarly to the other three participants Chris had numerous factors that are identified as risk factors for substance related problems. Chris lives with his father who uses cannabis daily. Chris's parents are separated, and Chris has a history of behavioural problems, which had caused him to be removed from mainstream education for a period of time. Chris also identified numerous traumatic events that had occurred in the previous 12 months.

Chris met criteria for a diagnosis of alcohol dependence disorder with physiological dependence at pre-treatment, post-treatment, and follow-up assessment. It should be noted however that during treatment Chris reduced his alcohol use to 50% of his consumption during baseline. He did, however, resume his original consumption at post-treatment and follow-up assessment. One episode of cannabis use was reported during baseline (2%), however, no further cannabis use was reported during treatment, at post-treatment assessment, or at follow-up assessment.

On the PEI Chemical Problem Severity Index all of the basic scales were the same or less at post-treatment assessment with the Social Benefits of Drug Use scale significantly reduced and no longer significantly elevated. There were no significant changes on the clinical scales at post-treatment assessment. On the Psychosocial Adjustment Index Personal Risk Scales both t-scores on the Negative Self-Image (59)

scale and the Psychological Disturbance (58) scale had significantly reduced at post-treatment assessment (49, 47). There were no significant changes on the Environmental Risk Scales. At 12 month follow-up all scores had returned to or exceeded scores at pre-treatment. Four of the five clinical scales were considered significantly elevated, and two of these scales had increased by over 1 SD since post-treatment assessment, suggesting that any positive changes at post-treatment assessment had not been maintained.

In terms of relapse coping skills Chris showed some overall increase in score on the ARCQ at post-treatment, although it was relatively minimal (15%). It should be noted, however, that Chris had the highest pre-treatment assessment score on the ARCQ of all four participants. Chris's most significant increase from pre (21) to post-treatment (28) assessment was on Scale 2 (33%). Unfortunately higher scores on Scale 2 are indicative of decreased ability to resist substance use. At 12 month follow-up none of Chris's improvements in coping skills had been maintained, and his overall score had decreased by 49% of his pre-treatment score.

The intervention did not appear to make any significant changes to Chris's perceived benefits of drinking and drug use. However, Chris's scores remained low on this measure throughout treatment and at post and follow-up assessments.

Chris's scores on the RTCQ indicate that he did not move through any of the stages of change during treatment, and he remained in the pre-contemplation stage for both alcohol and drug use throughout treatment.

Although a number of different assessment instruments were used, including a comprehensive diagnostic interview, there is, of course, only a limited amount of information that can be captured by questionnaires. The reality of a young persons lived experience, the reasons they use substances, and their thoughts and beliefs about the world around them are only small pieces of their stories that may not be accurately depicted by the results of psychometrics. The following are some of the stories of the participants that were not completely or accurately captured by the psychometric data that is reported earlier in this section.

5. CHAPTER FIVE: DISCUSSION

5.1 A SUMMARY OF THE FINDINGS

The current study examined the efficacy of a cognitive behavioural intervention for adolescents experiencing alcohol and other drug issues (Vilke & Ronan, 2002). This study was not intended to provide generalisable data but rather was a pilot study intended to consider the intervention, its usefulness, and identify gaps or further needs of the intervention programme.

The intervention incorporated motivational interviewing techniques throughout the eight sessions of the programme. Overall, the results of the RTCQ suggest that there may have been some effect on the participant's motivation. The results from the ADI and substance use records, which were specifically used to measure substance use and associated substance related disorders, indicated that the intervention may have had some effect on substance use. This was specifically indicated by a significant reduction in substance use by Participant Two at post-treatment and follow-up assessment, and was also supported by a reduction in substance use by Participant Four during treatment. Substance use was specifically targeted by sessions that focused on identifying triggers for use, coping with cravings, and reducing substance availability. The ARCQ was specifically targeted at measuring coping skills associated with relapse. The improved scores of all participants on the ARCQ suggests that the intervention, with sessions that focused on skills such as problem solving and seemingly irrelevant decisions, may have had some effect on the participant's ability to cope with high risk situations and therefore may have reduced the risk of relapse.

5.11 SUBSTANCE USE AND RELATED PROBLEMS

Substance use and its related problems were specifically targeted in the intervention, mainly through sessions that focused on skills such as identifying triggers for use, coping with cravings, and reducing substance availability. Participant one's substance use increased during treatment, however, as no post-treatment or follow-up data is available results are inconclusive. The most significant results were in relation to

Participant two, who reduced his cannabis use substantially, achieved abstinence by post-treatment assessment, and went from meeting criteria for cannabis dependence disorder with physiological dependence at pre-treatment assessment, to no cannabis related diagnosis at 6 month follow-up assessment. Both Participant two and Participant four reduced their substance use during treatment, however this reduction was not maintained by Participant four following treatment. Adolescent AOD treatment research suggests that most research participants don't achieve abstinence, but that most will reduce their use by about 50% (Williams & Chang, 2000) during treatment. Any reduction in use can be considered a reduction in harm, and any period of abstinence, no matter how long, will be of benefit to the participant's health. Participant three increased his substance use during treatment, and by post-treatment assessment met criteria for a diagnosis of alcohol dependence disorder. However, by 12 month follow-up Participant three was abstinent from all substances. This suggests that Participant three's increase in alcohol use during treatment may have been time limited experimentation that is characteristic of adolescence. Although Participant two stopped his cannabis use altogether, improvements in other areas of his life, such as family estrangement and psychological disturbance, and the impact on substance use related problems appeared to be minimal, or had worsened. Results on the PEI showed improvements for some participants in some areas, but overall the results were non-significant, and not well maintained at follow-up. At 12 month follow-up Participant 3 reported no substance use at all, although his t-scores on most of the PEI scales for the Chemical Problem Severity section were higher than at post-treatment assessment, when he met criteria for alcohol dependence. This may indicate some disparity in the measurement tools that were used and measurement issues are further discussed later in this section.

5.12 COPING SKILLS

Increasing participant coping skills was also a specific aim of the intervention. Sessions focused on skills such as problem solving, understanding seemingly irrelevant decisions, and developing an all purpose coping plan. As predicted, all three participants that completed the programme showed an increase in coping skills, as measured by the ARCQ. Two of these three participants had maintained, or further increased, their scores at follow-up, suggesting that the intervention may have been successful in its goal of improving participants coping skills.

5.13 MOTIVATION

Throughout the intervention components of motivational interviewing were incorporated, with the aim of moving participants that were in the precontemplative or contemplative stages of change into the action stage of change. The intervention was not as successful as was hoped in moving participants through these stages of change. Although there were some changes in some of the participant's responses during treatment, notably increases in scores on the action and contemplation scales, and decreases in scores on the pre-contemplation scale, these were minimal. It should also be noted that Participant two, who made the most significant improvements, consistently had the highest score on the contemplation and action scales throughout treatment. However, his scores on the contemplation and action scales were also relatively high during baseline suggesting that he was already considering making some changes prior to treatment. This also suggests that motivation may have played a key part in participant two's outcomes. Also as the programme was voluntary all participants may have already been considering making changes.

5.14 BELIEFS ABOUT DRINKING AND DRUG USE

Throughout the intervention participants were asked to consider the good and not so good things about their substance use. However the results suggest that the intervention was not successful in changing participant's perceived beliefs about the benefits of drinking or drug use. Common perceived benefits, such as those used in the PBDDS (drinking helps me forget my problems, drug use helps me be friends with others who use drugs), were not specifically targeted. The manual (Vilke & Ronan, 2002) recommends that the therapist should acknowledge that there are benefits or 'good things' about drinking and drug use, as is consistent with motivational and harm reduction strategies, but also considers the 'not so good' or negative outcomes of drinking and drug use alongside the positive, creating or increasing cognitive dissonance. So, at no time were the perceived benefits of substance use disqualified in the treatment and therefore there was no reason for perceived benefits to decrease. Rather, perceived negative consequences may have increased. Unfortunately a specific assessment tool was not used to measure changes in negative beliefs about substance use. However, this may have contributed to some of the participant's increases in scores on the chemical involvement severity scale of the PEI at post-treatment

assessment, as problems may have been acknowledged as being more serious than those that were acknowledged at the previous assessment.

5.2 FACTORS IMPACTING ON SUCCESS

It is evident from the results that this intervention was not as successful as had been anticipated. The participants in this study experienced many of the risk factors identified in the literature that suggest that they were likely to be experiencing substance related problems. Moreover, the participants also experienced risk factors that might also lead to the development of other related disorders, and the complexities of these factors might have impacted on the study.

In a review conducted by Elliot, Orr, Watson, and Jackson (2005) factors that contributed to the success of secondary prevention interventions were identified. Some were characteristics of the individuals, including: low pre-treatment substance use; reduced psychopathology; improved motivation and coping skills; and better school performance. However the many of the participants in the current study had high pre-treatment substance use, all had indicators of co-existing psychopathology, and all were out of main-stream education, indicating low school performance. Other factors that were identified were aspects of the intervention and included: peer and parental support; tackling the wider social issues; using small interactive groups; carefully planned interventions with clear aims, objectives and target audiences; well-funded long-term interventions; having special facilities for high risk groups such as those dropping out of school; experienced and motivated staff; and multi-agency involvement. In the current study, although peer and parental support was able to be incorporated, it was optional, and was not utilised by any of the participants. Furthermore, the intervention did not tackle wider social issues, and lacked many of the aspects that have been suggested to ensure success. It has also been identified that it is important to focus on problems associated with drug use including psychological and social problems (Williams & Chang, 2000). As discussed earlier, the participants had numerous problems that were associated with their drug use that were not addressed by this intervention. Many of the risk factors that were present for the participants were environmental risk factors such as family and peer substance use, and substance availability in the community. Another notable risk factor was co-existing

psychopathology; most prevalent in this study were symptoms of ADHD and conduct disorder, which were beyond the scope of the intervention. It is also worth noting that the symptoms described were not deemed serious enough to warrant referral to another service, and on the basis of the information gathered they were also unlikely to have been accepted by Child and Adolescent Mental Health services if a referral was made. A brief intervention using cognitive behavioural strategies has limited capabilities in addressing the raft of reasons that underlie the participant's reasons for using substances. Although family involvement was possible, it was minimal, and optional, with none of the participants choosing to have parents or other family members come in as support people. This intervention could not possibly address substance use by other family members, violence or abuse in the home, peer substance use, or community influences such as the wide acceptance of binge drinking. The results for all participants on the PEI index for environmental risk scales showed very little change, most likely because environmental risk was not substantially addressed by programme.

5.3 RESEARCH ISSUES

Various researchers have documented difficulties in research with specific populations, in particular research with transient, high risk, or homeless populations. There are several possible explanations for the difficulty the researcher found in recruiting participants. Firstly, the low response rate (64%) of the schools to the researcher may be indicative of schools continued reluctance to be identified as a school with students that use drugs. One school counsellor that invited the researcher to discuss the research project responded in exactly this way, suggesting that their school did not have a drug problem. It has been noted that schools are often reluctant to engage with substance use intervention research, either because staff are unwilling to believe or admit that they have a number of students in their school that use substances problematically, or because they may be identified by the community as a 'bad' school (Wagner et al., 2004). Secondly, there was an extremely low response rate (approx. 5%) from the students that were presented information about the research. Some suggested explanations for this low response rate are provided. Firstly, it is possible that the students that were presented the research did not use substances, or at least not in a problematic way. However, given the statistics on adolescent substance use, and

related problems, it is unlikely that of these 70-80 young people only 5% had experienced substance use related problems. A further possibility is that very few young people recognise their substance use as problematic until they begin to experience serious difficulties as a result of it. It has been suggested that young people that are in the early stages of substance use are harder to engage in interventions than those with heavier use (Battjes et al., 2004). Additionally, most of the young people that were approached were currently students at high schools or alternative courses. It is highly likely that the young people that are most at risk of experiencing substance use related problems are often absent in these settings either due to truancy, or simply because they are no longer in educational settings. Another possible rationale for the low response rate is the location of the research. Students that may be experiencing problems relating to their alcohol or other drug use, but who are currently managing to remain in school, could well find it extremely difficult to identify themselves in a setting that traditionally has a 'zero tolerance' policy for alcohol and/or other substance use.

Further research difficulties were encountered, including attrition from the study. This occurred both during the treatment and the follow-up phase. Substance abuse treatment outcome research has a long acknowledged high treatment attrition rates for both adult and adolescent populations (Gilvarry, 2000; Spooner et al., 1996). It is well documented that substance abuse treatment researchers often face difficulty in obtaining follow-up data from their participants (Cotter et al., 2005; Desmond et al., 1995; Walton et al., 1998). It is reported that attrition from follow-up varies from 10% to over 50% (Walton et al., 1998). Studies looking at whether follow-up attrition is related to treatment outcome vary (Walton et al., 1998), with arguments that non-responders have poorer outcomes, or alternatively that recovered participants are more difficult to find (Desmond et al., 1995). Research has identified characteristics of participants that are more difficult to contact at follow-up. It has been reported that following treatment substance abusers that were harder to contact tended to be younger, not married, have less income, and less education (Walton et al., 1998). Substance abuse in itself has been identified as a participant characteristic that is associated with attrition in longitudinal studies (Cotter et al., 2005).

5.4 DIAGNOSTIC AND MEASUREMENT ISSUES

All participants in the current study met the criteria for a diagnosis of some sort of substance related disorder at some time. This was of some concern. Firstly Participant one met criteria for cannabis abuse disorder when he reported using cannabis on 7% of days during treatment. Participant two met criteria for a diagnosis of alcohol dependence disorder with physiological dependence when he reported drinking on 7% of days during baseline, and 6% of days during treatment. Participant four also met criteria for this diagnosis, although his alcohol use was relatively more (26% of days during baseline and 13% of days during treatment). When the diagnostic criteria for physiological dependence were met for any of the participants it was through the presence of tolerance, rather than the presence of withdrawal symptoms. Some tolerance is to be expected in adolescence when drinking alcohol is a relatively new experience, and in this context tolerance may be more of a developmental phenomenon than a symptom of dependence. The high rate of diagnosis in this study, which is likely explained through tolerance, suggests that the DSM criteria for abuse and dependence may not be relevant to adolescents, in particular when alcohol is the substance of interest. With the acceptance of alcohol use in adolescence, and the culture of binge drinking, it is not surprising that many young people meet the dependence criteria for tolerance. 42% of under 15 year old New Zealand adolescents report that they drink (Kalafatelis & Fryer, 2001), and most have probably engaged in binge drinking recently. With the amount of alcohol that many adolescents consume when they are drinking it is of little surprise that their tolerance for alcohol would increase significantly in a short period of time, easily resulting in the 150% increase in tolerance required for a diagnosis of physiological dependence in the DSM-IV. The current criteria may result in unnecessary labelling of adolescents. It also may result in less credibility for clinicians that may have to explain to an adolescent who drinks in the weekends that they meet the criteria for a diagnosis of alcohol dependence disorder with physiological dependence, the equivalent of alcoholism. This further adds to the argument or question of whether there are actually two dimensions to adolescent substance use, abuse and dependence, as adults are labelled, and whether these adult based diagnostic criteria are relevant to adolescents.

A battery of psychometric measures was used for the pre, post, and follow-up assessments. Yet, as described in an earlier section only a limited amount of information could be captured through the use of questionnaires. The lack of specific details obtained by the psychometric measures created further issues. It is this qualitative information, that although of more difficulty to capture and record in a typically quantitative study, I would now, as a practitioner, find of considerable importance. One example of further information that would have been of interest to the researcher is further details of each participant's involvement with the law. All four participants reported that they had come to the attention of the law in the previous 12 months. However, no specific information on why this had occurred was obtained, so it was not known if the participants had had similar or very different experiences or reasons for coming to the attention of the law. Similarly, two of the participants had had previous suicide attempts, however no details of how, when, or why were given. There was no acknowledgement of the significance of these events to the participants, and of any ongoing effects that this may be having on their lives, in particular, whether these events were related to their ongoing substance use. So, although substance use, amount, and frequency were measured, the underlying reasons for use were not established. This is a substantial gap in terms of identifying what would actually be helpful treatment. The measurement assumes that reasons for substance use in adolescence may be homogenous, which, as established in earlier sections, they clearly are not.

5.5 RISK

Two participants were referred to the treatment programme due to the perception that they were 'at risk' of developing problematic substance use. However, upon completing the pre-treatment assessment one participant already met the criteria for diagnosis of dependence, and another met criteria for a diagnosis of abuse. As described earlier all of the participants had numerous factors in their lives that put them at risk of developing substance use problems. It is also worth noting that many of these risk factors are also 'risk' factors for numerous other undesired outcomes. They are also "at risk" of: beginning, increasing, or progressing their substance use; IV drug use; offending; prostitution; unemployment; homelessness; incarceration; health problems;

Hepatitis/HIV; serious mental health problems; physical and/or sexual abuse (as both victims and perpetrators); and early mortality. Problematic substance use is but a small part of what these young people are at risk of. So this poses the question, why would an intervention for adolescents “at risk” only address AOD specific skills, particularly when the other behaviours or risk factors will continue to increase the chance of a young person resuming their past level of substance use if they are not addressed.

5.6 ETHICAL AND CLINICAL ISSUES

It is difficult, now as a practitioner, to reflect on the research process without identifying issues that are of concern, both clinically and ethically. This research was conducted when the researcher was just that, a researcher completing a Masters Degree. I now write this as a research practitioner, and as such have identified some areas of concern for my own practice.

While there is support for manualised treatment, it is also somewhat restrictive in nature. During the research process it was difficult to solely focus on specific session topics, given everything else that was going on in these young people’s lives. The therapeutic alliance is identified as the “cornerstone of psychotherapy” (Tartarsky, 2003 p.253). However, manualised treatment, especially when conducting research which necessitates strict adherence to the manual, means that the therapist is less able to specifically target the individual needs of the participant, taking the therapeutic focus away from what the participant has identified as the problem, and therefore weakening the therapeutic alliance. However, this is a research issue more than a programme issue, as outside of a research situation the programme would be able to be used more flexibly. Therefore, I believe that more flexible methods of research are needed to be able to realistically look at what works in practice rather than in controlled research situations. Methodologies that include detailed individual case studies and small group studies can provide in depth information about individual responses to treatment. Treatment can also then be tailored to the individual rather than meeting group needs. However, a working understanding of baseline data for comparison is useful for the practitioner. This type of research would be of relevance and of interest to practitioners, who work systemically and often without the option of “excluding” participants due to confounding factors.

Furthermore, although independent assessment is necessary to research based outcomes, in practice assessment is a huge part of rapport and relationship building. Obtaining a young persons story from the results of assessment measures, or even from listening to a tape recording of the assessment interview, is not the same as doing the assessment where as a practitioner you would be more likely to follow some of the threads that are important to case formulation. This is also a problem with manualised treatment, as very little time is given to do further assessment or expand on previously obtained results. It has been stated that assessment is as much a therapeutic activity as the intervention that is provided, in that recognition of the harmful aspects of substance use is facilitated (Tartarsky, 2003).

As a practitioner numerous other factors that were identified through the assessment process would also have been included in the case formulation, including: psychopathology; social functioning; anti-social/offending behaviour; family issues; and family dynamics. The limitations imposed by the research status meant that these issues were outside the bounds of the research. The structure of the research means that a holistic approach cannot be taken as other issues identified during the research process could not be addressed by the researcher, and in areas where service availability is limited, appropriate referrals may not be a viable option. This raises ethical issues, as this is not in the best interests of the participant, and was also not ethically “comfortable” for the researcher providing the treatment intervention. Treating AOD issues in isolation from other issues may be helpful in terms of research needs; isolating AOD use from other issues to measure changes, improvements, and effects. However, practitioners do not address AOD issues in isolation from other factors that may be precipitating or perpetuating the AOD use, and therefore research that isolates AOD issues is not particularly relevant to practice.

5.7 RECOMMENDATIONS AND CONCLUSIONS

The intervention was not as successful as was hoped, however, there were some positive results that warrant further investigation. One participant significantly reduced their cannabis use, and there also appeared to be some effect on motivation, with participating in the treatment programme increasing contemplation or consolidating already existing motivation. Two of the three participants that completed the

programme improved and maintained improvements in coping skills that have been shown to be linked to the prevention of relapse.

However, there are some limitations of both this study and the intervention. This study was only intended to be a pilot study for the intervention, and therefore only a small number of participants were recruited. For the efficacy of the intervention to be established a larger study is needed. However, given the difficulties that the researcher encountered when attempting to recruit and retain four participants a larger scale study would need to be very carefully planned, and the associated difficulties given thorough consideration. Adolescent AOD interventions need to be holistic and address various associated risk factors and not just the AOD specific behaviours to be successful in reducing and maintaining reductions in substance use.

There needs to be further investigation into the relevance of the adult based DSM criteria for substance use disorders in adolescents. It needs to be decided if this is the most suitable criteria to be using, and if not, new criteria may need to be established as a way of measuring the severity of adolescent substance use. There also needs to be further investigation into school based interventions. Are schools, many of whom promote abstinence as being the only acceptable option for adolescents, able to support adolescent substance use interventions that are based on theories of harm minimisation? As a research-practitioner I also believe the research-practitioner model needs to enable more flexible research methods. The proposed local-scientist model would enable practitioners to regularly engage in research that is relevant to practice, and fits easily into clinical practice models. Qualitative research methods and individual case studies are methods that practitioners are able to incorporate into their practice, without the stringent controls of quantitative methods that often make research difficult outside of laboratory settings.

In conclusion although research into the treatment of adolescent substance use disorders is increasing, there continues to be paucity in knowledge of what is effective in reducing the harm associated with problematic substance use in adolescence. The current intervention shows promise, in that it had some effect on improving motivation and coping skills and reducing substance use in the short term. It has also highlighted the need to take a holistic, systemic approach to adolescent substance use treatment if we want to successfully reduce the associated harm for our young people.

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APPENDICES

Appendix A

Massey University Letterhead

A COGNITIVE BEHAVIOURAL INTERVENTION WITH SUBSTANCE USING ADOLESCENTS

Dear

Your school guidance counsellor or one of your teachers has given your name to me. You may remember them advising you that I would get in touch with you.

I am inviting you to take part in a research project, which I am undertaking as a part of my studies for my Masters Degree at Massey University.

Please find enclosed the Information Sheet about the project.

WellTrust has approved this research. However the information that will be collected will be used ONLY for this research project.

I would like to meet with you and your parent/caregiver on _____, at a time that would suit your family. This will let me explain the study to you and your parents/caregivers. I will then ask you to sign a consent form if you would like to be involved.

Enclosed is a list of possible times. Could you and your parents/caregivers please indicate a time that would fit in with your timetable, and return this to your school guidance counsellor, or the teacher that first talked to you about this project The Information session will be a meeting with you and your parents/caregivers and myself. It will take about an hour and will be held at the school, in room _____.

I look forward to meeting with you then.

Yours sincerely

Cara Morrison

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 02/123. If you have any concerns about the conduct of this project, please contact Professor Sylvia V Rumball, Chair, Massey University Regional Human Ethics Committee:
Palmerston North, telephone 06 350 5249, email S.V.Rumball@massey.ac.nz

Appendix B

Massey University Letterhead

A COGNITIVE BEHAVIOURAL INTERVENTION WITH SUBSTANCE USING ADOLESCENTS

Information Sheet for Participants

My name is Cara Morrison and I would like to invite you to participate in a research project that I am conducting. I am a graduate student in the School of Psychology at Massey University, and I am doing this research as part of my study towards a Masters Degree. My supervisor is Dr Kevin Ronan.

This research project involves young people who have been referred by their school to WellTrust because of their use of drugs or alcohol. The purpose of the study is to see how effective a particular type of intervention, which is called a cognitive-behavioural intervention, is with young people who are using alcohol and/or drugs.

If you would like to participate in this research project, you will firstly be asked to take part in some assessment. This is so I can find out a little bit about your background, about your ideas about your life, and about your use of drugs and/or alcohol. Some of the assessment will consist of an interview, and some will be questionnaires that I will ask you to fill in. Altogether this will take about two and a half hours. Another Massey University student, Anna Jory, will be asking you these questions and giving you the sheets to fill out. The only person that Anna will talk to about your answers to the questions is myself. No one else will know your answers to these questions.

Only myself, as the researcher, and Anna Jory, as the research assistant will have access to your personal details. Only myself and Anna will know the names of the participants. The Code of Ethics of the New Zealand Psychological Society, which binds my supervisor, myself, and Anna, states that we must

keep everything that you tell us, as the participant, confidential. The only exception is if you tell us something that puts you, or another person, in danger. If this happens we must break confidentiality. All personal details will be coded and only the researcher will have access to these.

The intervention that we are studying is made up of ten weekly one-hour sessions of Cognitive-Behaviour therapy. In this time you we would like you to work with a counsellor and look at some of the issues surrounding drug and/or alcohol use. The total time you would be involved in the research project is between 12-15 weeks, with 1 hour of your time being taken each week. There will also be some times when we would like you to do some extra little activities outside of the weekly sessions. For example during the time that we are working with you we would like you to write down how often you use alcohol and/or drugs, and how much you use.

After we finish the ten weekly sessions I will also ask you to participate in another 2-hour assessment session immediately after the last treatment session. This will happen again at 6 weeks and three months after the last session, when you will be asked to answer some more questions and complete some more questionnaires.

If it is all right with you all assessment sessions and therapy sessions will be audio taped.

WellTrust is supportive of this research project and has referred us to a guidance counsellor or teacher in your school. WellTrust will be supporting this project for the whole time that you are a participant in the study, but they will not have access to your personal details, or know the names of the people that are in the study.

By participating in this research project, you will help us find out if cognitive behaviour interventions work for young people who have issues around alcohol and drug use. These findings will be helpful to WellTrust, to you and to other young people who might have similar issues with drug or alcohol use in the future.

On completion of the thesis, the written information will either be destroyed or, if you give us written consent, stored in a research archive. If you are interested in the findings of the research you will be sent a summary of the findings. The information collected will only be used for this thesis and any papers published in relation to this thesis.

Your rights as a participant are:

- To decline to participate and to withdraw from the study at any time;
- To refuse to answer any particular questions;
- To ask to stop the audio tape at any moment;
- To withdraw from the study at any time, and still be able to go through the treatment sessions.
- To ask any questions about the study at any time during participation;
- To provide information on the understanding that your name will not be used unless you give permission to the researcher;
- To be given access to the summary of the findings of the study when it is concluded;
- To have your anonymity and confidentiality protected.

I can be contacted on [REDACTED] e-mail [REDACTED]

Dr. Ronan can be contacted at 06 350 5799, extension 2069, e-mail K.R.Ronan@massey.ac.nz

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 02/123. If you have any concerns about the conduct of this project, please contact Professor Sylvia V Rumball, Chair, Massey University Regional Human Ethics Committee:
Palmerston North, telephone 06 350 5249, email S.V.Rumball@massey.ac.nz.

Appendix C

Massey University Letterhead

A COGNITIVE BEHAVIOURAL INTERVENTION WITH SUBSTANCE USING ADOLESCENTS

Dear

The school counsellor or one of your child's teachers has given me their name. Your child may have advised you that I would get in touch with you.

I am inviting your son/daughter to take part in a research project, which I am undertaking as a part of my Masterate studies at Massey University.

Enclosed is an Information Sheet that explains some of the details about the project.

I am working with WellTrust for this research project. WellTrust is an organization that provides alcohol and drug education and treatment for High School students. WellTrust has approved this research project but the information collected will be used ONLY for this research project.

I would like to meet with you and your son/daughter on _____, at a time that would suit your family. I will explain the study to you then, and ask you and your child to sign a consent form if you are happy for them to participate. If it is agreed that your child will participate, I will also ask you to fill in a brief questionnaire about your child at this time.

Enclosed is a list of possible times, could you please indicate a time that would fit in with your and your child's timetable. Your son/daughter can then return this to their school guidance counsellor or the teacher concerned. The Information session will be a meeting with you, your child and me. It will take about an hour and will be held at the school, in room _____.

If it is not convenient for you to come to an information session on this day, please contact me on [REDACTED] or e-mail [REDACTED], and I will arrange an alternative time with you.

I look forward to meeting with you then.

Yours sincerely

Cara Morrison

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 02/123. If you have any concerns about the conduct of this project, please contact Professor Sylvia V Rumball, Chair, Massey University Regional Human Ethics Committee:
Palmerston North, telephone 06 350 5249, email S.V.Rumball@massey.ac.nz

Appendix D

Massey University Letterhead

A COGNITIVE BEHAVIOURAL INTERVENTION WITH SUBSTANCE USING ADOLESCENTS

Information Sheet for Parents/Caregivers

My name is Cara Morrison and I would like to invite you and your son/daughter to participate in a research project. I am a graduate student in the School of Psychology at Massey University, carrying out this research as part of my study for a Masters degree. My supervisor is Associate Professor, Dr Kevin Ronan.

This research projects involves young people who have been referred to WellTrust by a teacher or school counsellor because of their substance use. The purpose of the study is to determine how effective cognitive-behavioural interventions are with young people who are using alcohol and/or drugs, and to identify relations between adolescent drug use and resiliency and risk factors as identified in New Zealand and overseas literature.

Young people who choose to participate in this research project will take part in an assessment interview before and after the cognitive-behavioural intervention. They will be asked to answer some questions and complete a battery of questionnaires, which will take about two and a half hours. Anna Jory, another Masters student at Massey University, will be conducting the interviews and administering the questionnaires to the participants.

Only myself, as the researcher, and Anna, as the research assistant will have access to personal details. Only we will know the names of the participants. The Code of Ethics of the New Zealand Psychological Society, which binds both my supervisor myself, and Anna, states that we must keep everything that the participant tells us, confidential. The only exception is if we are told something that puts your child, or another person, in danger. If this happens we must break confidentiality. All personal details will be coded and only the researcher will have access to these.

The intervention consists of ten one-hour cognitive-behavioural treatment sessions. These are aimed at helping your child to learn new skills in refusing drugs and alcohol and dealing with issues surrounding drug and alcohol use. Immediately after the treatment, and again at 6 weeks and three months after the treatment, research participants will be asked to take part in more assessment. They will be asked to complete another battery of questionnaires. I would also like to ask you, as the parent/caregiver, to complete one questionnaire about your child, both prior to and after the treatment sessions.

Your answers to this questionnaire would be kept completely confidential. This questionnaire will take about 15 minutes to complete.

If it is all right with your son/daughter all of their assessment sessions and therapy sessions will be audio taped.

By participating in this research project, you and your son/daughter will help us in the process of identifying successful and efficient therapeutic approaches for young people who have issues surrounding alcohol and drug use - they will help us find out if cognitive behaviour interventions work for young people. These findings will be helpful to WellTrust, to your son/daughter and to other young people who may have similar issues with drug and/or alcohol use in the future.

On completion of the thesis, the information gathered will either be destroyed or, if participants give written consent, stored in a research archive.

If either your son/daughter or yourself are interested in the findings of the research you will be sent an executive summary of the findings.

The information collected will be used for the sole purpose of this thesis and any papers published in relation to this thesis.

Your son's/daughter's rights as a participant are:

- To decline to participate and to withdraw from the study at any time;
- To refuse to answer any particular questions;
- To ask to stop the audio tape at any moment;
- To withdraw from the study at any time without any effect on services being provided;
- To ask any questions about the study at any time during participation;
- To provide information on the understanding that their name will not be used unless permission is given to the researcher;
- To be given access to the summary of the findings of the study when it is concluded;
- To have their anonymity and confidentiality protected.

Your rights as parents/caregivers are:

- To decline to participate and to withdraw your child from the study at any time, without any effect on services being provided;
- To ask any questions about the study at any time during participation.
- To provide information on the understanding that your name will not be used unless permission is given to the researcher;
- To be given access to the summary of the findings of the study when it is concluded;
- To have your confidentiality protected.

I can be contacted on [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] e-mail
[REDACTED] [REDACTED] [REDACTED]

Dr. Ronan can be contacted at 06 350 5799, extension 2069, e-mail
K.R.Ronan@massey.ac.nz.

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 02/123. If you have any concerns about the conduct of this project, please contact Professor Sylvia V Rumball, Chair, Massey University Regional Human Ethics Committee, Palmerston North: telephone 06 350 5249, email S.V.Rumball@massey.ac.nz.

Appendix E

Massey University Letterhead

A COGNITIVE BEHAVIOURAL INTERVENTION WITH
SUBSTANCE USING ADOLESCENTS

Information Session Times

Name: _____ (Parent/caregiver)

Yes/ No I agree to being sent a confirmation of the Information Session
time I have selected.

Contact details: Address: _____

Phone: _____

Name: _____ (Student)

School: _____

Please indicate a time that it would be convenient for you to come to an
information session on _____.

8am – 9am	
9am – 10am	
10am – 11am	
11am - 12 noon	
12 noon – 1pm	
1pm – 2pm	
2pm – 3pm	
3pm – 4pm	
4pm – 5pm	
5pm – 6pm	
6pm – 7pm	
7pm – 8pm	

Please fill in the below slip for your own records and return the above to the school guidance counsellor.

Information Session Time: _____/_____.

Location: _____.

Appendix F

Massey University Letterhead

A COGNITIVE BEHAVIOURAL INTERVENTION WITH SUBSTANCE USING ADOLESCENTS

Dear _____

Thank you for agreeing to come and meet me to find out about the research that we are doing. We are writing to confirm your Information Session time as being:

I look forward to meeting with you then.

Yours sincerely

Cara Morrison

Appendix G

Massey University Letterhead

A COGNITIVE BEHAVIOURAL INTERVENTION WITH SUBSTANCE USING ADOLESCENTS

Research Consent Form

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions.

I agree to provide the information to the researchers on the understanding that my name will not be used without my permission.

I agree to my assessment sessions and treatment sessions being audio-taped. I understand that I am able to request that the audio-taping is stopped at any time during these sessions if I wish.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signed: _____ (Participant)

Name: _____ (Participant)

Code:

Date: ____/____/____

I agree to my son/daughter participating in the research under the conditions set out in the Information Sheet.

Signed: _____ (Parent/Care giver)

Name: _____ (Parent/Care giver)

Date: __/__/__