

**Predictors of antisocial behaviour in offenders: An application of the Theory of Planned
Behaviour**

by

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ABSTRACT

PREDICTORS OF ANTISOCIAL BEHAVIOUR IN OFFENDERS: AN APPLICATION OF THE THEORY OF PLANNED BEHAVIOUR

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This study contributes to the understanding of antisocial behaviour following release from custody (i.e., recidivism) by clarifying the role specific determinants play in the prediction of antisocial behaviour. The current study examined both the empirically based forensic model and the conceptually based Theory of Planned Behaviour (TPB) model in the prediction of antisocial behaviour. This study also evaluated the effectiveness of the Criminal Attitudes Program (CAP program), a treatment program designed to decrease antisocial attitudes and subsequent antisocial behaviour in correctional offenders. Correctional offenders ($N = 930$) completed self-report measures of antisocial and prosocial tendencies upon commencement and upon completion of the CAP program. Antisocial behaviour was measured using rearrest data. A psychometrically sound set of measures was developed to evaluate the TPB model and CAP program, based on original questionnaires. CAP program completion was associated with significant and positive changes from pre- to post-treatment. However, there was no correlation between CAP program completion and antisocial behaviour upon release. Path modeling indicated the TPB model predicted CAP program completion and antisocial behaviour severity upon release. Findings highlight the importance of using the theoretically driven TPB model to examine direct and indirect predictors of antisocial behaviour, in addition to the forensic-empirical model. Important theoretical and practical implications are discussed.

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CHAPTER 1

Antisocial behaviour results in overwhelming personal, societal, and legal consequences, including psychological distress or a loss of freedom. In the current study, antisocial behaviour is defined as, “any aggressive, intimidating or destructive activity that damages or destroys another person’s quality of life” (Home Office, United Kingdom, 2012, Antisocial Behaviour section, para. 1). Antisocial behaviour following release from custody (i.e., recidivism) is an area of specific concern for policy makers and communities at large. Recidivism rates vary depending on the specific definition being used, but refer to offenders who are rearrested or reconvicted of a crime following release. According to a comprehensive report by the Alaska Judicial Council (2007), where the current study took place, recidivism rates in that state are 59% for a new offence within three years of release, and if a probation/parole violation is included, the rate increases to 66%. Although recidivism rates in Alaska are somewhat higher than those in many other US states (approximately 50%; National Criminal Justice Reference Service, 2013) and across Canada (approximately 40%; Bonta, Dauvergne, & Rugge, 2003), these communities face the same problem: many offenders released from correctional institutions commit more crimes upon release.

In addition to being at the forefront of public safety concerns, antisocial behaviour, including recidivism, is associated with enormous financial costs. A report on the cost of criminal offences in Canada in 2008 suggested an estimate of \$99.6 billion based on direct and indirect costs (Zhang, 2008). Costs in the United States are exponentially higher (The National Center for Victims of Crime, 2012). A balance must therefore be established between concerns for public safety, high costs of incarceration, and support for rehabilitative efforts designed to decrease recidivism. With the aim of reducing the associated costs and other negative effects of

criminal activity through effective intervention, an ever-growing body of literature has sought to gain a better understanding of the reasons underlying antisocial behaviour upon release.

In the forensic area, multiple factors have been examined as predictors of antisocial behaviour. In their seminal work based on empirical findings, Andrews and Bonta (2010) systematize the multifaceted factors that increase the risk of antisocial behaviour. Results of meta-analyses have consistently identified antisocial personality, history of antisocial behaviour, antisocial associates, and antisocial attitudes as the four strongest predictors of antisocial behaviour (Gendreau, Goggin, & Law, 1997; Simourd, Hoge, Andrews, & Leschied, 1994). Antisocial attitudes are strongly and directly associated with antisocial behaviour in the forensic literature (Andrews & Bonta, 2010). As one of the most central determinants of behaviour, attitudes are also a key target for intervention. Interventions such as the Criminal Attitudes Program (CAP program; Simourd, 2007) are designed to decrease antisocial attitudes, as well as subsequent antisocial behaviour, in correctional offenders. What is herein called the “forensic-empirical model” (F-E model) refers to the culmination of empirical research that has formed the foundation for offender assessment and treatment, including the principles of risk, need, and responsivity, discussed below.

Although forensic researchers generally agree which variables predict antisocial behaviour, the F-E model remains empirically based and lacks conceptual guidance. Weakness also lies in that it focuses on the direct effect of predictors in an additive model, which does not take into account indirect pathways to antisocial behaviour. These direct factors are also most often general or vague, and therefore lack the behavioural specificity necessary for accurate assessment and treatment. In an effort to strengthen the conceptual basis of the F-E model, the

current study uses the Theory of Planned Behaviour (TPB model; Ajzen, 1991) to examine direct and indirect predictors of antisocial behaviour.

In the field of social psychology, the TPB model, a theoretically driven model designed to examine predictors of behaviour, can be used to strengthen the empirical and atheoretical foundation of the F-E model. The TPB model proposes that behaviour is predicted by three predictors, attitudes, subjective norms, and perceived control, which are mediated by the behavioural intentions of an individual. In contrast to the F-E model, attitudes are considered poor direct predictors and rather are one of several key constructs indirectly involved in the prediction of behaviour, and their effect on behaviour is assumed to be mediated by behavioural intentions (Ajzen, 1991).

The TPB model has been used to predict a range of behaviours, such as driving (e.g., Parker, Manstead, Stradling, Reason, & Baxter, 1992) and substance abuse (e.g., Morojele, & Stephenson, 1992). However, the extent to which the theory can be applied to the prediction of antisocial behaviour has received little empirical investigation to date. Nevertheless, the TPB model is a complementary model to apply within the forensic area, as it is a conceptually rich mediated model that considers indirect factors in the prediction of antisocial behaviour. Unlike the F-E model, which involves general predictors, the TPB model emphasizes the importance of behavioural specificity in the prediction of behaviour.

The purpose of the current study is to clarify the role various underlying determinants play in the prediction of antisocial behaviour by applying the TPB model to the prediction of antisocial behaviour in a sample of adult correctional offenders. This study also evaluates the CAP program, a treatment program designed to ameliorate specific cognitive mediators of antisocial behaviour and subsequent antisocial behaviour, discussed in detail below. Although

researchers in the forensic and social areas agree that attitudes are an important determinant of behaviour, a large divide exists between these two areas of psychology. However, given the associated detrimental consequences, having a clear predictive model of antisocial behaviour is critical.

Antisocial Behaviour, Attitudes, and the Forensic-Empirical Model

The overwhelming consequences associated with antisocial behaviour following release from custody (i.e., recidivism) is of specific concern for policy makers and communities at large, as approximately 50% of offenders are rearrested upon release (National Criminal Justice Reference Service, 2013). Considerable research has been conducted to better understand the underlying predictors of antisocial behaviour with the aim of reducing this behaviour in offender populations. Although the two areas have divergent conceptualizations of attitudes, researchers in both forensic and social psychology concur that attitudes are central in the search for predictors of behaviour.

In the forensic literature, antisocial attitudes, or "...attitudes/ values/ beliefs/ rationalizations supportive of criminal conduct" (Simourd 1997, p. 53), have been identified as one of the strongest predictors of antisocial behaviour (Andrews & Bonta, 2010). The empirical foundation for understanding antisocial attitudes and other predictors of antisocial behaviour was based on the conclusions of several meta-analyses. In a review of predictors of adult recidivism, Gendreau, Little, and Goggin (1996) found that criminal companions and criminogenic needs (i.e., factors strongly correlated with risk of criminal behaviour, including antisocial attitudes), were among the strongest predictors of recidivism, stronger than social achievement, family factors, intelligence, substance abuse, personal distress, and socioeconomic status. Gendreau and colleagues (1997) found that antisocial attitudes and behaviour were among the strongest

predictors of prison misconduct. With a focus on adolescents, Simourd and colleagues (1994) found that antisocial peers and attitudes were the most strongly associated with delinquency in male and female young offenders. In this literature, antisocial attitudes are strongly and directly related to antisocial behaviour (Andrews & Bonta).

The leading forensic perspective, herein called the “forensic-empirical model” (F-E model), is based on empirical findings that have identified predictors of antisocial behaviour. This literature posits that risk for future antisocial behaviour can be reliably predicted based on the extent of an offender’s criminal history, and the increased presence of factors directly related to criminal behaviour (e.g., antisocial personality traits, antisocial attitudes, substance abuse; Andrews & Bonta, 2010). Despite general concurrence among forensic researchers about the multifaceted factors that predict antisocial behaviour, the F-E model has several limitations. First, the F-E model has relied on a data-driven and pragmatic approach, resulting in a weak theoretical foundation. Investigations into predictors of antisocial behaviour, including antisocial attitudes, have been mostly empirically derived, rather than conceptually driven.

Second, the F-E model does not include indirect pathways to antisocial behaviour. Although results of meta-analyses provide empirical support for the association between identified predictors of antisocial behaviour and actual antisocial behaviour (Gendreau, Little, & Goggin, 1996; Gendreau et al., 1997; Simourd et al., 1994), the F-E model tends to include factors that have direct and additive effects on antisocial behaviour. For example, the model put forth by Andrews and Bonta (2010) is based on the premise that many factors contribute to antisocial behaviour, and the four factors that play the most prominent role (the “Big Four”) include: (1) antisocial personality, involving hostility, impulsivity, and psychopathic personality traits; (2) a history of antisocial behaviour; (3) antisocial associates and peers that support

antisocial behaviour; and (4) attitudes, values, beliefs, and rationalizations supportive of antisocial behaviour. The F-E model is additive in that the greater the number of predictors in an offender's profile, the more likely he or she is to engage in antisocial behaviour.

Third, the F-E model tends to include general or broad (i.e., not behaviourally specific) items to measure these factors, which lack the specificity necessary to accurately assess the factor in question. For example, an item that reads "I often think about making a few changes in my life" (Self-Improvement Orientation Scheme-Self-Report, Simourd, 2007) taps into making changes on a general level, but does not assess the specific target for change. Behaviours are best predicted when methods of measurement are specific to the behaviour (Ajzen, 1991).

In an effort to address these shortcomings of the F-E model, the current study used the theoretically driven TPB model to examine direct and indirect predictors of antisocial behaviour. This study focused on two of the four factors that play the most prominent role in the forensic literature, namely, antisocial attitudes and antisocial associates/peers. The social psychology literature has also identified attitudes as central to the prediction of behaviour. However, rather than conceptualizing attitudes as a direct predictor of behaviour, social psychologists working within the theoretical frame of TPB propose that attitudes are only one of several key constructs that indirectly predict behaviour (Ajzen, 1991). Although researchers in the areas of forensic and social psychology differ on the specific conceptualization of attitudes, it is agreed that attitudes are an important determinant of behaviour. As such, the reduction of antisocial attitudes is a key objective in the treatment of antisocial behaviour.

The Forensic-Empirical Model and Intervention

According to the forensic-empirical (F-E) model, the mutability of antisocial attitudes makes them prime targets for intervention, as a reduction in antisocial attitudes should lead to a

reduction in subsequent antisocial behaviour. However, the effect of interventions on attitudes and other predictors not so simple: the extent to which treatment programs designed to decrease predictors of antisocial behaviour lead to an actual reduction in antisocial behaviour is dependent on the quality of the treatment program (Gendreau, Andrews, & Theriault, 2010; Gendreau, French, & Gionet, 2004). A vast amount of theoretical and empirical progress has been made in understanding what works in correctional programming over the last few decades. In addition to classifying predictors of antisocial behaviour, the most recent literature has also identified elements necessary for the effective treatment of offenders (Andrews & Bonta, 2010). This leading forensic perspective proposes the principles of risk, need, and responsivity as essential for treatment success.

Risk Principle. The risk principle refers to the probability an offender will recidivate, based on the presence of identified predictors of antisocial behaviour. With regards to intervention, the risk principle states that the level of treatment must match the offender's level of risk to reoffend in order to be effective (Andrews & Bonta, 2010). In other words, if the level of treatment is proportional to the offender's level of risk, recidivism can be reduced. Following a comprehensive assessment of factors related to risk of recidivism (e.g., antisocial personality, history of antisocial behaviour, antisocial associates/identification with antisocial others, antisocial attitudes), an offender deemed to be high-risk would be offered a more intensive intervention and an offender deemed to be low-risk would be offered a less intensive or no intervention.

Need Principle. The need principle states that in order to be effective, interventions must target criminogenic needs (Andrews & Bonta, 2010). Criminogenic needs are factors that are strongly related to risk of criminal behaviour that vary over time, and are therefore important

objectives for intervention (Gendreau, 1996). Unlike static risk factors, which are historical and/or cannot be altered (e.g., number of prior offences, age at first arrest), criminogenic needs are present-day risk factors that can be changed, such as antisocial attitudes and identification with criminal others.

Antisocial attitudes and identification with criminal others are considered significant criminogenic needs because they are mutable and because they are directly related to criminal behaviour. An individual high in antisocial attitudes or identification with criminal others would generally be more likely to engage in antisocial activity than an individual low in antisocial attitudes or identification with criminal others. Not all offender needs are criminogenic, as they are not all directly related to criminal behaviour. For example, self-esteem may be an *offender* need, but because self-esteem is not directly related to criminal behaviour, it is not considered a *criminogenic* need. Treatment that focused on self-esteem may be successful in improving self-esteem, but this would not be related to a change in risk of criminal behaviour. In contrast, treatment that targeted antisocial attitudes or identification with criminal others would have a direct effect on risk of criminal behaviour because these are major criminogenic needs.

Responsivity Principle. The responsivity principle states that in order to be effective, interventions must be designed to match the abilities, strengths, learning style, and motivation for change of the offender (Andrews & Bonta, 2010). Treatment will be more efficacious if attention is paid to responsivity variables that can have an impact on an individual learning and internalizing what the intervention is designed to teach. For example, offenders with low intelligence will gain more from a treatment focused on simple behavioural strategies rather than complex cognitive processes compared to an offender of average or high intelligence.

The responsivity principle also states that interventions should be cognitive-behavioural in nature in order to target both cognitive and behavioural aspects of antisocial behaviour (Andrews & Bonta, 2010). Cognitive-behavioural treatment programs are centred on the idea that how we think influences how we feel and how we behave (Shapiro, Friedberg, & Bardenstein, 2006). These programs typically target inappropriate thoughts and inappropriate behaviours simultaneously. For example, a cognitive-behavioural treatment program could be designed to help a hostile individual to recognize that not everyone is out to get him or her and to learn to use less hostile interpersonal skills. The goal of this program might be to decrease hostile thoughts in order to decrease feelings of hostility and subsequent hostile behaviour. Cognitive-behavioural treatment programs are generally short-term and follow a structured format, including homework.

Although interventions designed to decrease risk of antisocial behaviour are plentiful, evidence suggests that only interventions that target criminogenic needs and take into account factors of responsivity will be efficacious (e.g., Andrews & Bonta, 2010). Antisocial attitudes represent a major criminogenic need associated with antisocial behaviour, and are thus a very suitable treatment target. Nevertheless, there is a scarcity of research on the provision of treatment to reduce antisocial attitudes, and few published treatment programs exist that target antisocial attitudes. The current study filled this void by examining the effectiveness of the Criminal Attitudes (CAP) Program, a treatment program designed to decrease antisocial attitudes in correctional offenders.

As Simourd and Olver (2002) note, there is a distinction between interventions that directly target antisocial attitudes and those that include antisocial attitudes as a more peripheral target encompassed under a broader umbrella. For example, the Reasoning and Rehabilitation

program (R&R; Ross, Fabiano, & Ewles, 1988) and its updated version (R&R2; Ross, Hilborn, & Liddle, 2007) were designed to treat multiple criminogenic needs, including antisocial attitudes, impulsivity, and substance abuse, by helping offenders learn more appropriate problem solving skills, social skills, and styles of thinking, among other skills. Although studies support the short- and long-term benefits of the R&R and R&R2 programs, including a decrease in antisocial attitudes and recidivism (Antonowicz & Parker; Berman, 2004; Raynor & Vanstone, 1996), this type of program cannot be implemented or evaluated for effectiveness based on antisocial attitudes alone because antisocial attitudes are only one of several treatment targets.

One of the first interventions designed to directly target antisocial attitudes demonstrated that interaction with prosocial others decreased antisocial attitudes among offenders (Andrews, Wormith, Kennedy, & Daigle-Zinn, 1977). However, no statistically significant changes in antisocial behaviour were observed.

Two more recent and promising programs that directly target antisocial attitudes are the Counter-Point program (Graham & Van Dieten, 1999) and the CAP program (Simourd, 2007). The Counter-Point program (renamed Alternatives, Associates, and Attitudes) is designed to reduce recidivism in offenders by altering antisocial attitudes and behaviours and increasing accountability (Yessine & Kroner, 2004). This is a community-based program offered to Canadian male federal offenders on conditional release and is based on social learning and cognitive-behavioural theories. Program objectives include the management of thoughts and feelings, and goal setting and problem-solving skills. Findings indicate that the Counter-Point program is effective in reducing antisocial attitudes and recidivism rates for community-released offenders who participated in the program compared to controls (Kroner, Harris, & Yessine, 2009).

The CAP program is a structured treatment program designed to directly decrease antisocial attitudes, values, beliefs, and rationalizations based on the principles of cognitive-behavioural psychology (Simourd, 2007). The CAP program consists of 15 modules delivered over 22 two-hour sessions, which cover antisocial attitudes, antisocial behaviour, moral reasoning, justifications/ rationalizations, motivation and risk factors related to the cycle of offending, criminal companions, prosocial skills, and relapse prevention. The first session involves pre-treatment testing of antisocial attitudes, orientation to change, and social desirability. Post-treatment testing, which includes the same measures of antisocial attitudes, orientation to change, and social desirability, occurs during the final session.

In November 2009, all CAP program facilitators participated in standardized training, which comprised Basic Training (4 day) and Booster Training (1 day). Basic training covered CAP program content and techniques for delivery. A booster session was provided seven months later, which offered the opportunity to review material and discuss any concerns. Beginning in January 2010, the CAP program was offered to offenders at state-run Alaskan institutions. The program continues to be offered at this time.

In a preliminary examination of the CAP program among incarcerated Alaskan offenders, Simourd (2011) found a reduction in antisocial attitudes from pre- to post-treatment on the Criminal Sentiments Scale-Modified. The rate of rearrest was 26.1% for CAP program completers and 35.7% for non-completers, indicating a difference in recidivism of 9.6% between groups. Although these results are based on a small sample size and groups were not randomly controlled, initial investigations suggest that the CAP program is effective in reducing antisocial attitudes and subsequent antisocial behaviour.

In brief, the CAP program is a promising intervention that adheres to the principles of risk, need, and responsivity of effective treatment discussed above. The CAP program is designed to decrease antisocial attitudes in offenders, which should theoretically lead to a decrease in antisocial behaviour. Apart from a preliminary investigation, no research has explored the effectiveness of the CAP program to decrease predictors of antisocial behaviour and actual antisocial behaviour in offenders. Therefore, the current study examined the effect of the CAP program on the determinants of antisocial behaviour derived from the TPB model. In terms of the TPB model, the CAP program directly targets attitudes (i.e., antisocial attitudes) and the identification with antisocial others aspect of subjective norms. Although not a direct target for intervention, positive effects on perceived control and intentions might prove a by-product of this prosocial intervention. Given that participant retention is an important component of any treatment evaluation, this study also examined the prediction of CAP program completion (Kroner, Power, Takahashi, & Harris, 2014; Polascheck, 2010).

Despite the progress made in understanding what works in terms of offender intervention, the F-E model remains rooted in pragmatism and, therefore, lacks a solid underlying theory. However, given the associated detrimental consequences, having a clear predictive model of antisocial behaviour is critical. As discussed below, the social psychological TPB model provides a strong theoretical foundation that can be used within the area of forensic psychology in order to better understand and therefore decrease antisocial behaviour. However, there are currently no instruments to measure TPB constructs in the prediction of antisocial behaviour within a forensic context (Burrowes & Needs, 2009; McMurrin et al., 1998; Casey et al., 2005; Simourd & Olver, 2011).

Two measures used in the forensic field that assess factors related to risk, need, and responsibility are the Criminal Sentiments Scale-Modified (CSS-M; Shields & Simourd, 1991) and the Self-Improvement Orientation Scheme-Self-Report (Simourd & Olver, 2011). The CSS-M is a self-report measure of values, beliefs, attitudes, and rationalizations supportive of antisocial behaviour. This instrument assesses antisocial attitudes and identification with antisocial others. The Criminal Sentiments Scale and its modified version (Gendreau et al., 1979; Shields & Simourd, 1991) are the most widely used measures of factors related to antisocial attitudes and beliefs in forensic settings, as other instruments are not as psychometrically sound. For example, the Psychological Inventory of Criminal Thinking Styles (Walters, 1995) and the Measure of Offender Thinking Styles-Revised (Mandracchia, Morgan, Garos, & Garland, 2007) are designed to measure the *processes* involved in antisocial thinking (i.e., how a person thinks), not the *content* of behavioural, norm, and control beliefs (i.e., what a person thinks), which is more relevant to the topic under investigation. The Measures of Criminal Attitudes and Associates (Mills, Kroner & Forth, 2002) was designed to assess both antisocial attitudes and antisocial companions (e.g., number of criminal friends); however, the use of this measure has been limited. Despite adequate psychometrics (Mills et al.; Mills, Kroner, & Hemmati, 2004), there is much more empirical support for the CSS-M, which has become the gold standard for use with offenders (Simourd, 1997; Simourd & Olver, 2002).

Previous research supports the reliability and validity of both the Criminal Sentiments Scale and its modified version (Simourd 1997; Simourd & Olver, 2002). The internal consistency for the CSS-M is very high for the total score ($\alpha = .94$), and ranges from poor to high for the subscales ($\alpha = .57 - .93$; Simourd; Witte, Di Placido, Gu, & Wong, 2006). Simourd (1997) examined the convergent validity between the CSS-M and measures of risk for

recidivism. The CSS-M correlated moderately with the Level of Service Inventory-Revised (Andrews, Bonta, & Wormith, 2004), the General Statistical Information on Recidivism Scales (Bonta, Harman, Hann, & Cormier, 1996), and the Psychopathy Checklist-Revised (Hare, 1991).

Results of the validity of the CSS-M predicting recidivism are less consistent. The Criminal Sentiments Scale was not significantly correlated with offender reconviction or parole violation following release (Kroner & Mills, 1998), whereas Simourd (1997) found some weak and moderate correlations between the CSS-M and offence-based criteria. One of the difficulties with comparing studies examining the predictive validity of various assessment instruments is that researchers tend to use different definitions of recidivism. Some researchers base recidivism rates on reconviction (e.g., Kroner & Mills, 1998), while others use a less stringent definition that includes parole violations and rearrests (e.g., Simourd, 1997). Simourd and van de Ven, (1999) found that, in combination with another measure of antisocial attitudes (i.e., Pride in Delinquency Scale; Shields & Whitehall, 1991), the CSS-M significantly predicted rearrests and correlated more strongly for violent re-offenders. Further, in a study of a group of sexual offenders completing a high intensity sex offender program, the Criminal Sentiments Scale predicted non-sexual violent and non-violent recidivism, but not sexual recidivism, three years after release (Witte et al., 2006). As expected, the CSS-M correlated significantly with a measure of general risk for recidivism (i.e., General Statistical Information on Recidivism Scale), and not a measure of risk for sexual recidivism (Static-99; Hanson & Thornton, 1999), demonstrating the scale's discriminant validity.

In sum, these studies provide evidence that the Criminal Sentiments Scale and its modified version are related to *past* antisocial behaviour and to measures of *risk* of future antisocial behaviour. Although more research is required to determine the ability of these

measures to predict *actual* future antisocial behaviour, the CSS-M clearly measures factors related to the F-E model principles of risk and need, particularly antisocial attitudes and identification with antisocial others.

In contrast to the many measures of risk and need, there are currently very few tools to assess issues of responsivity (e.g., offender strengths, willingness to change) within a forensics context. The University of Rhode Island Change Assessment (URICA; McConaughy, DiClemente, Prochaska, & Velicer, 1989) and the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES; Miller & Tonigan, 1996), based on Prochaska and DiClemente's (1984) transtheoretical model of the Stages of Change, are sometimes used as measures of motivation. However, these instruments have been found to assess stages too categorically and one-dimensionally to be used accurately with antisocial behaviour, particularly among incarcerated offenders who tend to be in multiple stages at once and whose progress tends to be continuous rather than categorical (Burrowes & Needs, 2009; McMurrin et al., 1998; Casey, Day, & Howells, 2005; Simourd & Olver, 2011). The validity of these instruments has also been called into question (Littell & Girvin, 2002).

In an effort to address the lack of theoretically and empirically sound measures of responsivity, Simourd and Olver (2011) developed the Self-Improvement Orientation Scheme-Self Report (SOS-SR), a self-report measure that assesses general behaviour change concepts, such as skills, attributes, and circumstances related to behaviour change, encompassed within wide-ranging motivational factors. This multi-dimensional instrument is designed to tap into twelve domains that broadly cover personal traits, tendencies, and situational factors. Sub-domains include openness, life potential denial/minimization, self-appraisal skills, self-efficacy/willpower, cognitive perspective (i.e., problem-solving), structured treatment

expectancy, self-improvement expectancy, social support, motivation level, coping skills, self-esteem, and environmental support. Scoring and interpretation is based on continuous rather than categorical factors.

In their study, the SOS-SR was positively related to offender treatment performance, discriminated between levels of performance (i.e., poor, satisfactory, excellent), and was significantly and negatively related to a measure of risk for recidivism (i.e., the Level of Service Inventory-Revised; Andrews, Bonta, & Wormith, 2004). Preliminary investigations suggest a high internal consistency for the total score ($\alpha = .86$), but low internal consistency for subscales, with α ranging from .38 to .79. The authors note that this may reflect the small sample size of their study ($N = 132$), the low item count in each subscale, and the heterogeneous nature of the construct. Indeed, the instrument's multi-dimensionality results in a lack of cohesion among the subscales, which weakens its psychometrics. The broad nature of the items also means that they do not contain the level of behavioural specificity required to accurately assess the constructs under question. Despite its shortcomings, the SOS-SR contains items that tap into important factors that have until this point been unaddressed in the forensic area, namely the perceived control and intentions constructs included in the TPB model.

The current project examined these forensic-empirical measures within a TPB model framework and sought to identify a set of scales to measure the underlying determinants of antisocial behaviour, as guided by the TPB model. The CSS-M has proven reliable, however, the SOS-SR is long and has psychometric shortcomings. Items were selected from the CSS-M and the SOS-SR to generate scales to measure TPB model constructs. Antisocial attitudes, identification with antisocial others, perceived control, and intentions represent mutable

predictors of antisocial behaviour that can be assessed for changes in risk of antisocial behaviour over time.

The Theory of Planned Behaviour Model

The TPB model put forth by Ajzen (1991) provides a conceptual basis for understanding how behaviour can be predicted (see Figure 1). This theory was proposed as a means to determine what in fact *does* predict behaviour at a time when researchers were finding that attitudes as a direct and singular construct was an overall poor predictor of behaviour (Ajzen, 1991). The TPB model is based on the assumption that conscious decision making processes lead an individual to perform a behaviour. In other words, for behaviours in which there is a volitional component, attitudes, subjective norms, perceived control, and intentions together sufficiently determine behaviour. Furthermore, Ajzen (1991) indicates that all behaviours are best predicted when they (and their determinants) are *specific* to the behaviour.

The TPB model proposes that behaviour is predicted by three variables, attitudes, subjective norms, and perceived control, that are mediated by the behavioural intentions of an individual.

Intentions. Behavioural intention is an indication of an individual's readiness, willingness, and expectation to perform a given behaviour. Actual behaviour is more likely when intentions are strong. In terms of antisocial behaviour, intentions can include having a desire to perform criminal acts.

Attitudes. Attitudes toward the behaviour stem from beliefs concerning the consequences of the behaviour, or "...the degree to which performance of the behaviour is positively or negatively valued" (Ajzen, 1991). Actual behaviour is more likely when attitudes toward the behaviour and evaluation of behavioural outcomes are positive. More specifically,

antisocial attitudes encompass an individual's positive or negative evaluations of engaging in antisocial behaviour (Simourd, 1997). Antisocial attitudes can include holding positive views about antisocial behaviour and negative opinions about the criminal justice system, endorsing antisocial values like the use of aggression in resolving conflicts, or using rationalizations to justify antisocial acts.

Subjective Norms. Subjective norms involve an individual's perception of what significant others expect of him or her. Actual behaviour is more likely when an individual is motivated to comply with the perceived social expectations from others (Ajzen, 1991). With regards to antisocial behaviour, this can include having friends and acquaintances that an individual believes support and promote his or her engagement in antisocial behaviour.

The TPB model, however, has been criticized for how it explicates the influence of subjective norms in the prediction of behaviour, which tend to be generally poor predictors (Ajzen, 1991; Ravis & Sheeran, 2003). Based on Social Identity and Self-Categorization Theory (Tajfel, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), Terry and Hogg (1996) suggest that weak empirical support for the link between subjective norms and intentions is due to a lack of specificity in conceptualizing and operationalizing subjective norms. They redefine the subjective norms construct to be what individuals believe members of their reference group typically *do*. These social psychologists concur that subjective norms should not be conceptualized as external factors that impact behaviour (i.e., as Ajzen does). Instead, this construct should better represent "the implied rules of how group members should and do behave" (Smith & Louis, 2009, p. 21). They add that, consistent with Social Identity and Self-Categorization Theories, subjective norms is moderated by identification with reference group, in that subjective norms influence behaviour for those who identify strongly with the

behaviourally relevant reference group, and not for those who do not. Their conclusion that Ajzen's model would be better conceptualized to be in line with these social psychological theories has been well-supported in the social psychological literature (e.g., Ravis & Sheeran, 2003; Smith & Louis, 2009).

The reconceptualization proposed by Terry and Hogg (1996) has been empirically supported, with evidence suggesting that behavioural intentions and actual behaviour is more likely to align with perceived group norms, particularly for those who identify more strongly with the relevant reference group (e.g., Astrom & Rise, 2001; Giguère, Lalonde & Taylor, 2014; White, Hogg, & Terry, 2002; Smith & Louis, 2009). It is also consonant with the *identification with criminal others* construct prominent in the forensic literature (Andrews & Bonta, 2010). When it comes to predicting antisocial behaviour, emphasis is placed not only on being friends with antisocial individuals, but also on the extent to which one identifies with those peers. The traditionally defined subjective norms construct is only a good predictor at the intersection of identification with peers. Therefore, the current project used a construct that captures both the social norms specific to antisocial behaviour *and* the influence of identification with antisocial peers, what will hereafter be referred to as "identification with antisocial others."

Perceived control. Perceived control involves the perception of ease or difficulty in performing the behaviour and encompasses both issues of self-efficacy and of controllability. Actual behaviour is more likely when an individual perceives that he or she has higher internal and external control over performing the behaviour. In terms of antisocial behaviour, perceived control can include recognizing obstacles to maintaining a crime free lifestyle, or belief in one's ability to successfully commit antisocial acts. Past literature across a range of behavioural outcomes strongly suggests that in the case of perceived control, intentions only partially mediate

the perceived control-behaviour relationship, as there is also a direct relationship between perceived control and behaviour (Ajzen, 1991).

There is a significant amount of support for the TPB model, which has been used to successfully predict a wide range of behaviours, particularly in the fields of health and medicine (e.g., Godin & Kok, 1996). An early meta-analysis (Ajzen, 1991) found the average multiple correlation between attitudes, subjective norms, and perceived control with intention to be $R = .71$, and the average multiple correlation between perceived control and intention with behaviour to be $R = .51$. In their meta-analysis of 185 independent studies, Armitage and Conner (2001) found that attitudes, subjective norms, and perceived control accounted for an average of 39% of the variance of intention. In turn, perceived control and intention accounted for an average of 27% of the variance of behaviour. These authors concluded that the TPB model explains a significant proportion of the variance in actual behaviour, whether it is self-reported ($R^2 = .31$) or observed ($R^2 = .20$). Ajzen's model has been applied in many areas of human behaviour, and individual and meta-analytic studies provide empirical support for the theory. However, there exists a large gap between the areas of social psychology and forensic psychology, and examining the model within the field of antisocial behaviour is a fairly limited area of research.

Studies that have applied the TPB model to explain *violent* behaviours are few. The TPB model has been shown to predict adolescents' decision to engage in physical aggression toward their peers (Roberto, Meyer, & Boster, 2001), and women and men's intention to perpetrate/perpetration of different types of domestic abuse (e.g., Betts, Hinsz, & Heimerdinger, 2011; Kernsmith, 2005; Tolman, Edleson, & Fendrich, 1996). Miller (2010) has also proposed using the theory to understand sexual offending.

A larger number of studies have applied the TPB model to explain *nonviolent* antisocial behaviours. The theory has been shown to predict intention to use/use of marijuana (Armitage, Conner, Loach, & Willetts, 1999; Hohman, Crano, Siegel, & Alvaro, 2014), fraudulent financial reporting (Carpenter & Reimers, 2005), intention to drive dangerously/dangerous driving (Chan, Wu, & Hung, 2010; Chorlton, Conner, & Jamson, 2012; Elliot & Thomson, 2010), and illegal digital downloading (Wang & McClung, 2011). The TPB model has also been shown to predict behaviours that may be considered antisocial, although not necessarily illegal, such as gambling (Martin et al., 2010), academic cheating (Yang, 2012), and cyber-bullying (Pabian & Vandebosch, 2014). One study has applied the model to antisocial behaviour more generally, and found support for young offender's intentions to re-offend (Kiriakidis, 2010).

Results of these above noted studies provide support for the utility of the TPB model to predict various violent and nonviolent antisocial behaviours. Unlike other fields, however, research into the applicability of the theory to explain antisocial behaviours remains in its infancy. Most of the studies have not been replicated, and many are cross-sectional and are therefore methodologically limited in that they cannot predict actual future behaviour, only intentions to engage in antisocial acts. The current study is the first to evaluate the theory's ability to predict *actual* antisocial behaviour, specifically severity of antisocial behaviour upon release from custody. Furthermore, this is the first known study to examine the ability of the TPB model to predict antisocial behaviour in a sample of adult offenders.

The Current Study

The current study contributes to the understanding of antisocial behaviour by clarifying the role specific determinants play in the prediction of antisocial behaviour. As well, this study unifies important research in the areas of forensic and social psychology. As discussed below,

the social psychological TPB model provides a strong theoretical foundation that can be used within the area of forensic psychology in order to better understand and therefore decrease antisocial behaviour.

In the forensic field, researchers have identified and classified predictors of antisocial behaviour based on a vast amount of empirical research (Andrews & Bonta, 2010; Gendreau, Little & Goggin, 1996; Simourd, 1997). However, the forensic-empirical (F-E) is limited by its data-driven approach and inclusion of direct and general (i.e., not behaviourally specific) factors in the prediction of antisocial behaviour. Concurrently, social psychologists have proposed different conceptual models that include mediated pathways to explaining behaviour and emphasize the importance of specificity in assessment, among these the Theory of Planned Behaviour (TPB; Ajzen, 1991) is extensively used, particularly in applied contexts. The TPB model is a conceptually rich model that considers direct and indirect factors in the prediction of antisocial behaviour.

Although the TPB model has been applied to a host of behaviours (e.g., Morojele & Stephenson, 1992; Parker et al., 1992), it has not been widely applied to the prediction of antisocial behaviours. Previous studies provide support for the utility of the TPB model to predict various violent (Betts et al., 2011; Kernsmith, 2005; Miller, 2010; Roberto et al., 2001; Tolman et al., 1996) and nonviolent antisocial behaviours (Armitage et al., 1999; Carpenter & Reimers, 2005; Chan et al., 2010; Chorlton et al., 2012; Elliot & Thomson, 2010; Hohman et al., 2014; Kiriakidis, 2010; Martin et al., 2010; Pabian & Vandebosch, 2014; Wang & McClung, 2011; Yang, 2012). However, research into the applicability of the theory to explain antisocial behaviours remains in its infancy, as most of these studies have not been replicated and do not include a longitudinal design.

As guided by the TPB model, the present study examined relations among antisocial attitudes, identification with antisocial others, perceived control, intentions, and antisocial behaviour in a sample of correctional offenders, and the utility of the model to predict antisocial behaviour severity upon release. The current study adds to literature by evaluating the theory's ability to predict *actual* antisocial behaviour and not simply intentions to engage in antisocial behaviour. In order to account for the reconceptualization of subjective norms (Rivis & Sheeran, 2003; Smith & Louis, 2009; Terry & Hogg, 1996), the current study used a single construct that reflected both the normative and identification with antisocial peers aspects of the TPB model (i.e., "identification with antisocial others"). The current study was the first to emphasize both the normative and the identification aspects of the TPB model in the prediction of antisocial behaviour. Further, no known study has applied the TPB model to the prediction of antisocial behaviour severity in adult offenders.

Given the lack of overlap between the areas of forensic and social psychology, there are currently no instruments that measure TPB constructs in the prediction of antisocial behaviour upon release (Burrowes & Needs, 2009; McMurrin et al., 1998; Casey et al., 2005; Simourd & Olver, 2011). The current study therefore selected items from two measures used in the forensic area in order to generate scales to assess the TPB constructs. The Criminal Sentiments Scale-Modified (CSS-M; Shields & Simourd, 1991) is an empirically-supported and widely used measure in corrections that assesses values, beliefs, attitudes, and rationalizations supportive of antisocial behaviour, such as the F-E model and TPB model constructs of antisocial attitudes and identification with antisocial others. The Self-Improvement Orientation Scheme-Self-Report (SOS-SR; Simourd & Olver, 2011) assesses factors related to behaviour change and motivation, which parallel the TPB constructs of perceived control and intentions. However, empirical

support for the SOS-SR remains limited by weak psychometrics. The current study adds to the literature by identifying a set of scales to measure the underlying determinants of antisocial behaviour, based on the TPB model. This is the first known study to examine these forensic-empirical measures within a TPB model.

In addition, the current study evaluated the effectiveness of the Criminal Attitudes Program (CAP program), a treatment program designed to decrease antisocial attitudes and subsequent antisocial behaviour in correctional offenders (Simourd, 2007). In the forensic area, antisocial attitudes represent a strong and mutable criminogenic need directly associated with antisocial behaviour, and are therefore considered a very suitable treatment target (Andrews & Bonta, 2010; Gendreau, French & Gionet, 2004). However, few studies have evaluated the effectiveness of treatment programs to reduce antisocial attitudes (Simourd and Olver, 2002). The current study contributes to the literature by examining the effectiveness of the CAP program.

In a preliminary examination of the CAP program among incarcerated Alaskan offenders, Simourd (2011) found a reduction in antisocial attitudes and in subsequent antisocial behaviour, suggesting that the CAP program is a promising intervention that adheres to the principles of risk, need, and responsivity of effective treatment outlined above. However, a more thorough evaluation of the effectiveness of the CAP program has yet to be conducted. Therefore, the current study examined the effect of the CAP program on the determinants of antisocial behaviour derived from the TPB model. The current study builds on the previous analysis by using a larger sample, exploring the measures in more detail, and by being at arms length from the program developer. It is important to consider participant retention in any evaluation of a treatment program (Kroner et al., 2014; Polascheck, 2010). In order to explore factors related to

participant retention in the CAP program, the current study also examined predictors of program completion.

Aims of the Current Study

Aim 1. Develop a psychometrically sound set of measures by which to evaluate the success of the CAP program and by which to conduct further analyses. Measure development was guided by the Theory of Planned Behaviour using items from the two original questionnaires (i.e., Criminal Sentiments Scale-Modified, Self-Improvement Orientation Scheme-Self-Report).

Aim 2. Evaluate the effectiveness of the CAP program in decreasing antisocial and increasing prosocial responses from pre-treatment (Time 1) to post-treatment (Time 2).

Aim 3. Evaluate the effectiveness of the CAP program in reducing recidivism and antisocial behaviour upon release at follow-up (Time 3).

Aim 4. Evaluate the effectiveness of the newly developed TPB model construct scales at pre-treatment (Time 1) to predict CAP program completion (Time 2).

Aim 5. Evaluate the effectiveness of the newly developed TPB model construct scales at post-treatment (Time 2) to predict antisocial behaviour severity upon release (Time 3).

Explore whether a revised model may be a better fit to the data.

CHAPTER 2

Methods

Participants and Procedure

The resultant size and make-up of the sample by time point was as follows (see Table 1):

Full CAP (Time 1) sample. Participants in the initial sample were adult correctional offenders ($N = 1,443$; 46.8% male offenders) who agreed to participate in the voluntary Criminal Attitudes Program (CAP) during incarceration within the Alaska Department of Corrections. Participants were recruited from eleven correctional institutions across the state of Alaska. The CAP program has been offered to criminal offenders with moderate to high levels of antisocial attitudes since January 2010 (see details below for incarcerated offences). Five hundred and thirteen participants were dropped from the initial sample because one institution provided only total scale scores and were unable to recover the item level data needed in the current study, and a second institution provided only partial data for a large number of participants. The final set of participants was, $N = 930$, 61.4% male. Self-reported gender information was provided for the full sample at Time 1.

Additional data was provided for a subset of the sample ($n = 296$)¹ by the Alaska Department of Corrections. To facilitate more detailed analyses, further *demographic* (date of birth, ethnicity) and descriptive *criminal history* (index offence severity, length of sentence, number of prior offences, criminal versatility) data were provided for this subsample. Within this subsample, participant *age* at Time 1 ranged from 17.3 to 76.0 years ($M = 34.5$, $SD = 9.6$). *Ethnicity* was varied: White/Caucasian (51.7%), Native American/Alaskan (22.6%), Black (17.2%), and Other (8.4%, e.g., Hispanic). Regarding criminal history and based on the most

¹ Participants for the subsample were drawn from 9 of the 11 institutions.

serious offence, *incarcerated offence severity* was: violent offence (61.2%; e.g., murder, sex offences, assault, robbery, threatening), nonviolent offence (38.1%; e.g., theft, drug offences, driving offences), and technical violation (0.7%; e.g., breaches of probation, failures to appear). The *length of sentence* ranged from 30 days to 99 years ($M = 15.54$ years, $SD = 22.67$). *Number of priors* (i.e., number of offences committed prior to the index or incarcerated offence) were: first time offenders (21%), 1-2 priors (20%), 3 priors (8%), 4-9 priors (18%), and ≥ 10 priors (32%).

CAP Completers (Time 2) sample. Nearly two-thirds (64.5%, $n = 600$) of the participants in the Full CAP (Time 1) sample completed the CAP program (55.0% male). Completing the program was defined as being present to complete self-report measures during the final session of the CAP program (Time 2). The ethnic makeup for the subsample at Time 2 remained virtually unchanged relative to Time 1 (see above).

Follow-up (Time 3) sample. The subsample of participants identified at Time 1 (see above) were followed to Time 3. Criminal rearrest data were provided from the Alaska Department of Corrections offender database by a Corrections Analyst on two separate dates². Data were provided on most of the participants within the subgroup (Time 3, $n = 254$); however only a small number of the participants had been released from custody at the time of follow-up ($n = 109$). The sample included both CAP program completers ($n = 64$; 58.7%), as well as those who had not completed the CAP program. The ethnic composition of those released into the community by the time of Follow-up (Time 3) was very similar to the previous two time points: White/Caucasian (54.1%), Native American/Alaskan (25.7%), Black (11%), and Other (8.3%). *Age of those released* ranged from 17.3 to 76.0 years ($M = 33.3$, $SD = 9.6$). Duration of release

² June 4 and July 14, 2014.

into the community until Time 3 follow-up varied widely (M days of release to follow-up = 510.6 days, SD = 447.63 days; Range = 8 to 1,855 days).

Measures³

Participants completed the following three self-report measures at Time 1, and again at Time 2 among those present at the final session of the CAP program (i.e., the CAP Completers Time 2 sample).

Criminal Sentiments Scale- Modified (CSS-M; Shields & Simourd, 1991). The CSS-M measures antisocial attitudes, values, beliefs, and justifications related to antisocial activity. The scale consists of 41 items and five subscales reflecting *Attitudes* (towards the: Law, Court, Police, Law Violations) and *Identification With Criminal Others*. Sample items include: “You cannot get justice in court” (Court), and “People who have broken the law have the same sorts of ideas about life as me” (Identification with Criminal Others). Participants respond using a 3-point Likert scale ranging from 1 (*agree*) to 3 (*disagree*). Higher scores denote greater antisocial attitudes. The scale is a reliable and valid measure of antisocial attitudes (Mills et al., 2002; Simourd, 1997; Simourd & Olver, 2002). Although Cronbach’s alpha for the total scale in the current study was excellent both pre- and post-treatment (Time 1 α = .92; Time 2 α = .91), reliabilities at the subscale level ranged from poor to good (α = .52 to .83).

Self-Improvement Orientation Scheme-Self-Report (SOS-SR; Simourd & Olver, in press). The SOS-SR was developed to assess skills, attributes, and circumstances related to behaviour change, encompassed within wide-ranging motivational factors. The instrument comprises 72 items scored based on a 5-point Likert scale ranging from -2 (*strongly disagree*) to +2 (*strongly agree*). The items are grouped into 12 subscales that combine to create a Total score

³ See Appendix A for complete measures.

(*Openness; Life Potential Denial/Minimization; Self-Appraisal Skills; Self-Efficacy/Willpower; Cognitive Perspective; Structured Treatment Expectancy; Self-Improvement Expectancy; Social Support; Motivation Level; Coping Skills; Self-Esteem; Environmental Support*). Higher scores denote a more positive orientation to self-improvement. A sample reads “If I really think about it, there are things I could change to make my life better.” Cronbach’s alpha for the total scale in the current study was good both pre- and post-treatment (Time 1 $\alpha = .88$; Time 2 $\alpha = .89$). However, reliabilities at the subscale level were low, ranging from poor to moderate ($\alpha = .39$ to $.71$).

Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960).

The MCSDS consists of 33 forced-choice (True/False) items and measures social desirability (sample item: “There have been occasions when I have taken advantage of someone”). Higher scores denote greater “faking good.” The measure has been widely used with antisocial populations (Andrews & Meyer, 2003; Tatman, Swogger, Love, & Cook, 2009). Cronbach’s alpha was good at both time points (Time 1 $\alpha = .86$; Time 2 $\alpha = .89$).

Antisocial Behaviour- Follow-up (Time 3). Two indices of antisocial behaviour were used: recidivism and antisocial behaviour severity.

Recidivism. Recidivism was coded as a dichotomous variable: coded 0 = no rearrest, and 1 = rearrest at follow-up.

Antisocial behaviour severity. Antisocial behaviour severity was coded as a continuous variable using categories from the Psychopathy Checklist-Revised (Hare, 1991): coded 0 = no rearrest, 1 = rearrest for technical violation, 2 = rearrest for non-violent offence (theft, break and enter, fraud, and offences involving illicit substances), and 3 = rearrest for violent offence

(murder, sexual assault, armed robbery, assault, and uttering threats). Participants were assigned a value of 0 to 3 based on their most serious offence following release.

Demographics and Criminal History. As noted above, gender information was available for the Full CAP (Time 1) sample, while the remaining *demographic* (date of birth, ethnicity) and *criminal history* information was provided by the Alaska Department of Corrections at Time 3 for only the smaller subsample. Similar to coding antisocial behaviour severity (see above), the offender's *index (i.e., incarceration) offence severity* was coded from 0 to 3 based on their most serious offence. Information on the *length of sentence* and *number of priors* was also provided (for descriptive details see Participants Full CAP (Time 1) sample above).

In addition and given that length of time since release predicts an increased likelihood of reoffending, *days of release until follow-up* was computed as a possible control. Rearrest dates, however, were not available. Days of release until follow-up could only be calculated by proxy for each offender using the amount of time between his or her release from custody and follow-up (Time 3; see above for precise follow-up dates).

CHAPTER 3

Results

The general aim of the current study was to investigate social-cognitive predictors of antisocial behaviour in a sample of correctional offenders who took part in the Criminal Attitudes Program (CAP), a treatment program designed to reduce criminal attitudes and thereby subsequent antisocial behaviour. Additionally, a conceptual comparison was conducted between the Forensic Empirical Model (F-E model) and the Theory of Planned Behaviour Model (TPB model). The *F-E model* (similarly an ecological model; Dishion, French, & Patterson, 1995) represents a pragmatic-empirical approach that examines multiple direct effect predictors within an overall additive model of risk factors (neighbourhood, school, deviant peers, parent, & cognitive-personality factors). The greater the number of predictors, the stronger is the predicted outcome. The *TPB model* focuses on social-cognitive factors, mediated by intentions rather than additive, direct effects. The following section describes data diagnostics, preliminary analyses, and the individual analyses by research aim. Results partially confirmed the aims of the current study.

Data Diagnostics

Initial reviews of the data involved examination of the frequency distribution of variables. Inspection of scatterplots and skewness indicated that questionnaire data were not normally distributed. Specifically, the Criminal Sentiments Scale-Modified (CSS-M) was positively skewed pre- and post-treatment (skewness = 8.21 and 9.02, respectively). Re-running of analyses using log+1 strengthened the results; however, the differences were marginal. Results reported in the current study will be based on the untransformed data. Most analytic techniques are robust to some departures from normality (Keith, 2006).

Preliminary Analyses: An empirical investigation of the original measures

As an initial step and using the Full CAP (Time 1) sample ($N = 930$; see Participants section above), the psychometric properties of the two original multi-item measures were evaluated (see Table 2). The *Criminal Sentiments Scale-Modified (CSS-M)* showed very good reliability at both Time 1 ($\alpha = .92$) and Time 2 ($\alpha = .91$). At the level of the five individual subscales, only Identification with Criminal Others had an alpha lower than a .70 criterion ($\alpha = .52$). Given the large total number of items, the *Self-Improvement Orientation Scheme-Self-Report (SOS-SR)* showed good total scale reliability at both Time 1 ($\alpha = .88$) and Time 2 ($\alpha = .89$). At the level of the individual subscales, however, 11 of the 12 subscales had an alpha reliability lower than a .70 criterion ($R = .39$ to $.68$ at Time 1; $M = .56$, $SD = .08$; c.f., Simourd & Olver, 2011).

Taken together, although the psychometric properties of the CSS-M were generally good at both full scale and subscale levels, the SOS-SR showed poor reliability, inadequately assessing individual constructs represented at the subscale level. Results support the development of scales that better assess the constructs of interest, particularly as represented by a more conceptually driven model (i.e., the TPB model). A new set of measures was developed using the TPB model as a guiding conceptual framework for the selection of items from the original two measures (total number of original items = 113).

Aim 1: Develop a psychometrically sound set of measures to be used to evaluate the TPB model and the CAP program

Following the recommended steps in the development of measures for the TPB model (Ajzen, 1991), items from the CSS-M and SOS-SR were examined for fit to the TPB model⁴.

⁴ For a fuller description of the steps see Appendix B.

Seventeen coders categorized and rated the pool of 113 items based on working definitions of each of the four constructs in the TPB model (i.e., *antisocial attitudes*, *identification with antisocial others*, *perceived control*, *intentions*; recall that the *identification with antisocial others* construct used in this study reflects both the normative and the identification with peers aspects of the TPB model). Items were rated for fit using a 4-point Likert scale: 0 = does not match a TPB construct, 1 = poor construct fit AND poor item specificity, 2 = either good construct fit OR good item specificity, 3 = good construct fit AND good item specificity. A high score required reference to the criminal justice domain (law, police, courts, crime). Good item specificity to antisocial attitudes, for example, needed to involve a “favourable or unfavourable evaluation or appraisal of the behaviour in question” (Ajzen, 1991, p.188). Most of the items pertaining to intentions were low in specificity, reflecting a vague intention to “make changes to my life” without any indication as to whether these changes pertained to avoiding future criminal activity, seeking employment, or avoiding association with criminal peers.

A total of sixty items with high inter-rater agreement (i.e., ≥ 11 raters assigning the item to the same construct) were submitted to a reliability analysis and dropped if the item-total reliability was $< .40$. Criteria for rater agreement was reduced to ≥ 8 raters assigning the item to the same construct when an insufficient number of items were present for a construct. The remaining 54 items were then submitted to principal components analyses with varimax rotation. Items for the final set of TPB model were retained if they loaded $\geq .40$ on their respective factor and did not cross-load $\geq .30$ on any other factor. (A slightly lower cross-load criterion was required to ensure a sufficient number of items in each construct.) The above steps resulted in a final set of four TPB model constructs: antisocial attitudes (12 items), identification with

antisocial others (4 items), perceived control (7 items), and intentions (6 items). See Table 3 for final items, factor loadings, the direction of scoring, and Cronbach's alpha for each construct.

Confirming the proposed four TPB model subscales, an examination of the scree plot for the above principal components analyses indicated a clear 4-factor solution accounting for 41.0% of the variance at Time 1 (eigenvalues: 5.42, 2.61, 2.17, 1.70, and 1.21) and 41.7% of the variance at Time 2 (eigenvalues: 5.72, 2.58, 2.19, 1.60, and 1.26). The stability of the factor structure was examined. Coefficients of congruence (Harman, 1976) were strong across Time 1 and Time 2 (M congruence of coefficients = .96; R = .94 to .99). Coefficients of congruence were also examined across gender at Time 1 with similarly strong results (M = .97; R = .94 to .99). An examination of the simple zero-order correlations indicated null to moderate inter-correlations among the TPB scales (R = -.27 to .30, absolute M = .216; see Tables 3 and 4 for items, descriptives, and inter-correlations).

TPB Model Descriptives.

Behavioural Specificity. Central to the predictive success of the TPB model is the *behavioural specificity* of items predicting the outcome of interest. As rated by the raters, the average specificity of items belonging to the four TPB model measures was significantly greater than the remaining items of the SOS-SR, $F(2, 110) = 36.31, p = .000$. No difference in specificity between the TPB model items and the CSS-M was found. Taken together with the above, the SOS-SR evidenced not only poor scale reliability, but also low behavioural specificity.

Social Desirability. With regards to *social desirability*, an examination of the simple zero-order correlations indicated that all of the TPB model scales were significantly related with a tendency to present oneself in a socially desirable manner pre-treatment (Time 1; antisocial attitudes, $r = -.36, p = .000$, identification with antisocial others, $r = -.24, p = .000$, perceived

control, $r = .27, p = .001$), with the exception of intentions, which was uncorrelated ($r = -.06, p = .084$; see Table 4).

Gender. To examine *gender*, a MANOVA was conducted across the four TPB model subscales as the outcome measures at pre-treatment (Time 1). Results indicated significant gender differences on the TPB model construct scales, Pillai's Trace = .06, $F(4, 876) = 14.61, p = .000$. Follow-up univariate analyses indicated significant differences on all TPB scales. Male offenders reported greater *antisocial attitudes* ($M = .95, SD = .02$) than female offenders ($M = .81, SD = .03$), $F(1, 899) = 19.99, p = .000$, and greater *identification with antisocial others* ($M = .57, SD = .02$) than female offenders ($M = .43, SD = .03$), $F(1, 899) = 17.65, p = .000$. In contrast, female offenders reported greater *perceived control* ($M = 1.16, SD = .03$) than male offenders ($M = 1.00, SD = .03$), $F(1, 899) = 15.29, p = .000$, and greater *intentions* ($M = 1.13, SD = .04$) than male offenders ($M = .84, SD = .03$), $F(1, 899) = 34.49, p = .000$.

Ethnicity. Ethnicity was also examined using a MANOVA at pre-treatment (Time 1; see Participants section above for details on ethnic composition), recalling that ethnicity and criminal history information were only available for the smaller subsample ($n = 296$). No ethnic differences were found, Pillai's Trace = .05, $F(12, 855) = 1.25, p = .25$.

Aim 2: Evaluate the effectiveness of the CAP program in decreasing antisocial and increasing prosocial responses from pre-treatment (Time 1) to post-treatment (Time 2).

Nearly two-thirds the participants in the Full CAP (Time 1) sample completed the program (64.5%, $n = 600$), with female offenders significantly more likely to complete the CAP program than male offenders, $r(930) = .18, p = .000$ (see Table 5). Among those who did complete the program, and given the above finding of gender differences, a series of mixed 2 Time (pre-, post-treatment) X 2 Gender (male, female) ANOVAs was conducted to examine

each of the TPB model scales (i.e., *antisocial attitudes, identification with antisocial others, perceived control, intentions*). Time was examined as a within subjects factor and gender as a between subjects factor (see Table 6 for statistics). As seen in Table 7, results indicated significant main effects of time and gender for all TPB model scales. Post-hoc analyses showed a significant change from pre- (Time 1) to post-treatment (Time 2) on all the TPB model variables in the improved direction expected, suggesting that offenders decreased in their antisocial attitudes and identification with antisocial others, and increased in their perceived control and intentions. Overall, these results provide support for the effectiveness of the Criminal Attitudes Program to decrease antisociality. With regards to gender, analyses also revealed that scores were significantly different for male and female offenders, such that male offenders indicated more antisocial attitudes and identification with antisocial others than female offenders and female offenders endorsed more perceived control and intentions than did male offenders.

Most interesting was the time by gender interaction, which was significant for three of the four TPB scales (see Table 7). As seen in Figure 2, there was a significantly greater improvement from pre-treatment (Time 1) to post-treatment (Time 2) for male than female offenders overall. Specifically, male offenders reported a significantly greater decrease in antisocial attitudes, $F(1, 323) = 120.28, p = .000$, than did female offenders, $F(1, 258) = 52.20, p = .000$, over the course of treatment, suggesting a greater treatment effect for male than female offenders in terms of antisocial attitudes. As well, female offenders endorsed a significantly greater change in perceived control, $F(1, 257) = 15.97, p = .000$, than did male offenders, $F(1, 329) = 74.54, p = .000$ suggesting a greater treatment effect for female than male offenders in terms of perceived control. For male offenders there was a significant change in intentions over the course of treatment, $F(1, 329) = 23.33, p = .000$, whereas for females there was not a

significant change, $F(1, 260) = 1.10, p = .296$, suggesting a treatment effect for male offenders but not female offenders in terms of intentions.

Interaction effects for gender were not found for identification with antisocial others, suggesting that the amount of change from pre- (Time 1) to post-treatment (Time 2) was not different for male and female offenders. However, offenders significantly changed their responses in the expected direction from pre- ($M = 1.90, SD = 1.90$) to post-treatment ($M = 1.68, SD = 1.86$), indicating a main effect for time. As well, male offenders endorsed more identification with antisocial others pre- ($M = 2.17, SD = 1.96$) and post-treatment ($M = 1.99, SD = 2.00$) than did female offenders pre ($M = 1.57, SD = 1.77$) and post-treatment ($M = 1.31, SD = 1.59$), indicating a main effect for gender.

Aim 3: Evaluate the effectiveness of the CAP program in reducing recidivism and antisocial behaviour upon release at follow-up (Time 3)

Antisocial outcome data were available for a subset of participants who were released into the community at the time of follow-up (Time 3; $n = 109$, 3 female offenders, 106 male offenders). Over 58% ($n = 64$ of the 109) completed the CAP program⁵. A 2 Program Completion (not completed, completed) X 2 Rearrest (yes, no) cross-tabs table was examined (see Table 8). Among those who completed the CAP program, 40.6% (26 of 64) were rearrested. However, a comparable recidivism rate of 48.9% (22 of 45) was found among those who did not complete the CAP program, overall $X^2(1) = .39, p = .437$. Similarly, results of the zero-order Pearson correlation between program completion (coded 0 = noncompletion, 1=completion) and recidivism (coded: 0 = not rearrested, 1 = rearrested) was not significant, $r = -.08, p = .397$. The

⁵ Program completion was based on whether the participant attended the final session of the CAP program where they completed post-treatment (Time 2) questionnaires (i.e., either the Criminal Sentiments Scale-Modified or the Self-Improvement Orientation Scheme-Self-Report).

Pearson correlation between program completion and antisocial behaviour severity (coded on a 4-point scale with high scores = violent offences; see Measures above) was also not significant, $r = -.01, p = .949$.

The longer an individual has been released into the community, the greater the likelihood of rearrest. However, without data on the date of rearrest, *days of release until follow-up* (Time 3) had to be used as a proxy (Range = 8 to 1,855 days; $M = 510.6$ days, $SD = 447.6$ days). Pearson correlations were conducted to examine partial correlations. The partial correlation between CAP completion (dichotomous) and recidivism (dichotomous), after controlling for days of release until follow-up remained non-significant, $r = -.12, p = .238$. The partial correlation with antisocial behaviour severity (continuous) as the outcome variable also remained nonsignificant, $r = -.04, p = .679$.

Gender. Given that all 3 of the female offenders in the Follow-up (Time 3) sample completed the program, gender analyses of the effect of program completion on recidivism could not be undertaken.

Aim 4: Evaluate the effectiveness of the newly developed TPB model construct scales at pre-treatment (Time 1) to predict CAP program completion (Time 2)

The TPB model was used to examine both CAP program completion at Time 2 (predicting from Time 1; Aim 4) and follow-up antisocial behaviour at Time 3 (predicting from Time 2; Aim 5 below, see Figure 1).

First, predictors of CAP program completion at Time 2 were examined using data from the Full CAP (Time 1) sample. Path modeling was conducted with Amos Version 22 (Arbuckle, 2013) to examine the extent to which the TPB model, as represented by the four construct measures developed above, predicted CAP program completion. The model had an adequate fit

to the data, $\chi^2(2, N = 930) = 6.27, p = .045$, CFI = .98, RMSEA = .05, 90% CI [.01, .09], PCLOSE = .45 (see Figure 3). As expected, antisocial attitudes ($\beta = -.11, p < .001$) and identification with antisocial others ($\beta = -.19, p < .001$) significantly predicted intentions, such that higher levels of antisocial attitudes and identification with antisocial others were associated with lower levels of intentions. As well, perceived control significantly predicted intentions ($\beta = .10, p = .002$), such that stronger perceived control predicted stronger intentions. Intentions significantly predicted CAP program completion ($\beta = .08, p = .02$). Contrary to the typical TPB model, the direct effect from perceived control to outcome (CAP completion) was not significant ($\beta = -.04, p = .281$). See Table 9 for standardized direct and indirect effects. Overall, the TPB variables accounted for 8% of the variance in intention and 1% of the variance in CAP program completion.

To address the clinical utility of whether the larger number of omitted items from the two original measures (CSS-M and SOS-SR) added any further predictive value beyond the much shorter TPB measures, a hierarchical regression was undertaken. Over and above the four TPB scales entered at Step 1 ($F(4, 891) = 4.33, p = .002$), which accounted for 14% of the variance, the total score for the 84 omitted items entered at Step 2 failed to account for any additional variance in predicting CAP program completion, $F_{\text{change}}(2, 889) = .31, p = .733$. When all of the variables were entered into the regression, identification with antisocial others was the strongest predictor, $\beta = -.12, t(889) = -.29, p = .003$. Antisocial attitudes, $\beta = .05, t(889) = .97, p = .333$, perceived control, $\beta = -.02, t(889) = -.52, p = .602$, intentions, $\beta = .07, t(889) = 1.88, p = .061$, the omitted items from the CSS-M, $\beta = -.02, t(889) = -.42, p = .675$, and the omitted items from the SOS-SR, $\beta = -.04, t(889) = -.73, p = .466$, were not significant predictors of CAP program completion.

Aim 5: Evaluate the effectiveness of the newly developed TPB model construct scales at post-treatment (Time 2) to predict antisocial behaviour severity upon release (Time 3)

Predictors of antisocial behaviour severity were examined using the Follow-up (Time 3) sample. Path modeling was used to examine the extent to which the TPB model predicted antisocial behaviour severity (as a continuous variable) upon release. The TPB model represented an excellent fit to the data, $\chi^2(2, n = 62) = 1.29, p = .526, CFI = 1.00, RMSEA = .00, 90\% CI [.00, .22], PCLOSE = .58$ (see Figure 4). Consistent with the TPB model, the pathways from antisocial attitudes ($\beta = -.25, p = .035$) and identification with antisocial others ($\beta = -.30, p = .011$) to intentions were significant, indicating that higher levels of antisocial attitudes and identification with antisocial others were associated with lower levels of intentions. Similarly, intentions significantly predicted antisocial behaviour severity ($\beta = .25, p = .048$), although the direction of effect was contrary to expectation. Individuals reporting a greater desire to “change their life” were more likely to be rearrested and committed more severe crimes. Inconsistent with the model, the proposed pathways for perceived control to intentions ($\beta = .11, p = .356$) and directly to antisocial behaviour severity ($\beta = -.07, p = .603$) were not significant. Similar to the Path Modeling used in predicting CAP completion in Aim 4, perceived control was not a significant predictor of antisocial behaviour severity at Time 3 follow-up, either as a direct or indirect effect. See Table 10 for standardized direct and indirect effects. Overall, the TPB variables accounted for 22% of the variance in intention and 6% of the variance in antisocial behaviour severity.

Given the low number of participants ($n = 62$) due to missing data post-treatment (Time 2), the same model was tested using pre-treatment (Time 1) data. Results indicated a slightly weaker model fit, $\chi^2(2, n = 109) = 2.83, p = .243, CFI = .98, RMSEA = .06, 90\% CI [.00, .21],$

PCLOSE = .33, and overall slightly lower path weights, with the exception of perceived control, which increased from -.07 to -.18. Given the non-significant pathways for perceived control, a second revised model was tested using post-treatment (Time 2) data in which perceived control was omitted. The revised model did not improve fit to the data, $\chi^2(2, n = 62) = 1.39, p = .499$, CFI = 1.00, RMSEA = .00, 90% CI [.00, .23], PCLOSE = .55.

As in Aim 4, to determine the clinical utility of whether the larger number of omitted items from the two original measures added any further predictive value beyond the much shorter TPB measures, a similar hierarchical regression was undertaken. Over and above the four TPB scales entered at Step 1 ($F(4, 57) = 1.24, p = .303$), which accounted for 28% of the variance, the total score for the 84 omitted items entered at Step 2 accounted for an additional 6.5% of the variance in predicting antisocial behaviour severity, $F_{change}(2, 55) = 1.29, p = .284$. When all of the variables were entered into the regression, intentions was the only significant predictor, $\beta = .33, t(55) = 2.11, p = .039$. Antisocial attitudes, $\beta = .16, t(55) = .74, p = .464$, identification with antisocial others, $\beta = .11, t(55) = .78, p = .441$, perceived control, $\beta = .19, t(55) = .92, p = .363$, the omitted items from the CSS-M, $\beta = -.25, t(55) = -.92, p = .361$, and the omitted items from the SOS-SR, $\beta = -.37, t(55) = -1.54, p = .129$, were not significant predictors of antisocial behaviour severity.

CHAPTER 4

Discussion

The general purpose of this study was to gain a better understanding of what contributes to antisocial behaviour, specifically recidivism, by examining the social psychological Theory of Planned Behaviour within the context of the forensic empirical (F-E) model. The current study was the first to apply the Theory of Planned Behaviour (TPB model) to the prediction of antisocial behaviour severity in a sample of adult correctional offenders. Although the TPB model has been widely applied in health and social psychology, research examining the utility of this model in predicting antisocial behaviour is novel. As well, this study was the first evaluation of the effectiveness of the Criminal Attitudes Program (CAP), a treatment program designed to reduce antisocial attitudes and subsequent antisocial behaviour in correctional offenders.

Aim 1: Development of the TPB Model Construct Scales

The first aim of the current study was to develop a psychometrically and conceptually sound set of measures by which to evaluate the effectiveness of the CAP program and the TPB model more broadly. Although all 5 subscales of the *Criminal Sentiments Scale-Modified* (CSS-M) showed good psychometrics, 11 of the 12 subscales of the Self-Improvement Orientation Scheme-Self-Report (SOS-SR) fared poorly both in scale reliability and behavioural specificity. These results were similar to Simourd and Olver's (2011) initial findings. The authors noted that weak psychometrics for subscales may have reflected the small sample size of their study, the low item count in each subscale, and the heterogeneous nature of the construct. However, even with the current large sample, the SOS-SR remained psychometrically weak. *Behavioural specificity* in scale item content is central to the success of the TPB model (Ajzen, 1991). Research has demonstrated that behaviour is better predicted by behaviourally specific than

general measurement items (Ajzen 1991, 2002; Kraus, 1995). The CSS-M demonstrated a moderate level of item specificity (e.g., “People who have broken the law have the same sorts of ideas about life as me;” identification with criminal others). In contrast, most of the items from the SOS-SR were quite broad with low item specificity (e.g., “I know I need to change something in my life, but I just don’t know what it is;” motivation level). Changing “something“ lacks goal specificity, but at least recognizes the need for change.

With the aim of developing better measures, in particular ones that were more conceptually guided and reliable, the current study was successful in constructing a set of scales reflective of the TPB model using items from the original measures (i.e., CSS-M and SOS-SR). While items were not selected on the basis of their rated behavioural specificity, the resulting TPB scales created from the SOS-SR showed significantly greater specificity compared to the omitted SOS-SR items. Being rated as more strongly belonging to one of the TPB categories (e.g., perceived control, intentions) may have brought with it an associated higher degree of behavioural specificity, as specificity is encompassed within the characterization of the TPB constructs. Finally and from the pragmatic perspective of clinical assessment, it is desirable to use the fewest number of items and measures. Examination of the clinical utility of using the short TPB scale version versus the long original version showed that the remaining 84 items from the original CSS-M and SOS-SR (total of 113 items - 29 TPB items) possessed no further incremental validity in predicting either CAP program completion or reoffending upon release at Time 3 follow-up over and above the TPB items.

All of the TPB model scales were significantly related with a tendency to present oneself in a socially desirable manner, with the exception of intentions. This suggests that offenders were

not reluctant to admit their intentions to change, as they were with the other TPB scales, and that their indicated desire to change was not simply due to social presentation.

In terms of gender, male offenders reported greater antisocial attitudes and identification with antisocial others (reflecting both the normative and the identification with peers aspects of the TPB model) than did female offenders, whereas female offenders reported greater perceived control and intentions than did male offenders. This suggests that components of the TPB model may be differentially predictive depending on gender. No ethnic differences were found.

Aims 2 & 3: Evaluation of the Criminal Attitudes Program (CAP) in Improving Attitudes, Beliefs, and in Decreasing Recidivism

The second and third aims of the current study were to evaluate the effectiveness of the CAP program with regards to the program's effectiveness in: decreasing antisocial and increasing prosocial attitudes and beliefs from pre-treatment Time 1 to post-treatment Time 2 (Aim 2), and in reducing antisocial behaviour following release from custody at follow-up Time 3 (Aim 3). The CAP program was designed to target antisocial attitudes. Unlike an individual's criminal history or incarcerated offence, cognitive variables (attitudes and beliefs) are amenable to intervention, and, according to forensic psychologists, are among the strongest predictors of antisocial behaviour (Andrews & Bonta, 2010; Gendreau et al., 1996; Gendreau et al., 1997; Simourd et al., 1994; Simourd, 2007).

Specific to Aim 2, current results showed that offenders who completed the CAP program decreased their antisocial and increased their prosocial attitudes and beliefs over the course of treatment from Time 1 to Time 2. These findings provide support for the CAP program's effectiveness as a correctional treatment program. Offenders can partake in this program as a means to change their attitudes and beliefs that have been conducive to criminal

behaviour. Given that this study did not include a control group, these changes may have been due to some other effect associated with time of incarceration, that is, criminal justice practices pre- and post-treatment may have been operating more effectively. Also, program completion was defined as being present for the final session; however, some of these offenders would have been transferred or released during the program, thus being inaccurately assigned to the non-completer group.

Although not entirely conclusive, these results add to the literature that treatment programs targeting antisocial attitudes are effective (e.g., Andrews et al., 1977; Berman, 2004; Raynor & Vanstone, 1996; Simourd, 2011; Yessine & Kroner, 2004). Interesting is the finding that treatment effects varied depending on the gender of the offender. Over the course of treatment, male offenders reported a significantly greater decrease in antisocial attitudes than did female offenders. In contrast, female offenders endorsed a significantly greater change in perceived control than did male offenders. There was a significant change in intentions for male but not female offenders. This suggests that treatment effects vary by gender depending on the target construct. There was no interaction effect for gender with regards to identification with antisocial others. Further research is required to clarify these interactions. More central is the question as to whether changing antisocial attitudes results in a reduction in reoffending upon release.

Aim 3 examined whether completion of the CAP program predicted better behavioural outcomes following release from incarceration. Results were not statistically significant. Completion of the CAP program did not predict either recidivism or antisocial behaviour severity at follow-up (Time 3). That said, one reason that it may have been difficult to detect a treatment effect for program completion was that the Time 3 follow-up data may have been

collected too prematurely. There was insufficient time for a reoffence to occur. One line of support for this idea is that irrespective of CAP completion or non-completion, the rates of rearrest reported in the current study (41% and 49%, respectively) were lower than State-wide rates of recidivism reported as of 2007. According to the Alaska Judicial Council (2007), 48% of released offenders had been rearrested or remanded to custody after 12 months of release. After 24 months of release, 60% of offenders had been rearrested or remanded. Time from release to follow-up (Time 3 data collection) in the current study ranged widely (8 to 1,855 days). Using the average in the current sample ($M = 511$ days), recidivism rates remain lower.

A second line of support for the notion of a premature follow-up is that when the *Time from release to follow-up* (Time 3 data collection) was used as a rough proxy control for *time since release*, the predictive relations increased though not reaching significance. It can be reasonably inferred that if greater time were allowed for a reoffence to occur and if time from release to reoffence were controlled, predictive power and success would have been greater. Future research will need to examine this more carefully.

Finally, and while it should be expected for a treatment program to reduce negative behavioural outcomes upon release (recidivism), the TPB model would predict a mediated relationship between program involvement and outcomes. That is, a positive change in attitudes-beliefs resulting from program engagement should be the better predictor of behavioural outcomes than program completion per se. A model including both direct and indirect predictors was supported in the current study, with the limitations already noted. Outcomes in the current study were two-fold. First, does the TPB predict program completion (Aim 4) and second, do potentially ameliorated attitudes-beliefs at post-treatment predict follow-up antisocial behaviour (Aim 5).

Aim 4: Does the Theory of Planned Behaviour Model Predict Program Completion?

It was expected that the TPB model would predict CAP completion. Individuals with little intention to change their life (e.g., “I would consider making changes in my life, but now is not a good time to start”) could be expected to have lower CAP program adherence. That is, having little want to change one’s life would predict lower CAP program engagement. The completion rate assessed at Time 2 in the current study was 66%, consistent with that of similar interventions (e.g., 62%, Hatcher, McGuire, Bilby, Palmer, & Hollin, 2012; 50%, Kroner et al. 2014).

Overall and based on the results of path modeling, the TPB model predicted program completion. Pathways within the TPB model were almost all statistically significant. Antisocial attitudes and identification with antisocial others predicted intentions. As expected, offenders who hold more antisocial attitudes and identify more with antisocial others have fewer intentions to improve their lives. With regards to perceived control, offenders who believe they have more control over improving their lives have stronger *intentions* to do so; however, this did not lead to higher rates of *actual* program completion. Consistent with the TPB model, intentions predicted CAP program completion, suggesting that an offender’s intentions to improve their life in a prosocial direction are predictive of whether they will actually complete a treatment program.

Results are fairly consistent with the few studies that examine the utility of the TPB model to predict completion of intervention programs. A recent study examining completion of a substance abuse treatment program found that attitudes and perceived control significantly predicted intentions, although subjective norms did not (Zemore & Ajzen, 2014). There was also a moderate relation between intentions and treatment completion. Results of a meta-analysis examining the prediction of intentions to attend and actual attendance for a wide range of

screening programs showed that overall, attitudes were largely associated with intentions, and subjective norms and perceived control had medium-sized associations with intentions (Cooke & French, 2008). Intentions also had a medium-sized association with attendance; whereas perceived control had a small association with attendance. Other studies have shown the TPB model to predict intentions to participate in counselling among police officers (Hyland, Boduszek, Shevlin, & Adamson, 2012), participation in service programs among homeless people (Christian, Armitage, & Abrams, 2007), and treatment seeking for mental health services among Iraq war veterans (Stecker, Fortney, Hamilton, Sherbourne, & Ajzen, 2010).

The current study pinpointed identification with antisocial others, which is a known determinant of antisocial behaviour in both the F-E model and the TPB model, as the strongest predictor of program completion. The finding that offenders who identified more strongly with antisocial others were less likely to complete the CAP program highlights the importance of peer influence in program completion. More research is necessary to determine what influence both normative and identification aspects of this construct have on whether offenders persist through a treatment program or not. Additionally, recruitment and retention efforts should target offenders who identify most strongly with antisocial others, as these are the offenders who are the least likely to complete a treatment program, and who would therefore benefit most from interventions designed to reduce risk of antisocial behaviour.

Aim 5: Does the Theory of Planned Behaviour Model Predict Antisocial Behaviour Severity?

The fifth aim of the current study was to evaluate the effectiveness of the TPB model construct scales in predicting antisocial behaviour severity, and to explore whether a revised model may be a better fit to the data. Although the TPB model has been used to predict a range

of behaviours in other areas, its applicability to behaviours in the antisocial field is a fairly new area of study. This was the first study to evaluate the extent to which the TPB model could predict antisocial behaviour severity upon release in adult correctional offenders.

Overall, findings supported the ability of the TPB model to predict antisocial behaviour severity upon release. As a continuous variable, antisocial behaviour severity had a stronger result; however, there was a very strong correlation between recidivism and antisocial behaviour severity. Results of path modeling were consistent with the TPB model, in that the majority of determinants predicted antisocial behaviour severity indirectly through intentions. Antisocial attitudes, identification with antisocial others, and intentions were robust predictors in the model. In contrast, the pathways from perceived control to intentions and directly to antisocial behaviour severity were nonsignificant. It is to be noted that perceived control to antisocial behaviour severity was likely non-significant because of the small sample size, as the pathway became significant when the larger Time 1 sample was used ($n = 109$). Inconsistent with the typical TPB model, the direct path from perceived control to outcome was not significant for either predicting intentions or antisocial behaviour severity, and did not improve overall model fit.

Antisocial attitudes were a significant determinant in the prediction of antisocial behaviour severity. Consistent with the TPB model, rather than having a direct relation, antisocial attitudes influence antisocial behaviour severity via intentions. The antisocial attitudes scale consisted of psychometrically strong and behaviourally specific items from the CSS-M. This construct assessed an offender's positive or negative evaluations of engaging in antisocial behaviour (Simourd, 1997). Findings from both social (e.g., Ajzen, 1991) and forensic psychology (e.g., Andrews & Bonta, 2010) are consistent: individuals are more likely to engage in a behaviour when their attitudes toward it are positive.

Current results are consistent with forensic research indicating that antisocial attitudes are associated with antisocial behaviour (Andrews & Bonta, 2010; Gendreau, 1996). Present findings are also consistent with previous applications of the TPB model to antisocial intentions and antisocial acts. Roberto and colleagues (2001) found that attitudes significantly predicted intentions to engage in physical aggression toward peers in adolescents. Betts and his team (2011) established that attitudes were significantly related to verbal, physical, and sexual abuse. Attitudes have also emerged as a significant predictor of a variety of non-violent antisocial behaviours, such as cannabis use (Morrison et al., 2010) and fraud (Carpenter & Reimers, 2005). Treatment programs designed to minimize antisocial attitudes are effective and should continue to be offered to offenders in an effort to decrease antisocial behaviour. Current results suggest that interventions should operationalize treatment goals to be concrete and behaviourally specific in order to increase the compatibility with the target outcome, such as decreasing antisocial attitudes. Furthermore, methods of evaluating programs should be specific to and compatible with treatment targets.

Identification with antisocial others, which represented the social component of the TPB model, emerged as the most significant determinant in the prediction of antisocial behaviour severity. This scale also consisted of psychometrically strong and behaviourally specific items from the CSS-M. Results of the present study are congruent with forensic research showing an association between antisocial associates/identification with criminal others and antisocial behaviour (Andrews & Bonta, 2010). In the social psychological literature, the social component of the TPB model emerges less consistently as a significant predictor of antisocial acts. In a review of ten studies that evaluated the ability of the TPB model to predict various antisocial behaviours, subjective norms were not a significant predictor of engaging in physical aggression

toward their peers (Roberto et al., 2001), verbal or sexual abuse (Betts et al., 2011), or general abuse (Tolman et al., 1996). Consistent with the present results, subjective norms significantly predicted dangerous driving (Chan et al., 2010; Chorlton et al., 2012), cyberbullying (Pabian & Vandebosch, 2014), fraud (Carpenter & Reimers, 2005), and intentions to re-offend (Kiriakidis, 2010). Investigations into drug use are also varying (Armitage et al., 1999; Morrison et al., 2010). Inconsistent results in the literature could be due to imprecision surrounding the conceptualization of subjective norms.

Traditionally, the TPB proposes that behaviour is influenced by subjective norms, or an individual's motivation to comply with their perception of what significant others expect of them (Ajzen, 1991). In the F-E model, focus is often on the *number* of antisocial friends/associates an offender has (Mills & Kroner, 1999). However, more recent research suggests that it is more prudent to focus on how much an offender *identifies with* these antisocial associates and how much an offender believes his associates are engaging in antisocial behaviour, as offenders are more likely to engage in antisocial behaviour when they identify with antisocial others and when they believe the people with whom they identify are engaging in antisocial acts (Terry & Hogg, 1996). Consistent with recent research and based on the current results, interventions targeting both social normative and identification aspects of antisocial behaviour would be most effective at reducing antisocial behaviour, particularly if they clarified misunderstandings underlying normative beliefs and decreased antisocial identity (Andrews, Bonta, & Wormith, 2006; Hohman et al., 2014). As noted above, treatment objectives should be made concrete and behaviourally specific. More research is required to address theoretical shortcomings related to this aspect of antisocial behaviour.

Perceived control is the third component of the TPB model. In the current study, this construct was not a significant predictor of intentions or of antisocial behaviour severity, suggesting that an offender's perception of ease or difficulty in performing a behaviour, such as recognizing obstacles to maintaining a crime free lifestyle or believing in one's ability to successfully commit antisocial acts, has no impact on actual antisocial behaviour. It is important to note, however, that the pathway to antisocial behaviour severity did reach significance with a larger sample.

In the social psychological literature, perceived control has inconsistently emerged as a significant predictor of antisocial behaviour. Perceived control was found to predict physical aggression toward peers (Roberto et al., 2001), various forms of abuse (Betts et al., 2011; Tolman et al., 1996), cannabis use (Armitage et al., 1999), and intentions to reoffend (Kiriakidis, 2010). As in the current study, perceived control was not a significant predictor of fraud (Carpenter & Reimers, 2005), cyberbullying (Pabian & Vandebosch, 2014), or dangerous driving (Chan et al., 2010).

Current findings suggesting no influence of perceived control on antisocial behaviour severity may be a result of inadequate measurement or poor theoretical conceptualization. The items used to measure the perceived control construct tapped into issues related to control more generally. However, as discussed above, the items did not include language specific to antisocial behaviour. Thus, the weaker relationship could be a result of lack of specificity and low compatibility between measures (Ajzen, 1991).

Another possible explanation has to do with the conceptualization of perceived control. Since Ajzen proposed the TPB, the conceptualization of the perceived control construct has been called into question (Armitage & Conner, 1999; Madden et al., 1992). Ajzen (2002) argues that

perceived control represents a single higher order construct that encompasses both issues of self-efficacy and issues of controllability. However, other researchers counter that self-efficacy and controllability are two distinct constructs that must be separately assessed within the TPB model (e.g., Armitage & Connor, 2001). Evidence suggests that perceived control captures both self-efficacy as a measure of perceptions of internal control and confidence, and controllability as a measure of perceptions of control over external barriers (Ajzen, 2002; Armitage & Conner, 1999; Armitage et al., 1999; Elliott & Thomson, 2010). This distinction implies that these two important factors will not be adequately measured if they are conceptualized as one construct, as they were in the current study. Future research should examine this distinction within the context of antisocial behaviour.

Yet another possibility is that perceived control does not play a part in antisocial behaviour. Prior to the development of the TPB model, Ajzen and Fishbein (1980) had put forth the Theory of Reasoned Action, which postulates that behaviours that are under an individual's control are affected by attitudes and subjective norms indirectly through intentions. The perceived control component was added to this theory as a means to predict behaviours that are not completely within an individual's control. It is both a direct and indirect predictor of behaviour, as it is partially mediated by intentions. The TPB model has been generally more successful at predicting behaviour than the Theory of Reasoned Action (Armitage & Conner, 2001; Madden, Ellen, & Ajzen, 1992). However, current findings imply that if antisocial behaviour is completely volitional, wherein an offender believes he or she has complete control over his or her acts, then the construct of perceived control would fall out as a predictor of intentions and behaviour. Determining the influence of the perceived control construct is important because it can provide considerable insight into whether an offender believes that he or

she has control over his or her antisocial actions (i.e., actions are volitional), or whether he or she perceives that he or she does not have complete control over his or her behaviours (i.e., actions are not intentional), which would have significant implications for assessment and treatment. For example, interventions that target factors related to control (e.g., decreasing impulsivity) would have little effect on reducing antisocial behaviour for offenders who believe their antisocial behaviour is under their control.

At this point, however, there is insufficient research about the impact perceived control has on antisocial behaviour to draw conclusions either way. Although perceived control was not a significant predictor in the current study, removing the construct from the model did not improve results of path modeling. Future research should focus on clarifying the definition of this construct in order for it to be properly measured. Given the inconsistencies in the literature, subsequent studies should also continue to examine the role this construct plays in various forms of antisocial behaviour. It is recommended that future researchers utilize a more behaviourally specific method of measurement by creating their own scales, and explore the conceptualization of perceived control as a singular and as a dichotomized construct. For example, items could assess controllability (e.g., “Staying clean for 2 days is up to me”) and self-efficacy (e.g., “Staying clean for 2 days would be easy for me”) aspects of antisocial behaviour.

Intentions were the final determinant in the TPB model. Intentions significantly predicted antisocial behaviour severity, as individuals with higher intentions to improve their self-orientation ended up with more severe antisocial behaviour upon release. Those individuals who endorsed more desire to “change my life” were more likely to commit a violent offence. However, the intentions construct lacked behavioural specificity. In the current study, stronger intentions represented a vague and broad intention to change behaviour, but no indication of

what was intended to change. Items such as “I know I need to change something in my life, but I just don’t know what it is” captured a need for change, but did not tap into the specific target for change or behaviour under question (i.e., antisocial behaviour). Future research will need to examine this relation using more behaviourally specific items (e.g., “I want to contribute to society through non-criminal avenues”).

One way of understanding this finding is that a strong desire and motivation to "get ahead" and "improve my life" may lead offenders back into criminal directions as a result of the lack of alternatives to criminal activity. When offenders are released from custody, are met with few options. Research indicates that a common reason for return to criminal activity is the lack of opportunities available to ex-offenders (Griffiths, Dandurand, & Murdoch, 2007). For example, offenders who do not secure stable employment have the greatest chances of returning to prison (Center for Substance Abuse Treatment, 2000; Griffiths, Dandurand, & Murdoch). Among other changes, better jobs can lead to greater financial stability and opportunity to reside in a less criminally active environment. Offenders with a low desire to "get ahead" or “make changes” in their lives may be content to take on menial jobs as a means to refrain from criminal activity. In contrast, offenders who have a strong desire to change their lives may not be willing to settle for unskilled jobs, and instead may aspire to higher-level employment. Presumably, offenders would face considerably more barriers to securing skilled labor, such as discrimination for having a criminal record and insufficient education. Offenders may return to criminal activity rather than obtain a menial job as a result of such overwhelming barriers. Paradoxically, having a high drive to get ahead without greater specificity about the prosocial directions for how to do so may actually be contraindicated, as failing to do so could lead one back to criminal activity.

The CAP program achieved its objectives of decreasing negative attitudes related to antisociality and to antisocial associates. Although not a target of the CAP program, offender intentions also significantly increased from pre- to post-treatment. This suggests that interventions such as the CAP program that directly target antisocial attitudes (and less so antisocial associates), can have a prosocial impact on factors related to “making prosocial changes” and “getting ahead.” This was also the case with factors of perceived control, which significantly increased in a positive direction. Given this by-product, perhaps the CAP program should target orientation to change more directly, with concrete and specific intentions and steps as to how to successfully reintegrate with society.

According to research examining offender reintegration, successful social reintegration (i.e., not reoffending or returning to prison) is dependent on communities and organizations working together to provide a continuity of care to address the multifaceted needs of ex-offenders (Griffiths, Dandurand, & Murdoch, 2007). Until such a time, however, intervention programs need to focus not only on increasing prosocial intentions or motivation to change, but also on providing offenders with clear and specific directions for how to achieve those changes. Most correctional programs address goal-setting, as they are based on a cognitive-behavioural framework. Similar to the CAP program, however, goal setting is touched upon, but not taught comprehensively to offenders. Successful intervention needs to involve the notion of a hierarchy of goals, that is, concrete goals as to how to reach broader goals. For example, a treatment program could help an offender outline how to achieve an intermediate goal (e.g., spending less time with antisocial associates) as a means to achieve a longer-term goal (e.g., not returning to prison). Otherwise, offenders are bound to complete treatment programs with lofty goals and no idea how to achieve them.

Overall, results support the TPB model in the prediction of antisocial behaviour, such that the majority of determinants included in the theory (i.e., antisocial attitudes and identification with antisocial others) predicted antisocial behaviour severity indirectly through intentions, although perceived control did not. The perceived control concept requires clarification in order to determine the role this construct plays in the commission of antisocial acts. It may be that antisocial behaviour is better predicted by the Theory of Reasoned Action than by the TPB model.

Conceptual Comparison of Forensic-Empirical and Theory of Planned Behaviour Models

In contrast to the theoretically driven TPB model, the F-E model has been empirically derived. The framework of the F-E model was built on the vast amount of research conducted over the past several decades identifying factors that increase risk to engage in criminal behaviour and outlining what is effective in offender treatment. With regards to the prediction of antisocial behaviour, the F-E model includes a large number of variables that have consistently shown to strongly predict antisocial behaviour. In addition to assessing antisocial attitudes, antisocial norms/identification with criminal others, and issues of control, as does the TPB model, the F-E model also includes factors related to personality, criminal history, and demographics. However, risk to reoffend, or predictive power, has been based on the additive accumulation of established *direct* predictors (Andrews & Bonta, 2010). Further, the F-E model tends to include broad factors that lack behavioural specificity.

According to the TPB model, attitudes (a favourable or unfavourable evaluation of the behaviour), along with subjective norms (perceived social pressure to perform or not perform the behaviour), and perceived control (self-efficacy in relation to the behaviour) are not direct predictors of behaviour, but are rather mediated by intentions (wanting, wishing, desiring to

achieve some concrete goal). In contrast to the F-E model which views attitudes as a strong direct predictor, the TPB model and social psychology more broadly, view attitudes as a weak direct predictor of behaviour, and instead as influencing behaviour indirectly through intentions. As discussed above, the traditional subjective norms component of the TPB model has not been a strong predictor of intentions, but is better conceptualized as the extent to which an individual *identifies with* antisocial others. Thus, a major strength of the TPB model is that it is largely indirect, and views intentions as the most proximal to behaviour and as conceptualizing relations with the other variables. As well, the TPB model is more parsimonious than the F-E model, which can become complex with the inclusion of numerous factors.

Another major strength of the TPB model involves the emphasis placed on specificity. As is clear from past and current research, target behaviours are much more accurately predicted by measures that contain behaviourally specific items (Ajzen 1991; Kraus, 1995). The statement, “I intend on being successful in life,” is broad and vague, whereas the statement “I intend on achieving a cumulative grade of over 65% in order to pass Grade 11,” is more behaviourally specific. As a whole, the prediction of antisocial behaviour and the treatment of offenders would improve if the F-E model placed greater emphasis on behavioural specificity. In terms of research, it is recommended that future studies take behavioural specificity into greater account, developing items or using instruments with greater item specificity to improve predictive power (Ajzen, 2002).

The TPB model is not without its criticisms. A major weakness involves Ajzen’s (2011) sufficiency assumption, which states that the components included in the TPB model subsume all the factors that lead an individual to engage in a behaviour. Ajzen further indicated that no other variables should increase the predictive ability of the model. However, the TPB model has yet to

explain all the variability in any behaviour studied. It could be that methodological and measurement issues, such as using items that are too general, are to blame for the less than perfect associations between predictors and behaviour. It is more likely, however, that there are other factors involved in acts as complex as antisocial behaviour that are not currently accounted for by the theory. For example, additional personality (antisocial personality, psychopathy) and personal history (criminal history, substance abuse, employment/education) variables have been shown to be significant predictors of antisocial behaviour in the broader F-E Model that are not included in the TPB model. Other distal variables, such as demographic factors (age, gender, race, class, intelligence), may also play an important role. Perhaps personality, history, and demographic factors are also mediated by the more proximal and behaviourally specific intentions. In an effort to continue to close the divide between forensic and social areas of psychology, it is imperative that these factors be explored as they relate to the prediction and treatment of antisocial behaviour.

With regards to offender treatment, the extent to which programs designed to decrease predictors of antisocial behaviour lead to an actual reduction in antisocial behaviour is dependent on the quality of the treatment provided (Andrews & Bonta, 2010; Gendreau, 1996; Gendreau, French, & Gionet, 2004; Smith, Gendreau, & Swartz, 2009). According to the F-E model, treatment will only be effective at reducing antisocial behaviour if it is provided at the correct dosage (i.e., risk principle), targets factors directly related to criminal offending (i.e., needs principle), and takes into account personal characteristics of the offender (i.e., responsivity principle; Andrews & Bonta; Gendreau). Like the CAP program, interventions should be offered to moderate and high risk offenders, and should target dynamic factors that are highly predictive of antisocial behaviour (i.e., *criminogenic needs*), such as antisocial attitudes and social facets of

antisocial behaviour. The risk and needs principles are very well established in the forensic literature (Andrews and Bonta; Gendreau; Gendreau et al.). These aspects of the F-E model are also compatible with the TPB model.

In contrast, the principle of responsivity is an aspect of offender treatment that remains poorly understood and that can benefit from the TPB model. Forensic researchers recognize that in order to be effective, interventions must vary depending on the personal characteristics of an offender (e.g., ethnicity, gender, and education level; Wormith, 1984; Andrews, Bonta, & Wormith, 2006). Motivation level and treatment readiness are other factors that influence treatment effectiveness, which would imply that the TPB construct of intentions does as well. For example, if an offender does not intend to refrain from antisocial acts, then he will likely not benefit from the interventions provided to decrease such behaviour. Programs that include intentions as a target for intervention would be more effective than those that do not, as intentions are what directly predict and precede the problematic behaviour. Intentions should also be targeted to increase retention for offenders taking part in correctional programs.

Evidence indicates that we are moving in the right direction in terms of predicting and treating antisocial behaviour. However, we would be making even more progress if there were less of a divide between the areas of social and forensic psychology. The unique strengths of each model can be used to fill the theoretical and practical gaps that exist in this area of research.

Limitations and Future Directions

Limitations in Evaluating Findings Associated with the CAP Program. The initial design of the study was to predict a direct effect for CAP completion and a reduction in antisocial behaviour subsequent to release. It was expected that the direct effect would be explained by the CAP program's effectiveness in changing the cognitive factors (e.g., attitudes)

from pre- to post-treatment. While a significant change was shown in improving the cognitive factors, the current study was unable to replicate previous research predicting a direct effect for treatment effectiveness. Several reasons could account for this beyond the simple conclusion that the CAP program had no impact on rates of antisocial behaviour subsequent to release.

Program Evaluation. First, there was a set of challenges pertaining to the adequate assessment of CAP completion. Because attendance records and reasons for non-completion were unavailable for all participants, program completion was calculated based on whether the offender attended the final session and was therefore present to complete at least one of the post-treatment questionnaires. Although efforts were taken to remove participants who did not have adequate completion data, there were shortcomings with using the current index of completion, including assigning offenders to the non-completer group if they attended all but the final session. This index proved adequate for most analyses; however, was not sensitive enough to allow the exploration of attendance or participation rates over the course of the program. It is highly recommended that future studies obtain information about program completion, attendance rates, and reasons for non-completion. Presumably, important differences exist between offenders who do not complete a treatment program as a result of volitional withdrawal or discharge for disciplinary concerns versus offenders who do not complete the program as a result of transfer to reduced security or early release for good behaviour.

Program Integrity. Second, there was no evaluation of program adherence during this study; however, some practical shortcomings arose during the implementation of the CAP program. Limited resources meant that some of the settings did not acquire all of the information required to fully assess the effectiveness of the CAP program (e.g., missing questionnaires, missing item-level data). Also, staffing issues adversely affected the quality and quantity of

outcome data collected. The resources relied on to obtain information about offender backgrounds, reasons for CAP program non-completion, release dates, and rearrests were more limited than expected. Although the present study had a solid number of participants overall, these procedural shortcomings reduced the sample size and the strength of some of the conclusions drawn. Further evaluations of the CAP program, or any other examinations of treatment programs, should strive to reduce as many logistical problems as possible. Ensuring proper retention of all offender documentation (e.g., demographic information, questionnaires), as well as allotting sufficient resources to obtain outcome data are advisable. Furthermore, in order to conduct a more thorough evaluation of CAP program integrity, future research should examine adherence to the design of the program, potential inconsistencies among institutions, and other variables that impact integrity in implementation. Forensic studies indicate that even a very well developed program will be less effective if it is not implemented as intended (Andrews & Bonta; Gendreau; Lowenkamp, Latessa, & Smith, 2006).

Randomization. Third, a limitation of the research design was that it was not a randomized controlled trial. The absence of randomization in sampling can result in sampling bias, meaning that a certain type of offender is potentially more likely to sign up for the CAP program in the first place. Current results indicate that offenders who identify more with antisocial others are less likely to successfully complete the program than offenders who identify less with antisocial others. However, these and other results are limited by sampling bias. Additionally, the absence of randomization in the creation of treatment and control groups means that the conclusions about the effectiveness of the CAP program cannot be considered causative. Without a randomized comparison group, the prosocial improvements in determinants of antisocial behaviour cannot be causally attributed to the CAP program, as they may be due to

some other factor. Although present findings were restricted in terms of the ability of the CAP program to reduce antisocial behaviour upon release, the same limitation applies. However, the countless practical challenges in a prison environment make it very difficult to conduct a randomized control trial over the long-term. Although not ideal, the current design allowed for the investigation of some very significant research questions within the timeframe and resources available. Given its promise, the next examination of the CAP program should strive to employ a randomized controlled design.

Limitations in Generalizability of Results. Fourth, although this study had a large sample size overall, follow-up (Time 3) data were only available for a portion of these offenders, and therefore, antisocial behaviour upon release could only be examined for 109 offenders of the total sample. There were not enough female offenders ($n= 3$) in this sample to explore possible gender differences in outcome analyses. Although the purpose of this study was not to examine gender differences in antisocial behaviour, researchers concur that important differences exist in the development and display of antisocial behaviour among male and female offenders (Betts et al., 2011; Wolff et al., 2011). Current findings show that male and female offenders respond differently to the TPB model construct scales, which suggests possible differences in the strength of the associations among the predictors of antisocial behaviour included in the model. The current findings are limited to the prediction of antisocial behaviour in male offenders. Successive studies should explore these important gender differences.

Limitation of the TPB model. Finally, the success of the TPB model is dependent on the time between the measurement of the predictive components and the measurement of the target behaviour (Ajzen, 2002). The TPB model is more successful at predicting a behaviour when there is less of a time span between the measurement of these variables, because the longer the

lag between these two time points, the greater the possibility that some other factor will influence the relations among these variables (Ajzen, 2011; Conner, Sheeran, Norman, & Armitage, 2000; Zemore & Ajzen, 2014). In terms of antisocial behaviour, however, many offenders do not reoffend until months, or even years, after release. The logistical issues with examining the predictive ability of the TPB model over the long-term are very extensive, and many researchers conduct cross-sectional evaluations as they are understandably much more feasible. However, those studies often provide only a snapshot of the associations among the three components and intentions to perform a behaviour, and do not then measure the actual behaviour. Further, correlational analyses do not allow for conclusions to be drawn about possible causative relations (Keith, 2006). Although it would be quite a challenge to monitor attitudes, subjective norms, perceived control, and intentions on an ongoing basis over a significant amount of time, Zemore and Ajzen (2014) suggest very frequent (e.g., daily) assessment in order to know how changes in these determinants can occur. Future longitudinal studies should include more regular measurement of the predictors of antisocial behaviour.

Conclusion

The strengths of the current study rest in the investigation of determinants of antisocial behaviour in a large sample of correctional offenders who took part in a program designed to reduce antisocial attitudes. Current results help to minimize the gap between forensic and social psychology, and to contribute to the literature in both areas. A large disconnect exists wherein both fields are conducting important research. However, this work is typically done in silos. The majority of previous investigations of the TPB model in the social area have ignored issues related to antisocial acts. Research in the forensic area is flourishing, yet weaknesses lie in its reliance on a direct effect and general approach. The TPB model can be used to strengthen the

conceptual basis of the F-E model, as it is a theoretically driven model that highlights the importance of specificity, and takes into account indirect predictors of behaviour, such as the meditational influence of intentions. Having a clear predictive model of antisocial behaviour is critical, and thus, this conceptually rich social psychological model should be used within the area of forensic psychology. Present results give credence to the importance of merging forensic and social psychological research, and highlight important theoretical and practical implications in both of those areas.

The current study increases our theoretical understanding of the course through which antisocial behaviour develops by evaluating the utility of the TPB model to predict antisocial behaviour in a large sample of adult correctional offenders. The current investigation demonstrated that antisocial attitudes and identification with antisocial others predict antisocial behaviour severity indirectly through intentions, although perceived control was not a significant determinant in this study. Present findings emphasize the importance of targeting attitudinal and social norm/identification facets of antisocial behaviour. Results supported the CAP program as effective at reducing determinants of antisocial behaviour. However, findings did not show a reduction in antisocial behaviour upon release. Findings also supported that TPB model in the prediction of CAP program completion. Further studies are required to more thoroughly understand the relations among predictors of antisocial behaviour in order to develop more efficacious methods of prevention, intervention, and treatment retention.

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Table 1

Participants: Sample Size by Time Point

Time 1 = Pre-treatment	Time 2 = Post-treatment	Time 3 = Follow-up
Full CAP (Time 1) sample Total N = 930 Data: gender Subsample (n = 296) Additional Data: date of birth, ethnicity, offence, criminal history, recidivism*	CAP Completers (Time 2) sample n = 600 [Not Complete CAP (n = 330)]	Follow-up (Time 3) sample n = 109 Data: recidivism* [Not Released (n = 187)]

Notes. CAP = Criminal Attitudes Program; *recidivism information was only available for offenders who had been released and followed-up (see the “Follow-up (Time 3) sample”).

Table 2

Psychometric Properties for Original Subscales

	#items	alpha pre/post	#items >.40 pre/post
1. CSS- Law	10	.76/.71	9/9
2. CSS- Courts	8	.76/.81	8/8
3. CSS- Police	7	.80/.78	7/7
4. CSS- Tolerance Law Violation	10	.83/.77	10/9
5. CSS- Identify Criminal Others	6	.56/.52	4/1
6. SOS- Openness	9	.58/.55	3/3
7. SOS- Life Potential Denial/Minimization	8	.57/.61	3/4
8. SOS- Self-Appraisal Skills	7	.68/.68	4/5
9. SOS- Self-Efficacy/Willpower	8	.49/.48	1/1
10. SOS- Cognitive Perspective	6	.63/.67	4/4
11. SOS- Structured Treatment Expectancy	6	.60/.62	4/3
12. SOS- Self-Improvement Expectancy	7	.39/.50	3/4
13. SOS- Social Support	5	.48/.51	2/1
14. SOS- Motivation Level	4	.65/.71	4/4
15. SOS- Coping Skills	5	.60/.64	3/3
16. SOS- Self-Esteem	4	.55/.57	2/2
17. SOS- Environmental Support	3	.53/.49	1/1

Note. ($N = 930$) pre = pre-treatment (Time 1); post = post-treatment (Time 2); #items >.40 pre/post = number of items with item-total reliabilities greater than .40; CSS = Criminal Sentiments Scale-Modified; SOS = Self-Improvement Orientation Scheme-Self-Report.

Table 3

Principal Components Factor Analysis of the TPB Model Construct Scale Items

Item	I ^a	I ^b	II ^a	II ^b	III ^a	III ^b	IV ^a	IV ^b
<i>Antisocial Attitudes (Factor I; 12 items; $\alpha^a = .85$, $\alpha^b = .85$; higher scores = higher antisocial attitudes)</i>								
Pretty well all laws deserve our respect. (R: CSS-law)	.59	.42	.15	.37	-.02	-.04	.04	-.13
It's our duty to obey all laws. (R: CSS-law)	.44	.37	.24	.31	-.01	-.02	.00	-.06
The law is good. (R: CSS-law)	.56	.50	.14	.30	-.13	-.03	-.14	-.06
Lawyers are honest. (R: CSS-courts)	.66	.70	-.09	-.05	.00	-.04	.12	.07
Judges are honest and kind. (R: CSS-courts)	.65	.72	-.03	-.11	-.11	-.18	-.02	-.05
Court decisions are pretty well always fair. (R: CSS-courts)	.65	.67	.00	.03	-.06	-.07	.06	.04
A judge is a good person. (R: CSS-courts)	.63	.69	-.04	-.02	-.14	-.18	-.13	-.16
The police are honest. (R: CSS-police)	.73	.78	.05	.01	-.07	-.10	.01	-.10
A cop is a friend to people in need. (R: CSS-police)	.67	.61	.07	.13	-.10	-.06	-.05	-.03
Life would be better with fewer cops. (CSS-police)	.53	.44	.27	.40	-.05	.04	-.16	-.18
The police should be paid more for their work. (R: CSS-police)	.55	.51	.08	.23	-.01	-.08	-.11	-.03
The police are as crooked as the people they arrest. (CSS-police)	.63	.65	.21	.24	.01	.05	-.19	-.15
<i>Identification with antisocial others (Factor II; 4 items; $\alpha^a = .64$, $\alpha^b = .60$; higher scores = higher identification with antisocial others)</i>								
People who have broken the law have the same sorts of ideas about life as me. (CSS-ICO)	.13	.07	.63	.58	.04	.00	-.06	-.13
I'm more like a professional criminal than the people who break the law now and again. (CSS-ICO)	.13	.09	.67	.65	.01	-.05	-.10	.04
People who have been in trouble with the law are more like me than people who don't have trouble with the law. (CSS-ICO)	.13	.06	.71	.70	-.10	-.01	.06	-.28
I have very little in common with people who never break the law. (CSS-ICO)	.05	.08	.62	.49	-.04	-.10	-.18	.02
<i>Perceived Control (Factor III; 7 items; $\alpha^a = .67$, $\alpha^b = .69$; higher scores = greater perceived control)</i>								
I think I am doing what is needed to improve my life. (SOS-SE/W)	-.21	-.18	.01	-.07	.58	.56	.01	.09
I have strong willpower when I want to. (SOS-self-appraisal)	-.09	-.15	.02	-.01	.64	.66	-.05	.02
I am the type of person who accepts challenges and believes I will succeed. (SOS-self-appraisal)	.04	.09	.07	.03	.51	.54	.11	.03
If I want something to happen, I do it myself rather than wait for someone else to do it. (SOS-coping skills)	.12	.02	-.07	.02	.53	.65	.07	-.01
There is enough help available to me if I want to change my life. (SOS-coping skills)	.00	-.07	-.21	.07	.65	.66	-.03	.10
There really is nothing stopping me from accomplishing my goals. (SOS-SE/W)	-.19	-.17	-.05	-.17	.50	.56	-.05	.01
I believe my life will turn out the way I want it to. (SOS-self-esteem)	-.19	-.10	.10	-.10	.54	.48	.10	.16

Intentions (Factor IV; 6 items; $\alpha^a = .71$, $\alpha^b = .71$; higher scores = stronger behavioural intentions)

It doesn't really bother me that I haven't done more with my life. (R: SOS-life denial/minimization)	-.05	-.06	-.16	-.25	.24	.23	.62	.58
I would consider making changes in my life, but now is not a good time to start. (R: SOS-motivation level)	-.05	-.06	-.13	-.16	.12	.16	.71	.62
I know I need to change something in my life, but I just don't know what it is. (R: SOS-motivation level)	-.09	.07	-.24	-.26	.27	.25	.41	.47
At this point in time, I am not overly keen to make changes in my life. (R: SOS-motivation level)	.02	.02	.02	.07	-.09	-.08	.66	.64
People think I should change my life, but I think I'm fine the way I am. (R: SOS-life potential denial/minimization)	-.01	-.13	.01	.00	-.06	.01	.68	.72
Other people should just accept me the way I am rather than expect me to change. (R: SOS- life potential denial/minimization)	-.15	-.22	-.02	-.04	-.05	.05	.64	.63

Notes. I, II, III, IV = Factor Loadings by extracted factor; R = reverse coded item; CSS = Criminal Sentiments Scale; ICO = Identification with Criminal Others; SOS Self-Improvement Orientation Scheme; SE/W = Self-efficacy/Willpower subscale.

^a Pre-treatment Time 1 ($N = 930$).

^b Post-treatment Time 2 ($N = 600$).

Table 4

Inter-Correlations Among Measures

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Social Desirability	(.56)	-.37	.31	-.37	-.19	.21	-.01	—	.00	-.06
<i>Original scales</i>										
2. Criminal Sentiments	-.41	(.49)	-.51	.89	.54	-.26	-.37	—	-.05	-.04
3. Self-Improvement	.37	-.47	(.57)	-.42	-.32	.69	.59	—	.00	-.01
<i>Theory of Planned Behaviour model scales</i>										
4. Antisocial Attitudes	-.36	.87	-.36	(.47)	.30	-.25	-.25	—	-.02	.01
5. Anti. Norm. Influence	-.24	.55	-.34	.28	(.43)	-.12	-.27	—	.04	.03
6. Perceived Control	.27	-.23	.67	-.22	-.10	(.52)	.24	—	-.01	-.02
7. Intentions	-.06	-.28	.55	-.19	-.23	.14	(.51)	—	.23	.26
<i>Outcome variables</i>										
8. Program Completion	-.06	-.04	.02	.01	-.12	-.03	.08		-.08	-.01
9. Recidivism	-.07	.04	.04	.04	.01	-.12	.21	-.08		.89
10. Antisocial Behaviour	-.11	.09	-.01	.11	.05	-.14	.19	-.01	.89	

Notes. Values on the diagonal in parentheses are the Time 1-Time 2 test-retest correlations. Pre-treatment (Time 1) correlations are represented below the diagonal and post-treatment (Time 2) correlations are above the diagonal. Note that Time 2 values are for those who completed the CAP program. Correlation coefficients $\geq .08$ are significant at $p < .05$, those $\geq .12$ are significant at $p < .01$, and those $\geq .14$, $p < .001$.

Table 5

Full CAP (Time 1) Sample CAP Program Completion Rates by Gender

Completed CAP	Male Offenders (<i>n</i> = 571)	Female Offenders (<i>n</i> = 359)	Total (<i>N</i> = 930)
Yes	330 (57.8%)	270 (75.2%)	600 (64.5%)
No	241 (42.2%)	89 (24.8%)	330 (35.5%)

Table 6

Descriptive Statistics for CAP Program Treatment Time and Gender Main Effects

<i>TPB model scales</i>		<i>M^a(SD^a)</i>	<i>M^b(SD^b)</i>
Antisocial Attitudes	M	11.45 (5.45)	7.80 (5.36)
	F	9.77 (4.90)	7.78 (4.97)
	T	10.69 (5.28)	7.79 (5.18)
Identify Antisocial Other	M	2.17 (1.96)	1.99 (2.00)
	F	1.57 (1.77)	1.31 (1.59)
	T	1.90 (1.90)	1.68 (1.86)
Perceived Control	M	6.83 (4.19)	8.76 (3.82)
	F	7.99 (3.85)	8.91 (4.03)
	T	7.35 (4.08)	8.83 (3.91)
Intentions	M	5.25 (3.85)	6.28 (4.10)
	F	6.85 (4.28)	7.14 (4.15)
	T	5.97 (4.12)	6.66 (4.14)

Note. ^a = Pre-treatment Time 1; ^b = Post-treatment Time 2; M = male offenders; F = female offenders;

T = total offenders.

Table 7

CAP Program Treatment Main Effects and Interaction

<i>TPB model scales</i>	<i>F(df)</i>	<i>d</i>
<i><u>Time Main Effect</u></i>		
Antisocial Attitudes	159.60(1, 581) ^{***}	.56
Identify Antisocial Others	7.94(1, 569) [*]	.12
Perceived Control	77.16(1, 586) ^{***}	.38
Intentions	14.90(1, 589) ^{***}	.17
<i><u>Gender Main Effect</u></i>		
Antisocial Attitudes	4.61(1, 581) [*]	.15
Identify Antisocial Others	23.02(1, 569) ^{***}	.35
Perceived Control	6.27(1, 586) [*]	.19
Intentions	18.32(1, 589) ^{***}	.31
<i><u>Time x Gender Interaction</u></i>		
Antisocial Attitudes	14.02(1, 581) ^{***}	
Identify Antisocial Others	.58(1, 569)	
Perceived Control	9.86(1, 586) [*]	
Intentions	4.78(1, 589) [*]	

* $p < .05$ ** $p < .01$ *** $p < .001$. d = effect size (.2 = small, .5 = medium, .8 = large).

Table 8

Follow-up (Time 3) Sample CAP Program Completion and Rearrest Rates

Follow-up Sample (N=109) Rearrest?	Completed CAP (N=64, 58.7%)	Not Completed CAP (N=45, 41.3%)
No (n = 61, 56.0%)	38 (59.4%)	23 (51.1%)
Yes (n = 48, 44.0%)	26 (40.6%)	22 (48.9%)
Technical violation (n = 18, 37.5%)	7	11
Non-violent offence (n = 24, 50%)	15	9
Violent offence (n = 6, 12.5%)	4	2

Note. Reported percentages represent offenders who completed/did not complete the CAP program and who were rearrested/not rearrested at follow-up (Time 3).

Table 9

Standardized Direct and Indirect Effects in the Prediction of CAP Program Completion

<i>TPB construct</i>	<i>Effect</i>	<i>Intentions</i>	<i>CAP Program Completion</i>
Antisocial Attitudes	Direct	-.11	
	Indirect		-.01
Identification with Antisocial Others	Direct	-.19	
	Indirect		-.02
Perceived Control	Direct	.10	-.04
	Indirect		.01
Intentions	Direct		.08

Table 10

Standardized Direct and Indirect Effects in the Prediction of Antisocial Behaviour Severity

<i>TPB construct</i>	<i>Effect</i>	<i>Intentions</i>	<i>CAP Program Completion</i>
Antisocial Attitudes	Direct	-.25	
	Indirect		-.06
Identification with Antisocial Others	Direct	-.30	
	Indirect		-.08
Perceived Control	Direct	.11	-.07
	Indirect		.03
Intentions	Direct		.25

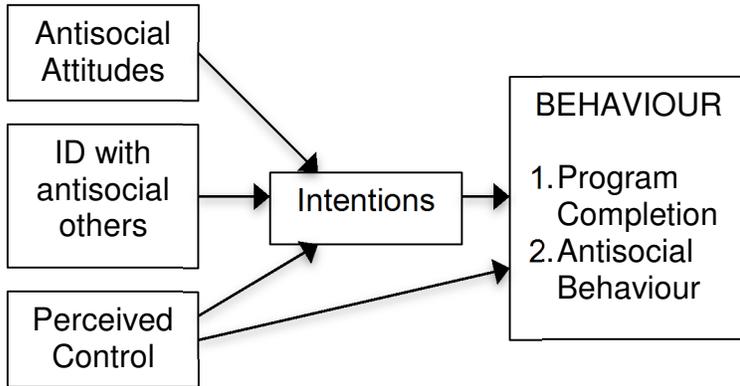


Figure 1. Theory of Planned Behaviour (TPB Model; Ajzen, 1991).

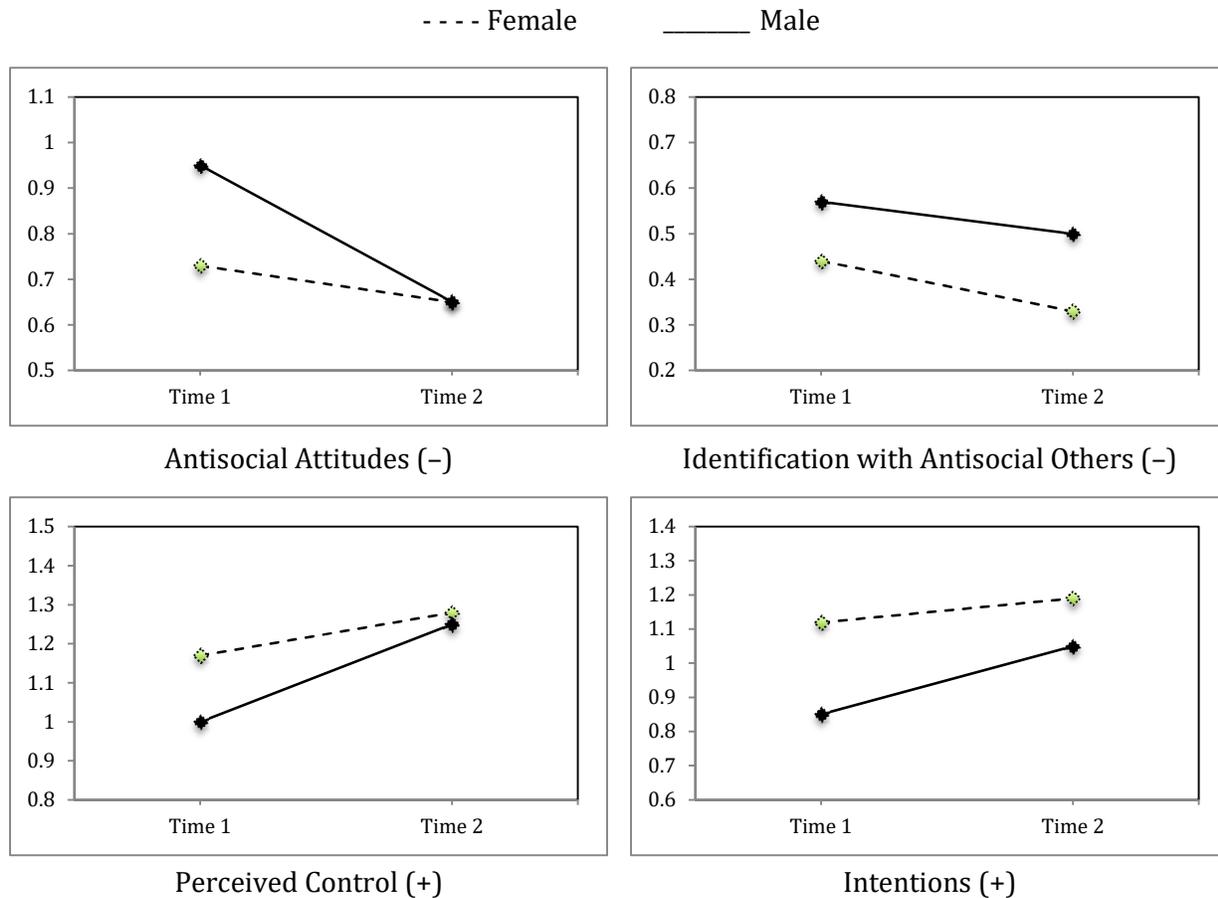


Figure 2. Gender interaction with treatment effects from Time 1 (pre-treatment) to Time 2 (post-treatment).

Notes. + = positive indicator; - = negative indicator.

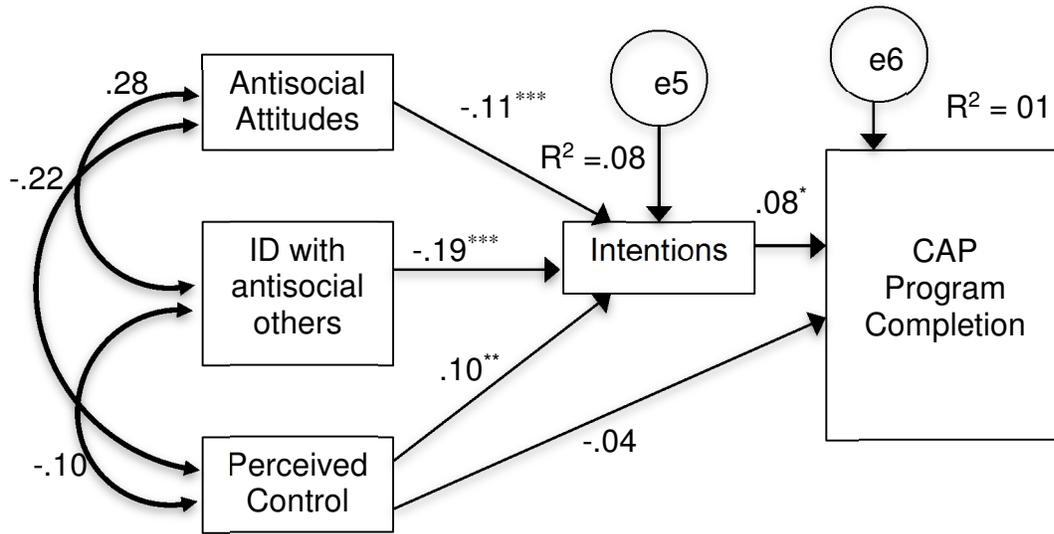


Figure 3. Theory of Planned Behaviour model predicting CAP program completion (Time 2).

Note. Reported regression weights are standardized. β value significance:
 * $p < .05$ ** $p < .01$ *** $p < .001$.

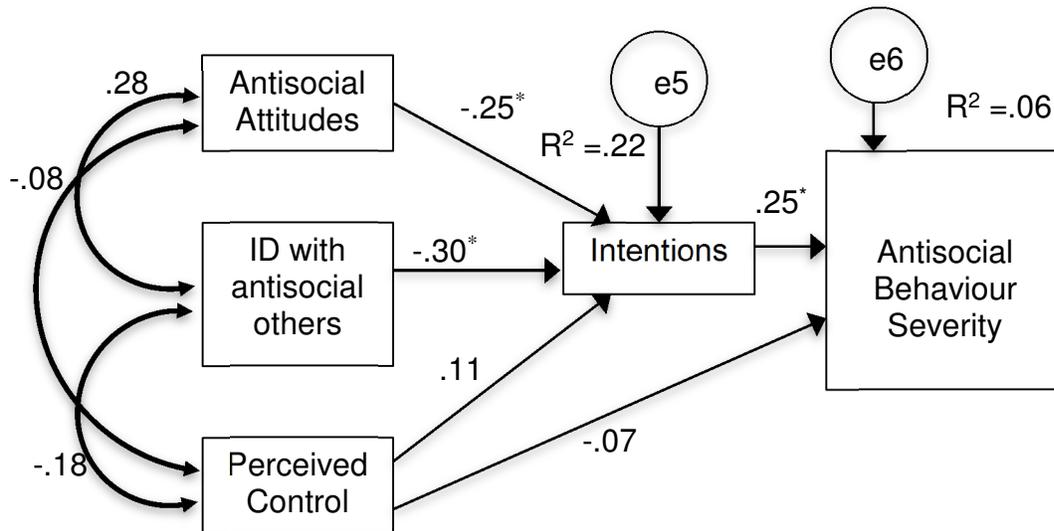


Figure 4. Theory of Planned Behaviour model predicting antisocial behaviour severity at follow-up (Time 3).

Note. Reported regression weights are standardized. β value significance:

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

Appendix A

Marlowe Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960).

Directions. Read each item and decide whether it is true (T) or false (F) for you. Try to work rapidly and answer each question by circling the T or the F.

1. Before voting I thoroughly investigate the qualifications of all the candidates.
2. I never hesitate to go out of my way to help someone in trouble.
3. It is sometimes hard for me to go on with my work if I am not encouraged.
4. I have never intensely disliked anyone.
5. On occasions I have had doubts about my ability to succeed in life.
6. I sometimes feel resentful when I don't get my way.
7. I am always careful about my manner of dress.
8. My table manners at home are as good as when I eat out in a restaurant.
9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.
10. On a few occasions, I have given up something because I thought too little of my ability.
11. I like to gossip at times.
12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
13. No matter who I'm talking to, I'm always a good listener.
14. I can remember "playing sick" to get out of something.
15. There have been occasions when I have taken advantage of someone.
16. I'm always willing to admit it when I make a mistake.
17. I always try to practice what I preach.
18. I don't find it particularly difficult to get along with loudmouthed, obnoxious people.
19. I sometimes try to get even rather than forgive and forget.
20. When I don't know something I don't mind at all admitting it.
21. I am always courteous, even to people who are disagreeable.
22. At times I have really insisted on having things my own way.
23. There have been occasions when I felt like smashing things.
24. I would never think of letting someone else be punished for my wrong-doings.
25. I never resent being asked to return a favor.
26. I have never been irked when people expressed ideas very different from my own.
27. I never make a long trip without checking the safety of my car.
28. There have been times when I was quite jealous of the good fortune of others.
29. I have almost never felt the urge to tell someone off.
30. I am sometimes irritated by people who ask favors of me.
31. I have never felt that I was punished without cause.
32. I sometimes think when people have a misfortune they only got what they deserved.
33. I have never deliberately said something that hurt someone's feelings.

Criminal Sentiments Scale-Modified (CSS-M; *Shields & Simourd, 1991*)

Instructions. Read each statement carefully and decide how you feel about it. Circle A if you agree with the statement or D if you disagree with the statement. If you are undecided or cannot make up your mind about the statement, circle U. Remember, there are no right or wrong answers.

1. Pretty well all laws deserve our respect.
2. It's our duty to obey all laws.
3. Laws are usually bad.
4. The law is rotten to the core.
5. You cannot respect the law because it's there only to help a small and selfish group of people.
6. All laws should be obeyed just because they are laws.
7. The law does not help the average person.
8. The law is good.
9. Law and justice are the same thing.
10. The law makes slaves out of most people for a few people on the top.
11. Almost any jury can be fixed.
12. You cannot get justice in court.
13. Lawyers are honest.
14. The crown often produces fake witnesses.
15. Judges are honest and kind.
16. Court decisions are pretty well always fair.
17. Pretty well anything can be fixed in court if you have enough money.
18. A judge is a good person.
19. The police are honest.
20. A cop is a friend to people in need.
21. Life would be better with fewer cops.
22. The police should be paid more for their work.
23. The police are as crooked as the people they arrest.
24. Society would be better off if there were more police.
25. The police almost never help people.
26. Sometimes a person like me has to break the law to get ahead in life.
27. Most successful people broke the law to get ahead in life.
28. You should always obey the law, even if it keeps you from getting ahead in life.
29. It's ok to break the law as long as you don't get caught.
30. Most people would commit crimes if they wouldn't get caught.
31. There is never a good reason to break the law.
32. A hungry man has the right to steal.
33. It's ok to get around the law as long as you don't actually break it.
34. You should only obey those laws that are reasonable.
35. You're crazy to work for a living if there's an easier way, even if it means breaking the law.
36. People who have broken the law have the same sorts of ideas about life as me.
37. I prefer to be with people who obey the law rather than people who break the law.
38. I'm more like a professional criminal than the people who break the law now and again.

39. People who have been in trouble with the law are more like me than people who don't have trouble with the law.
40. I have very little in common with people who never break the law.
41. No one who breaks the law can be my friend.

Self-Improvement Orientation Scheme-Self-Report (SOS-SR; *Simourd & Olver, 2007*)

Instructions. This questionnaire seeks your opinion about various aspects of your life and current situation. Read each question and consider how it may apply to you at this point in time. Using the scale at the top of each page, rate the degree to which you agree or disagree with each question and put the number on the line beside the corresponding question. Complete all questions.

-2 = Strongly disagree

-1 = Disagree

0 = Undecided

+1 = Agree

+2 = Strongly agree

1. I can think of at least one positive thing that has happened to me during the past year.
2. I have an understanding of my strengths and weaknesses.
3. I enjoy being around other people.
4. I think I am open-minded about most things.
5. I plan regular exercise into my day-to-day routine.
6. I often think about making a few changes in my life.
7. When I get sick, I usually go to the doctor right away.
8. If I really think about it, there are things I could do to make my life better.
9. I would rather watch a movie with lots of action rather than a deep story.
10. I try to remember new words or phrases when I hear them.
11. I usually “tune out” people who disagree with me.
12. Love and happiness aren’t that important to me.
13. I am willing to make the necessary sacrifices to accomplish my goals.
14. I think I am doing what is needed to improve my life.
15. Some people have their doubts about my chances of having a better life.
16. Counseling or a special program would help me make changes in my life.
17. People close to me are willing to help me improve my life.
18. I feel really determined to improve things in my life right now.
19. I use my “head” rather than my “heart” when making decisions.
20. Making changes in my life is not that easy.
21. I don’t like to admit my mistakes to others unless I have to.
22. My lack of confidence prevents me from accomplishing things in my life.
23. I have no complaints about how my life has turned out.
24. People think I should change my life, but I think I’m fine the way I am.
25. I have strong willpower when I want to.
26. I think people with problems can benefit by taking a treatment program.
27. It doesn’t really bother me that I haven’t done more with my life.
28. I am the type of person who accepts challenges and believes I will succeed.
29. If I want something to happen, I do it myself rather than wait for someone else to do it.
30. Most people would describe me as shy and distant.
31. I often ignore problems.
32. If I try to improve my life it will only be to please other people.

33. Changing my life will be difficult because of where I live or work.
34. People who know me approve of me trying to change my life.
35. "Professional help" can be useful for a person who wants to change.
36. People who know me would say I like to take the easy way out of things.
37. I usually have a poor attitude about myself.
38. Most of the things that haven't worked out for me were due to bad luck.
39. I have trouble taking advice from others.
40. I would consider making changes in my life, but now is not a good time to start.
41. I know I need to change something in my life, but I just don't know what it is.
42. There are too many obstacles preventing me from getting the help I need to change my life.
43. When it gets right down to it, I have never made a serious effort to improve my life.
44. "Professional help" may be useful in making my life better.
45. Other people should just accept me the way I am rather than expect me to change.
46. Even though I have a few faults, I think I am a pretty good person.
47. When I make decisions, I listen to what others have to say before making up my own mind.
48. At this point in time, I am not overly keen to make changes in my life.
49. There is enough help available to me if I want to change my life.
50. Whenever I tried to improve my life, I've felt good about trying even if things haven't worked out in the long run.
51. There really is nothing stopping me from accomplishing my goals.
52. I want to make changes in my life so I feel better about myself.
53. Once I make a decision, it is pretty hard for me to change my mind.
54. I usually deal with stress by trying to figure out why I am stressed in the first place.
55. I have friends or family who have made better lives for themselves.
56. People will lose trust in me unless I make changes in my life.
57. Even though I have some faults, they really won't get in the way of improving my life.
58. I don't enjoy reading.
59. My life could be better if I make some small changes right now.
60. If I'm to make changes in my life, I'll probably need to take a specific program.
61. When I have problems, my first instinct is to try to forget about them.
62. When learning something new, I usually pay attention to the basics rather than the details.
63. When I have problems, I usually try to "cool down" before dealing with the problem.
64. I have taken several courses/programs that were supposed to change my life.
65. I believe my life will turn out the way I want it to.
66. There are some things I am not very good at.
67. I can be easily influenced by other people.
68. I think I do some things better than most people.
69. When I have a problem, I usually think things through before acting.
70. I like to spend my free time alone doing my own thing.
71. It is easy for me to adjust my daily schedule to get the help I need.
72. I can improve my life on my own.

Appendix B

Development of a Measure Assessing the Theory of Planned Behaviour (TPB Model).

Following the recommended steps in the development of measures for the TPB model (Ajzen, 1991), items from the CSS-M and SOS-SR were developed to assess their fit to the TPB model using a 5-step process:

1. Seventeen raters (two researchers and fifteen research assistants) familiar with the relevant literature were presented with a working definition of each of the four constructs in the TPB model. *Intentions* was defined as “an individual's readiness, willingness, and expectation to perform a given behaviour”. In Ajzen’s model, a prototypic statement that measures intentions begins with “I intend to....,” “I will....,” or “I expect to...” In the current study, *intentions* were measured using items such as “I feel really determined to improve things in my life right now.” *Attitudes* were defined as “positive or negative evaluations of the behaviour, the consequences of the behaviour, or the degree to which performance of the behaviour is positively or negatively valued.” In Ajzen’s model, attitudes are assessed using evaluative statements such as “useful-useless,” “pleasant-unpleasant,” or “bad-good.” In the current study, *antisocial attitudes* included any items reflecting attitudes toward the law, police, courts, crime, criminals, antisocial behaviour, etc., such as “Laws are usually bad.” *Identification with antisocial others* captured both the normative and social identification aspects of antisocial behaviour. This construct was defined as “an individual’s perception of what significant others think of the behaviour, his/her motivation to comply with the perceived social pressure from others, and the extent to which he/she identifies with antisocial others.” A prototypic statement in Ajzen’s model begins with “My friends think I should...” A prototypic question measuring identification with reference group asks, “How much do you identify with your friends at university?” (Terry & Hogg, 1996).

In the current study, *identification with antisocial others* was measured using items such as “People who have broken the law have the same sorts of ideas as me.” *Perceived control* was defined as “an individual’s perception of his/her ability to, or the ease or difficulty in performing the behaviour.” In Ajzen’s model, perceived control is measured using prototypic statements such as “I have control over...” In this study, *perceived control* was measured using items such as “There are too many obstacles preventing me from getting the help I need to change my life.”

2. Item raters were asked to categorize the pool of 113 separate items based on the definitions provided above. Raters were then asked to rate all items identified as mapping onto a construct as either “Very Good,” “Good,” “Fair,” or “Irrelevant” based the rater’s evaluation of how well the item matched the working definition. A rating of “Very Good” was given to items that included the content component of the construct (i.e., if the item referred to antisocial behaviour/the justice domain) *and* used language consistent with Ajzen’s model (i.e., if the wording of the item used the same language as in the working definition provided). A rating of “Good” was given to items that included the content component of the construct *or* used language consistent with Ajzen’s model, *but not both*. A rating of “Fair” was given to items that tapped into the construct, but that *did not* include the content component or use language consistent with Ajzen’s model. Finally, a rating of “Irrelevant” was given to items that did not match any of the constructs, and these items were withdrawn.

3. A provisional pool of 60 items was created based on items with high rater agreement, which was defined as eleven or more raters sorting the item into the same category and fewer than two raters sorting the item into a different category.

4. This provisional pool of 60 items was submitted to a reliability analysis for the 4 constructs. Items were retained if item-total reliability exceeded a criterion of $\geq .30$ at either pre-treatment (Time 1) or post-treatment (Time 2).

5. The resultant pool of 54 items was submitted to principal components analyses with varimax rotation. A final set of TPB model items were retained if they loaded $\geq .40$ on their respective factor and did not cross-load $\geq .30$ on any other factor.

Theory of Planned Behaviour Construct Definitions (Instructions for Research Assistants)

Please sort the 113 items into the following categories:

INTENTIONS: "Intentions are assumed to capture the motivational factors that influence a behaviour; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour." Actual behaviour is more likely when intentions are strong. (Ajzen, 1991)

- **Intentions:** "an individual's readiness, willingness, and expectation to perform a given behaviour".
- **Standard Item:** "I intend to...", "I will...", "I expect to...", "I plan to"
- **Elaborated Item:** "How likely is it that you will...?"
- **Example:** "I intend to exercise three times a week for the next two weeks" or "How likely is it that you will use marijuana during the next 6 months?"

ATTITUDES: "attitudes are positive or negative **evaluations** of the behaviour, the consequences of the behaviour, or the degree to which performance of the behaviour is positively or negatively valued".

- **Standard Item:** evaluative statements such as "useful-useless," "helpful-unhelpful," "unpleasant-pleasant," "favourable-unfavourable," "awful-nice," "bad-good," "dumb-smart," "very uncool-cool," "rewarding-punishing", "boring-interesting", "safe-unsafe", "useless-useful", "harmful-beneficial"
- **Example:** "Smoking is unpleasant."

ANTISOCIAL ATTITUDES: Include attitudes toward the justice system: law, police, courts, crime, criminals, antisocial behaviour, etc.

IDENTIFICATION WITH ANTISOCIAL OTHERS: “an individual’s perception of what significant others think of the behaviour, his/her motivation to comply with the perceived social pressure from others, and the extent to which he/she identifies with antisocial others.” This construct captures both the normative and social identification aspects of antisocial behaviour.

- **Standard Item (normative):** “My friends think I should...”
- **Standard Item (identification):** “How much do you identify with your friends at university?” “How much do you see yourself belonging to your group of friends?”, or “People who are like me...”, “I like to be with...” “I like people who _____ better than...”
- **Example:** “People who have broken the law have the same sorts of ideas as me.”

PERCEIVED CONTROL: the perception of an individual’s ability to perform a behaviour, the ease or difficulty in performing the behaviour based on beliefs about the presence of factors that may facilitate or impede performance of the behaviour (Ajzen, 1991). Actual behaviour is more likely when an individual perceives that he or she has the ability to perform the behaviour.

- **Standard Item:** “I have control over...”, “It would be easy to...”, “I am capable of...” “For me to stop ___ in the future would be difficult” “It is mostly up to me whether I...”
- **Elaborated Item:** “Whether or not I _____ is entirely up to me”, “I have a lot of control over ...”, “_____ is beyond my control.”
- **Example:** “If I wanted to, it would be easy to exercise three times per week” or “How much control do you have over whether you stop offending in the future?”

IRRELEVANT: Any items that are not relevant to the other constructs (i.e., do not map onto any of the definitions).

I’M NOT SURE: Any items that you are unsure about will be discussed and then sorted.

ITEM RATINGS

Please provide a rating for each item that you identified as mapping onto a construct (intentions, antisocial attitudes, identification with antisocial others, perceived control).

Construct Language: “Good” if the wording of the item uses the same language as in the definitions provided “Poor” if the language does not use the same language as the definition.

Content Specificity: “Good” if the item refers to the justice domain (law, police, courts, crime, criminals, antisocial behaviour).

“Poor” if the item does not refer to the justice domain.

3 = “Very good”	GOOD CONSTRUCT LANGUAGE	AND	GOOD CONTENT SPECIFICITY
2 = “Good”	GOOD CONSTRUCT LANGUAGE	BUT	POOR CONTENT SPECIFICITY
	POOR CONSTRUCT LANGUAGE	BUT	GOOD CONTENT SPECIFICITY
1 = “Fair”	POOR CONSTRUCT LANGUAGE	AND	POOR CONTENT SPECIFICITY
0 = “Irrelevant”	Does not match onto any construct definition		