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**Stages of Change Profiles of Offenders:
Exploring Offenders' Motivation to Work on Their Offending Problems**

A thesis presented in partial fulfilment of the
requirements for the degree of

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Abstract

Research has highlighted the importance of the stages of change (SoC) model (Prochaska, DiClemente, & Norcross, 1992) in assessing offenders' motivation to work on their offending problems and as a guiding framework for selecting interventions. This thesis investigated the stages of change profiles in a group of general male offenders ($N = 481$) before and after a Short Motivational Programme (SMP), which is a combination of motivational interviewing and cognitive behavioural material. For the first aim, distinct homogenous stage profiles that reflected the stages of change were generated by subjecting offenders' responses on the University of Rhode Island Change Assessment Scale (URICA; McConaughy, DiClemente, Prochaska, & Velicer, 1989; McConaughy, Prochaska, & Velicer, 1983) to hierarchical agglomerative cluster analysis. At pre-SMP, the Ambivalent, Non-Reflective Action, Precontemplation, Preparticipation and Participation profiles were generated. At post-SMP, the same profiles were generated with the exception of the Non-Reflective Action profile. These stage profiles were consistent with profiles elicited in previous studies, and mapped well onto the SoC model. The majority of offenders were in the precontemplation stage (represented by the Ambivalent, Non-Reflective Action and Precontemplation profiles), whereas a smaller proportion were in the preparation (represented by the Preparticipation profile) and action stages (represented by the Participation profile). For the second aim, stage profiles obtained at pre- and post-SMP were then used to investigate stage movement following the SMP, by constructing a stage-transition matrix. There was evidence for offenders with different stage profiles showing different responses to the SMP, whereby a comparatively larger proportion of offenders with the Non-Reflective Action, Preparticipation and Participation profiles appeared to continue working on their offending problems or progressed to a more highly-motivated stage, compared to offenders with the Ambivalent and Precontemplation profiles. These findings indicated that there is a need for a

more flexible approach to motivational interviewing to more effectively facilitate offenders' motivation to work on their offending problems. Men with the Ambivalent and Precontemplation profiles may require further help to resolve their ambivalence towards changing, before cognitive behavioural content is introduced. For the third aim, stage profiles at pre- and post-SMP, and stage movements were examined as predictors of recidivism in three separate logistic regression analyses, controlling for salient demographic and risk variables. Men with profiles representing the precontemplation stage were less likely to reoffend compared to men with the Preparticipation profile. This study also found that men who remained in the precontemplation stage were less likely to reoffend than those who remained in the preparation and action stages. These results suggested that men with the Preparticipation profile (which represents the preparation stage) may still be experiencing some ambivalence towards changing their behaviour, thus, impacting on their readiness to change their offending behaviour. It also raised the question on whether men with the Participation profile (which represents the action stage) may be more externally motivated to change their behaviour resulting in less lasting change upon the completion of their sentences. These findings contributed to a more in-depth understanding of offenders' stages of change, and demonstrated that these stages have important clinical implications in guiding assessment of offenders' motivation to work on their offending problems, and tailoring rehabilitation programmes to increase treatment responsivity and improve outcomes.

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Chapter One: Introduction and Overview



In a four-year long study by the New Zealand Department of Corrections, one in every two prisoners were reconvicted of a new offence and returned to prison within four years of release, and two in every three prisoners were reconvicted within four years of release (New Zealand Department of Corrections, 2014). These findings postulate that reoffenders pose a challenge to the criminal justice system and that there is a clear need for correctional rehabilitation services.¹ These services continue to evolve as researchers and practitioners evaluate effective ways of working with offenders to reduce recidivism.

The New Zealand Corrections Department utilises the Risk Needs Responsivity model (RNR; Andrews & Bonta, 2010) as a model for assessment, treatment and management of offenders. Risk, the first principle of the model postulates that less intensive treatments are more suitable for offenders with a low risk of reoffending and more intensive treatments are more suited for those with a higher risk of reoffending. Needs, the second principle of the model highlights the crucial role of rehabilitative and non-rehabilitative needs when developing effective interventions. Responsivity, the third principle refers to the importance of matching an intervention to a person's unique characteristics to enhance its effectiveness, particularly, a person's learning style and specific circumstances (Andrews & Bonta, 2010).

Motivation to change is one of the key constructs within the responsivity principle (Day, Bryan, Davey, & Casey, 2006). Offenders' motivation to change is of considerable

¹ The views expressed in this dissertation are those of the author and do not represent the official position of the New Zealand Department of Corrections.

interest in the criminal justice setting. Motivation to change is a central constituent of Prochaska and DiClemente's (Prochaska & DiClemente, 1983, 1984; Prochaska et al., 1992) stages of change model. This model is part of their larger transtheoretical model of change that considers the way individuals change problem behaviours. The stages of change (SoC) model, widely employed in the fields of addictions, health behaviours and mental health, is now beginning to pave its way into the correctional rehabilitation setting. Despite the increasing popularity of this model, questions have been raised about the conceptual validity of the model and its practical applications. Based on the assumption that individuals can be simultaneously involved in more than one stage at one point in time (McConaughy et al., 1989), stages of change profiles reflect a person's varying degrees of involvement in the stages of change. Findings have been mixed on whether these profiles can predict a person's future behaviour or treatment outcome (Blanchard, Morgenstern, Morgan, Labouvie, & Bux, 2003; Lewis, 2004; Littell & Girvin, 2002). While there are extensive studies on stages of change profiles with non-offenders particularly in the field of addictions, there is a scarcity of research with offenders. Further studies with offenders need to focus on the usefulness of motivational profiles in understanding motivational differences among offenders, and how motivation relates to future attitudes and actions. This proposed study will set out to investigate stages of change profiles in a group of general male offenders, and whether these profiles can provide useful information on the nature and likelihood of reoffending, and treatment completion.

The current chapter introduces the thesis' topic and gives an overview of later chapters. Chapter two will discuss the stages of change model. It will introduce the stage of change profiles, provide an evaluation of the model, and present practical applications of the model with an emphasis on its applications with offenders. Chapter three will present the aims and hypotheses of the present study. Chapter four describes participant demographics,

the intervention and measures used in the study, procedure and data-analytic strategies. Chapter five presents the results of the tests pertaining to the study's aims. Chapter six discusses the major findings of this study in relation to other research, limitations of the present study, suggestions for further research, strengths and clinical implications of the present study's findings.

Chapter Two: The Stages of Change Model



The way in which intentional behaviour change takes place is still not well understood by researchers. Stages of change is one of the key organizing constructs of the transtheoretical model of behavioural change that proposes that individuals move through distinct stages of readiness to change problem behaviour. This model was first developed to explain behaviour change in smokers (Prochaska & DiClemente, 1983), and has subsequently become the most prominent model of behaviour change in treating addictive and other health-related behaviours (Joe, Simpson, & Broome, 1998; Povey, Conner, Sparks, James, & Shepherd, 1999). Further inquiries are also currently being conducted into the potential applications of this model with offenders (Casey, Day, & Howells, 2005).

Motivation to Change

Motivation is described as a dynamic state that indicates the probability a person will engage and persevere in a specific programme of change (Miller & Rollnick, 2013).

According to the self-determination theory proposed by Deci and Ryan (2000), motivation is a broad concept that is distinguished by intrinsic and extrinsic factors. Behaviours based on intrinsic motivation are carried out by personal choice and these actions are associated with primary needs. On the other hand, behaviours prompted by extrinsic motivation are carried out to gain rewards or avoid punishment, and are under external control. Greater intrinsic motivation has been found to be associated with an increased likelihood in a person adopting and maintaining a behaviour change (Deci & Ryan, 2000). This relationship has been observed in health-related behaviours such as weight maintenance (Williams, Grow, Freedman, Ryan, & Deci, 1996) and diabetes management (Williams, Freedman, & Deci, 1998), addictions (De Leon, Melnick, & Hawke, 2000) and offending-related behaviours (Mann, Ginsburg, & Weekes, 2002). In the offending context, many investigators have

highlighted that compliance with correctional rehabilitation treatment programmes tend to be partly due to external motivation to reduce punishment such as reducing sentence lengths, or to access rewards like obtaining parole (Casey et al., 2005; McMurrin & Ward, 2004).

The Transtheoretical Model of Change

The transtheoretical model seeks to provide a framework of behaviour change that integrates the distinctive contributions of the main theories. According to Prochaska and Norcross (2010), the development of this model was guided by the following criteria: (a) preservation of the distinctive and valued contributions of the main theories; (b) an empirical model whereby the core variables can be measured and tested; (c) provides an explanation on how behaviour change occurs within and without therapy; (d) generalizable to a wide range of behaviours, including those related to physical and mental health; and (e) inspires therapists to be innovative and flexible. The transtheoretical model comprises the processes, stages and levels of change.

Processes of change (what to change) are the internal or external activities individuals take part in to change their emotions, cognitions, actions or interactions that are associated with problem behaviours. These processes seek to explain how people can change in the presence or absence of formal intervention. Prochaska and Norcross (2010) argued that while different models of psychotherapy disagree on what to change, there is likely to be a greater consensus on how change occurs. They outlined ten processes of change that have obtained the most empirical support. These comprised five cognitive-affective processes (consciousness raising, dramatic relief, environmental reevaluation, self-reevaluation and social liberation), and five behavioural processes (counterconditioning, stimulus control, contingency management, helping relationships and self-liberation). The second dimension in the transtheoretical model is the stages of change (when to change). These stages are described as qualitatively distinct states of readiness to change (Prochaska et al., 1992). The

upcoming section will discuss the stages of change in further detail. The transtheoretical model postulates that specific change processes are more effective during different stages (Prochaska & Norcross, 2001). This proposed association was supported by a recent meta-analysis of 47 cross-sectional studies that found moderate to large effect sizes for the relationship between the stages and processes of change (Rosen, 2000). The final dimension of the transtheoretical model is the levels of change (what to change) which refer to five different but interconnected levels of mental health problems that can be explored in therapy (Prochaska & Norcross, 2010). These levels include symptom or contextual problems, dysfunctional thoughts, present conflicts in relationships, family or systems conflicts, and intrapersonal conflicts. The level a therapist focuses on is determined by the particular model of psychotherapy that they subscribe to (Prochaska & Norcross, 2010).

In short, the transtheoretical model explains behavioural change as involving particular processes during certain stages based on a selected problem level.

The Stages of Change Model

Most scientific research on the transtheoretical model has focused on the stages of change and it is also the most widely applied of the three dimensions in the transtheoretical model (Armitage, 2009; Prochaska & Norcross, 2010). The stages of change model provides a temporal explanation for how behaviour change occurs (Prochaska et al., 1992). In other words, it is an ordered sequence of qualitatively distinct stages. A person's stage location is hypothesised to change over time, but the length of time each individual spends in a stage can vary. Prochaska et al. (1992) highlights that there are specific collective tasks a person needs to complete before progressing to the subsequent stage regardless of whether one is within or outside formal intervention. Each stage refers to a multiplicity of attitudes, desires and actions associated with a person's readiness to change their problem behaviour (Prochaska & Norcross, 2010).

History of the Stages of Change Model

The stages of change model originated in the area of psychotherapy (McConaughy et al., 1989, 1983) and cigarette smoking (DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1983). At first, Prochaska and DiClemente (1982) discovered five stages: precontemplation, contemplation, action, maintenance and relapse. Relapse was later removed and explained as a backward movement through the stages (Prochaska, 1995). McConaughy et al. (1989, 1983) developed a continuous scale used to assess the stages of change known as the University of Rhode Island Change Assessment Scale (URICA). Using the URICA, four distinct stages of change was identified in two studies using principle component analysis (McConaughy et al., 1989, 1983). Following this discovery, researchers adapted the stages of change to a model that comprised four stages: precontemplation, contemplation, action and maintenance (McConaughy et al., 1989, 1983). Later on, Prochaska et al. (1992) pointed out that they had made the error of placing more weight on factor analytic findings (i.e., four-stage model) compared to cluster analytic findings in the earlier studies by McConaughy et al. (1989, 1983). The developers of this model noted that in retrospect, the two previous cluster analytic studies had actually identified the existence of the preparation stage (Prochaska et al., 1992). The cluster of individuals belonging to the preparation stage had high contemplation and action scores, indicating that they were located between both stages. There has also been evidence emphasising the importance of assessing a person's involvement in the preparation stage (DiClemente et al., 1991; Prochaska & DiClemente, 1992). Subsequently, Prochaska et al. (1992) incorporated a fifth stage, the preparation stage into the model.

Since its inception, the model continues to inform research and treatment for smoking behaviour and psychotherapy (Prochaska, DiClemente, Velicer, & Rossi, 1993). It has also expanded to areas such as breast cancer screening (Rakowski et al., 1998), dietary

management (Campbell et al., 1994), physical exercise (Marcus et al., 1998), psychological distress (Beitman et al., 1994), safe sex (Prochaska, Redding, Harlow, Rossi, & Velicer, 1994) and substance abuse (DiClemente, Doyle, & Donovan, 2009; DiClemente, Schlundt, & Gemmell, 2004). Apart from that, clients located in more advanced stages before treatment are expected to engage in and progress more quickly during treatment (Joe et al., 1998; Stewart & Millson, 1995). By identifying a person's stage before treatment, practitioners can prescribe therapies that are more suited to the individual (Prochaska & Levesque, 2002). For instance, individuals in the preparation or action stage will benefit more from action-oriented interventions in comparison to those in the precontemplation or contemplation stage (Prochaska & Norcross, 2010).

One early study found evidence for stage-matched interventions (Prochaska et al., 1993). This study assigned participants who intended to stop their smoking behaviour to four groups: general self-help guides (Group 1), stage-matched self-help guides (Group 2), stage-matched self-help guides and interactive computer-generated feedback at three time points (Group 3), and stage-matched self-help guides and four brief calls from counsellors providing individualised feedback (Group 4). Participants who engaged in stage-matched interventions (Group 2 to 4) showed a marked reduction in smoking prevalence and longer persistence in smoking cessation. Group 3 in particular had the most superior results during the follow-up period. These findings indicated that stage-based interventions coupled with interactive feedback is associated with a greater likelihood of successful behavioural change.

Researchers investigating mammography screening behaviour also found support for stage-matched interventions (Rakowski et al., 1998). Women who received stage-matched materials based on their current stage had significantly higher screening rates (stage-matched materials group) compared to women who received general information regarding the importance of breast screening (standard materials group) and those who did not receive any

materials (no materials group). Similar findings were replicated in others areas such as exercise (Marcus et al., 1998) and sun protective behaviours (Weinstock, Rossi, Redding, & Maddock, 2002). On the other hand, one study found that outcomes did not differ between smokers who took part in stage-matched interventions and those who took part in stage mismatched interventions (Dijkstra, De Vries, Roijackers, & van Breukelen, 1998). Blissmer and McAuley (2002) also found that the frequency of physical activity was the same for college personnel who engaged in stage-matched intervention and those who engaged in standard intervention. Thus, later research has yielded conflicting evidence for the usefulness of stage-matched interventions.

Stage Definitions

The transtheoretical model postulates that behavioural change occurs over a series of five stages: precontemplation, contemplation, preparation, action and maintenance.

Individuals who are unsuccessful in changing their behaviour will relapse to previous stages and may recycle through the stages a few times. Once complete and sustained behavioural change is achieved, termination of a problem is reached. The following is a brief account of each stage as described by Prochaska et al. (1992), and Prochaska and Norcross (2010).

People in the precontemplation stage lack awareness concerning their problems and are resistant towards acknowledging that they have a problem. Individuals in this stage frequently present in therapy as a result of pressure from others and are unlikely to make attempts to change their behaviour in the absence of external pressure. They will endorse statements such as “All this talk about addressing problems is boring. Why can’t people just forget about their problems?” and “I would rather cope with my faults than try to change them.” To move forward from precontemplation, a person must take ownership of their problem behaviour, gain a deeper insight into the downside of their behaviour, and be able to precisely appraise their ability to self-monitor. Prochaska and Levesque (2002) identified

three factors that can move individuals in the precontemplation stage to progress. They contended that age is an important motivator for change. For instance, with offending behaviour, they argued that many offenders “age out” of their criminal lifestyle.

Environmental events can also be an important agent of change. For example, a domestic violence offender may want to seek help when his daughter has been abused by her partner.

The third factor that can prompt individuals towards change is planned interventions.

Individuals in the contemplation stage acknowledge that there is a problem and are seriously considering how to alter their behaviour without being committed to changing their behaviour. They become more aware of not only the disadvantages of changing their behaviour, but also the advantages of making positive changes. However, they can engage in obsessive rumination resulting in a prolonged stay in the contemplation stage. One study found that a group of 200 contemplators working towards smoking cessation remained where they were for two years (DiClemente & Prochaska, 1985; Prochaska & DiClemente, 1984). URICA items that represent the contemplation stage are: “I think I might be ready for some self-improvement” and “Maybe there are some community services available to me that will be able to help me.” To progress to preparation, contemplators need to make a firm resolution to begin making changes, however small or insignificant they may be.

People in the preparation stage intend to change their behaviour immediately and are making minor behavioural changes, but these changes are not large enough to generate effective change. For instance, those in this stage may smoke cigarettes 30 minutes later in the day than they commonly do as opposed to stopping smoking altogether. Earlier research described decision-making as being the stage between contemplation and action, but following unfavourable principal component analytic findings, it was dropped from the model and replaced by preparation (McConaughy et al., 1989, 1983; Prochaska et al., 1992). The decision-making stage included a resolute decision to change, but omitted the

behavioural criterion which the preparation stage requires. Those in the preparation stage endorse URICA items from the contemplation and action stage. To advance to the action stage, they need to set achievable goals, develop a workable plan of action, and commit high levels of their time and effort to an action plan.

In the action stage, observable changes are made to a person's behaviour, activities and/or surrounds to an acceptable and significant degree. Individuals in this stage invest a large amount of time and energy towards changing their behaviour. They acquire insight into specific thoughts, feelings, actions and/or aspects of their environment that might make them more vulnerable to relapse. URICA items that may identify individuals in this stage include "I am really working hard to change" and "Anyone can talk about changing; I'm actually doing something about it." Those in the action stage need to learn and apply effective ways to deter lapses from turning into a full relapse and to progress to maintenance.

Preservation of changes made and the acquisition of effective ways to deter relapse characterises the maintenance stage. A person is considered to be maintaining behavioural changes if they have not engaged in their problem behaviour and/or continuously participated in new adaptive behaviours for longer than six months. Prochaska et al. (1992) clarified that maintenance was not a static stage, but characterised sustained change. Individuals with chronic problems can stay in this stage for an indefinite length of time.

A problem behaviour reaches termination when one no longer experiences urges to return to their problem behaviour and does not require the use of relapse prevention strategies.

Stage Transitions

Developers of the stages of change model first depicted change using a wheel that only allowed forward invariant movement through the cycle of change (Prochaska & DiClemente, 1984). Although relapse was previously thought to be one of the stages in the

model, it was redefined as a regression through the stages instead of a distinct stage in the mid-1980s (McConaughy et al., 1989, 1983; Prochaska et al., 1992). The stages of change model was eventually reconceptualised as a sequential model of cyclical change. This sequential model indicates that a person is predicted to move backwards and forwards by one stage, and that stage skipping is not expected (DiClemente et al., 1991).

A helpful example of the modified stages of change model is the spiral model for addictive behaviours discussed by Prochaska et al. (1992). These investigators noted that relapse and recycling through the stages were commonplace in individuals seeking to change their behaviour. Although it is possible to move through the five stages in a straightforward linear manner, they explained that relapse and recycling through the stages were more likely to take place (Yong, Williams, Provan, Clarke, & Sinclair, 2015). They noted that relapsing may cause some individuals to feel demoralised that may in turn, increase their resistance to change their behaviour. Consequently, relapsers may return to the precontemplation stage where they may stay for an indefinite length of time. Prochaska and DiClemente (1986) found that 15% of self-changers seeking to stop smoking relapsed to the precontemplation stage. In contrast, in a different study, 85% of self-changers working towards smoking cessation regressed to either the contemplation or preparation stage (Prochaska & DiClemente, 1984). These findings suggest that relapsing to the contemplation or preparation stage is far more likely than a relapse to the precontemplation stage. Progression, regression and recycling through the stages has been proposed to reflect a recursive learning process as a person repeats tasks within each stage, learns from past mistakes and tries new strategies of change in an effort to achieve sustained behavioural change (DiClemente, 2005).

Evaluation of the Stages of Change Model

In the non-offending population, the SoC model has been found to be a robust predictor of health-related behaviours (e.g., smoking cessation, Prochaska & DiClemente,

1985; safe sex, Prochaska et al., 1994; emotional distress, Beitman et al., 1994), and of treatment participation and outcomes (Joe et al., 1998). It has also allowed clinicians to tailor interventions to where clients may be located in the SoC resulting in greater success in behaviour change (Devereux, 2009; Marcus et al., 1998; Prochaska & Levesque, 2002; Rakowski et al., 1998).

Prochaska and Norcross (2001) contended that this transtheoretical model of change preserves the distinctive contributions of the main psychotherapy systems. Its other strengths include the generalisability of the model to a wide range of physical and mental health problems, and its ability to account for how people can change in the presence and absence of professional help (Prochaska & Norcross, 2001).

Despite its popularity, some have questioned the validity of the SoC model. Most notably, Bandura (1998) contended that the SoC model fails to meet the following three criteria of a stage model: stages need to be qualitatively distinct as well as demonstrate non-reversible and only one-stage movements. He stated that precontemplation and contemplation were not qualitatively distinct as both stages tap into the construct of intention which lies on a continuum. In addition, some studies have found evidence for stage skipping and stage regression (Martin, Velicer, & Fava, 1996; Norman, Velicer, Fava, & Prochaska, 1998; Prochaska, DiClemente, Velicer, Gimpil, & Norcross, 1985), supporting Bandura's contention on the artificial nature of the SoC model. In response to Bandura's argument that the stage construct lacks conceptual clarity, researchers have argued that many scientific stage theories are based on the punctuated equilibrium model (Prochaska, Wright, & Velicer, 2008). According to this model, there are longer periods of stability that are punctuated by shorter durations of change (Gersick, 1991). In the SoC model, precontemplation, contemplation and maintenance are conceptualised as long periods of stability that are punctuated by shorter periods of change (Velicer & Prochaska, 2008).

Researchers have concluded that there is a dearth of quality outcome studies examining this model which precludes firmer conclusions from being reached concerning the model's validity (Whitelaw, Baldwin, Bunton, & Flynn, 2000).

The Stages of Change Model and Motivational Interviewing with Offenders

Despite its brief history in Corrections, the stages of change model has rapidly gained prominence in understanding change in offending and offending-related behaviour (Casey et al., 2005; Day et al., 2006). To date, stages of change studies with offenders have focused on domestic violence offenders (Babcock, Canady, Senior, & Eckhardt, 2005; Eckhardt, Babcock, & Homack, 2004; Eckhardt & Utschig, 2007), general offenders (Anstiss, Polaschek, & Wilson, 2011; Austin, Williams, & Kilgour, 2011), violent offenders (Lewis, 2004), engagement in correctional rehabilitation programmes (Devereux, 2009; McMurrin et al., 1998; McMurrin, 2009), and offending-related behaviours such as problem drinking (Ferguson, 1997) and anger management programmes (Williamson, Day, Howells, Bubner, & Jauncey, 2003). Outcomes of studies within this population have been largely mixed. Interestingly, better controlled studies yielded more support for the usefulness of the model with offenders (Prochaska et al., 2008).

Research has demonstrated that the majority of offenders are ambivalent and/or resistant toward changing their offending behaviour (Devereux, 2009). Thus, formal rehabilitation programmes may be counterproductive whereby these programmes may increase their resistance to change (Devereux, 2009). Another important consideration is that many offenders are externally rather than intrinsically motivated to engage in treatment programmes with the aim to gain privileges such as an earlier parole (McMurrin & Ward, 2004). Many clinicians and researchers have advocated the SoC model as a framework for guiding interventions with offenders (Day et al., 2006). There is accumulating evidence that stage-matched interventions increase treatment engagement (Devereux, 2009; Levesque,

Gelles, & Velicer, 2000) and some studies suggesting that it reduces reoffending rates (Anstiss et al., 2011).

Motivational interviewing (MI) is an example of a stage-matched intervention for offenders (McMurrin & Ward, 2004). Originally developed by Miller and Rollnick (2013), MI is a client-focused style of communication that was developed to guide individuals to reflect on and resolve their ambivalence about changing their behaviour. Rather than arguing or confronting reluctant individuals to change, at the heart of MI is a respect for each individual's autonomy over their decision to change. There are four principles central to MI (Miller & Rollnick, 2002). The first principle is to express empathy whereby the therapist seeks to understand the perspective of the client in a respectful and non-judgmental environment. The second principle is to develop discrepancy whereby the therapist guides the client to reflect on the discrepancy between their current situation and their long-term goals or values. The third principle is to roll with resistance whereby the therapist does not seek to oppose resistance, but instead, explore their clients' arguments against change and for change in a neutral manner. The fourth principle is to support self-efficacy whereby the therapist seeks to anticipate and prepare for potential barriers to change and affirm efforts that have been made, with the aim to foster their client's confidence in their ability to change. Later, with the same spirit of MI, Miller and Rollnick (2013) introduced four processes of MI (i.e., engaging, focusing, evoking and planning). Engaging clients involves building a trusting and collaborative relationship with them as well as understanding their view point and what is important to them. Engaging then leads to focusing on the specific direction clients would like to head towards. Thirdly, the evoking process involves drawing out the client's own motivation for change and working with them to increase their confidence in making changes. Planning involves developing commitment to change and a workable plan of action.

Research with non-offenders have supported that those in pre-action stages are more likely to benefit from MI than action-oriented interventions (DiClemente & Velasquez, 2002; Hettema, Steele, & Miller, 2005). Preliminary evidence has also suggested that MI and other adaptations of MI have resulted in improvement of offenders' motivation to change and a reduction in reoffending behaviour (Anstiss et al., 2011; Austin et al., 2011; Farbring & Johnson, 2008; Ginsburg, Mann, Rotgers, & Weekes, 2002; Wong, Gordon, & Gu, 2007). MI has often been regarded as a helpful counselling style for working with offenders in pre-action stages (i.e., Precontemplation and Contemplation), as it works to create and amplify the ambivalence that these offenders may have towards change, and guides them to resolve it by guiding them to explore the discrepancy between their current situation (e.g., offending behaviour leading to prison sentence) and their long-term values or goals (e.g., being a good father) (Austin et al., 2011; Ginsburg, 2000). However, it is important to note that clinicians have also found it to be effective for those in later stages (DiClemente & Velasquez, 2002). For those in later stages, this approach helps individuals to anticipate potential barriers to change, develop a plan for change, and support their confidence in making and sustaining these positive changes to their offending behaviour.

In New Zealand, the Short Motivational Programme (SMP) was developed in line with MI principles mainly for offenders with a medium risk of recidivism (Devereux, 2009). While the SMP does not aim to directly change or reduce offending or offending-related behaviour, it seeks to move offenders forward in the stages of change by enhancing intrinsic motivation so that they would be more ready to engage in and benefit from rehabilitative programmes (Devereux, 2009).

Anstiss et al. (2011) evaluated the usefulness of the SMP in a sample of 58 offenders serving prison sentences in New Zealand for a range of offences. Findings revealed that not only did MI result in an increase in motivation to change general offending behaviour on

post-MI measures, but it also significantly reduced the risk of recidivism. Another study on the SMP found that motivation to change increased significantly from pre-SMP to post-SMP, and that this increase in motivation was maintained during the follow-up period (Austin et al., 2011). Wong, Gordon, and Gu (2007) also integrated MI and correctional rehabilitation principles to increase offender motivation to change and decrease risk of recidivism. In their Violence Reduction Programme, they engaged with clients using MI techniques and tailored therapist-client interactions according to each client's assessed stage. McMurrin (2009) conducted a systematic review of 19 MI studies and found that participants receiving MI showed enhanced motivation, behavioural change and persisted longer in treatment. She also discovered that MI resulted in increased scores on measurements used to assess motivation, although studies in her review had only a short follow-up period.

Some concerns have been raised concerning the applicability of the SoC model with offenders. Casey et al. (2005) argued that the infrequent nature and complexity of offending behaviour makes it harder to measure and detect compared to addictive behaviours, the original behaviour the model sought to conceptualise (Casey et al., 2005). Also, most offenders engaging in correctional rehabilitation programmes are externally rather than intrinsically motivated whereby they may participate in programmes due to legal coercion (Day, Tucker, & Howells, 2004; Devereux, 2009). This may lead to self-report measures of the SoC being susceptible to social desirability bias, thus, compromising the validity of these measures with this population (McMurrin, 2009). Nonetheless, some studies have found psychometric evidence that these stage based measurements were not influenced by social desirability bias (Polaschek, Anstiss, & Wilson, 2010; Tierney & McCabe, 2004). Apart from that, researchers have argued that the controlled prison setting limits offenders' opportunities to engage in attitudes and behaviours from the maintenance stage (Casey et al., 2005). This restriction may compromise the validity of responses to SoC measurements, particularly on

the maintenance subscale (Casey et al., 2005; DiClemente et al., 2004). While the prison environment does not directly resemble the real world, there are still opportunities for offenders to change regardless of whether they are in the prison or community environments. In fact, offenders' conduct while in prison has often served as a proxy for offending, and there is evidence that institutional misconduct is linked to post-release reoffending (Trulson, DeLisi, & Marquart, 2011).

Measurements of Stages of Change

Psychometrically sound measurement tools for the stages of change are required to propel further empirical investigation on the underlying stages of change theory and to elicit better treatment outcomes (Carey, Purnine, Maisto, & Carey, 1999). These tools are useful in gauging an individual's acknowledgement for the need to change their behaviour and commitment to behaviour change (P. J. Cohen, Glaser, Calhoun, Bradshaw, & Petrocelli, 2005). However, they are not to be used in isolation to make decisions regarding an individual's readiness to change, but rather as an adjunct to a working formulation which will guide intervention choices (McMurrin, 2003). The two main ways to assess SoC include staging algorithms which are generic measures that categorise individuals to discrete stages (DiClemente et al., 1991), and self-administered questionnaires which are measures that generate continuous scores for each stage (McConaughy et al., 1989).

Staging algorithms. Staging algorithms allocate individuals to a specific stage of change according to their responses (i.e., yes or no) to a sequence of dichotomous questions (DiClemente et al., 1991). Earlier algorithms based on the TTM comprised of five distinct SoC and were designed for cigarette smokers (Prochaska & DiClemente, 1983) and expanded to other areas such as exercise (Rosen, 2000), drug usage (Belding, Iguchi, & Lamb, 1996) and correctional settings (Anstiss et al., 2011). An example of a staging algorithm based on the SoC is the Criminogenic Needs Inventory – Readiness to Change scale (CNI-RTC;

Coebergh, Bakker, Anstiss, Maynard, & Percy, 1999). The CNI-RTC is a categorical stage-based measure developed for the New Zealand offending population and has been used to identify criminogenic needs and assessing a person's stage of change. Staging algorithms are simple and commonly used ways of measuring SoC due to their flexibility and ease of administration. The ease of administration of staging algorithms provides a straightforward way of measuring movement in the stages of change. For instance, Callaghan, Taylor and Cunningham (2007) employed a staging algorithm to investigate the stages of change model's assumption that individuals progressing from pre-action to action-oriented stages will demonstrate significant behavioural changes, and those who remain in a pre-action stage are not likely to show significant behavioural changes (Prochaska & DiClemente, 1983, 1984; Prochaska et al., 1992). In their study, they employed a staging algorithm which categorised individuals into pre-action (i.e., either the precontemplation or contemplation stages) and action-oriented stages (i.e., a category that reflects involvement in the preparation and action stages). They found that individuals who progressed from pre-action to action-oriented stages did not show statistically significant improvements in drinking-related behaviour than those remaining in pre-action stages. Conversely, they found that those remaining in pre-action stages over time did show statistically significant improvements in drinking-related behaviour. Difficulties with interpretation of staging algorithms arise from its use of time interval cut-offs (Carey et al., 1999). West (2005) contended that the use of these arbitrary separators as a method of allocation compromises the validity of the stages. Staging algorithms have also been critiqued for the use of circular reasoning whereby motivation to carry out a specific behaviour change is predicted by a similar behaviour change that precedes it (Carey et al., 1999). Some evidence supporting its predictive validity, test-retest reliability, concurrent and convergent validity has been elucidated (Anstiss et al., 2011; Coebergh et al., 1999; Crittenden, Manfredi, Lacey, Warnecke, & Parsons, 1994;

Polaschek et al., 2010). The unstandardized nature of staging algorithms has precluded the assessment of many of its psychometric properties, namely, its factorial validity and internal consistency (Carey et al., 1999). This limitation restricts the reliable and valid application of staging algorithms in studies of behaviour change (Carey et al., 1999).

Self-administered questionnaires. While staging algorithms provide a categorical assessment of the stages of change, self-administered questionnaires are continuous measures of these stages. In comparison to categorical outcomes, continuous scores permit a wider range of psychometric evaluations (Littell & Girvin, 2002). Moreover, these questionnaires have been thought to generate more accurate representations of the stages compared to staging algorithms as they have multiple indicators as opposed to a single indicator measuring each stage (Littell & Girvin, 2002). Due to its general format and adaptability, Carey et al. (1999) noted that the URICA was the most widely studied and applied measurement in a range of areas such as psychotherapy, various health behaviours, substance use and Corrections. Developers of the URICA discovered that clients endorsed questionnaire items that were associated with their present stage and other stages (McConaughy et al., 1989, 1983). They suggested that a person is not simply allocated to a single discrete stage, but that he or she is differentially involved in every stage. In addition, they proposed that stage movement involves fluctuations in engagement with every stage. The URICA developers have contended that many researchers have not interpreted the URICA according to its intended purpose (Rossi, Rossi, Velicer, & Prochaska, 1995). Rossi et al. (1995) stated that:

The URICA has occasionally been used to place individuals into one of the discrete stages of change, for example, by identifying the scale on which an individual scores highest (e.g., Prochaska, Norcross, et al., 1992). The motivation to do this is understandable, but the practice is not well justified from a measurement point of

view and should be discouraged. The primary purpose of the URICA is to identify specific stage profiles (typologies) characteristic of transitions between the four basic stages of change. . . . Use of the URICA for identifying stage-specific typologies . . . generally requires the use of cluster analysis with fairly large sample sizes (e.g., 150-250) and the use of standardized scoring. (pp. 393-394)

According to a review by Rosen (2000), three-fifths of studies have categorised individuals into a discrete stage on the basis of their highest URICA score (Rosen, 2000). This is problematic given that it is overly simplistic as it does not account for involvement across the other stages, which in fact, contributes to the overall picture of their readiness to change. This method of interpreting the URICA compromises the accurate measurement of an individual's stage and deviates from the original cluster analytic method of interpretation proposed by its developers (Lewis, 2004; McConaughy et al., 1983; Rossi et al., 1995).

Stage Profiles

By subjecting URICA responses to cluster analysis, stage of change profiles (hereafter called stage profiles) were discovered (McConaughy et al., 1989, 1983). The emergence of stage profiles challenged the earlier assumption that individuals could only be discretely located within a specific stage (DiClemente & Prochaska, 1982). In addition, researchers have argued that these profiles show that attitudes and actions towards change fluctuate constantly (McConaughy et al., 1989; Rossi et al., 1995). In fact, as shown by moderate to high intercorrelations among URICA subscales, the URICA itself allows respondents to endorse aspects of different stages at the same time (Abellanas & McLellan, 1993; Polaschek et al., 2010). Hence, in contrast to staging algorithms and other overly simplistic ways of using the URICA to allocate individuals to discrete stages (e.g., by identifying the subscale with the highest score), cluster analysis of URICA responses provides a more empirically sound way of assessing an individual's stage of change and also, permits respondents to

endorse a wider array of varying degrees of involvement in the stages of change (Carey et al., 1999; Rossi et al., 1995).

The first two stage profile studies were carried out by the developers of the URICA (McConaughy et al., 1989, 1983). McConaughy et al. (1983) found nine stage profiles that encompassed 90% of their 155 psychotherapy clients. Their study produced stage profiles representative of all the stages with the exception of the Contemplation stage. A follow-up study was conducted with a different sample of psychotherapy clients by McConaughy et al. (1989). This study replicated all but the Preparticipation and Non-Reflective Action profiles and found two new profiles: the Precontemplation and the Contemplation profile.

Since then, cluster analytic studies of the URICA have expanded to other areas. Among the general population, stage profiles have been generated in studies involving individuals with substance use problems (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990), methadone maintenance (Li, Ding, Lai, Lin, & Luo, 2011), mental health clients (Greenstein, Franklin, & McGuffin, 1999; Rosen et al., 2001), pathological gambling (Petry, 2005), and adults with hearing difficulties (Laplante-Levesque, Brannstrom, Ingo, Andersson, & Lunner, 2015). There have been considerably fewer cluster analytic studies conducted with offenders. These studies have been conducted with incarcerated male adolescent offenders (P. J. Cohen et al., 2005), incarcerated female offenders with a history of drug abuse (El-Bassel et al., 1998), domestic violence male offenders (Alexander & Morris, 2008; Levesque et al., 2000) and incarcerated violent male offenders (Lewis, 2004). Refer to Appendix A Table A1 for a detailed explanation of stage profiles across studies with non-offenders and offenders. Stage of change profiles identified by these studies will later be used to compare to stage profiles identified in this study. Appendix A Table A2 outlines the characteristics of the studies presented in Table A1. For ease of comparison between the present study and past studies, ranges of *T* scores were allocated to specific categories (see Appendix A Table A3).

Later cluster analytic studies with offenders and non-offenders alike have replicated all the profiles found by McConaughy et al. (1989, 1983) except for the Maintenance profile. On the other hand, these studies have consistently demonstrated differing stage profiles representing the precontemplation stage, whereas the other stages appear to be represented by only one or two cluster profiles (see Table A1). Examples of these precontemplation-oriented profiles include the following profiles: Ambivalent, Immotiv, Precontemplation and Reluctance profiles (Carney & Kivlahan, 1995; P. J. Cohen et al., 2005; DiClemente & Hughes, 1990; Lewis, 2004; McConaughy et al., 1989). The contemplation stage has been represented by the Contemplation profile (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990), and the preparation stage by the Decision-making and Preparticipation profiles (Levesque et al., 2000; Lewis, 2004). The action stage has been represented by the Participation profile whereby individuals with this profile perceived themselves to be committed to change, and are actively trying to make and sustain changes (Carney & Kivlahan, 1995; P. J. Cohen et al., 2005; Greenstein et al., 1999; Lewis, 2004; McConaughy et al., 1989, 1983), and the maintenance stage by the Maintenance profile (McConaughy et al., 1989). Studies with non-offenders have generated between two to nine stage profiles (Laplante-Levesque et al., 2015; McConaughy et al., 1989, 1983; Sutton, 2001).

There has also been accumulating evidence regarding the correlation of stage profiles with a range of behavioural markers and outcome variables (Carey et al., 1999). Majority of these outcome studies have been conducted with substance users entering treatment (e.g., (DiClemente & Hughes, 1990; Li et al., 2011; Willoughby & Edens, 1996), while a smaller proportion have been conducted with mental health clients receiving therapy (Greenstein et al., 1999) and also, health behaviours such as the use of hearing aids (Laplante-Levesque et al., 2015).

One of the earlier studies by DiClemente and Hughes (1990) was conducted with a group of individuals seeking outpatient treatment for alcohol abuse. They found that individuals with the Precontemplation profile were less concerned and aware of the consequences of their drinking compared to those with the Contemplation and Participation profiles. Those with the Precontemplation profile also reported the highest levels of self-efficacy to overcome their drinking problems and high levels of temptation, but they did not differ in amount of alcohol consumption and withdrawal symptoms compared to the other profiles. This finding suggested that they may be denying or minimizing their drinking problems. A later study by Rosen et al. (2001) found that veterans with more highly-motivated stage profiles were more likely to acknowledge alcohol or anger as a problem upon commencing treatment, had a more severe history of substance use and would employ change strategies specified by the SoC model more frequently. This study also found that URICA scores and profiles generated for substance use problems were independent of those for anger problems, suggesting that motivation to change may be problem specific. Another study with pathological gamblers seeking treatment found that gamblers with more highly-motivated stage profiles reported higher perceived self-efficacy to resist gambling and higher rates of abstinence during the treatment (Petry, 2005). Individuals with the Ambivalent profile showed the lowest level of engagement in treatment, which was in line with earlier research demonstrating that individuals in pre-action stages were likely to develop more resistance in response to action-oriented programmes (DiClemente & Velasquez, 2002).

Interestingly, there is also evidence for a significant relationship between less-motivated stage profiles, and more favourable behavioural and treatment outcomes. Carney and Kivlahan (1995) found that compared to veterans with the Ambivalent, Contemplation and Participation profiles, those with the Precontemplation profile endorsed a lower severity for alcohol and drug use, and were less often referred to inpatient treatment. A later study

with clients entering a methadone maintenance therapy programme (Li et al., 2011) found that individuals with more highly-motivated stage profiles had more severe substance use problems than those with less-motivated stage profiles. These researchers argued that more barriers towards change arise when individuals develop greater readiness to change.

While earlier studies looked at treatment outcome variables such as severity of substance use, Willoughby and Eden (1996) investigated the association between stage profiles and treatment completion. In their study with individuals attending a residential treatment programme for help with alcohol abuse, they found that both treatment completion and duration of engagement in treatment were not related to stage profiles. These researchers suggested that this finding indicated that there may be other factors that were not accounted for, such as homelessness and stage-matching of treatment, that may have influenced treatment retention. Contrary to earlier findings, stage profiles did not differ on biochemical markers of alcohol and awareness of the negative consequences of alcohol use. However, researchers did find that individuals with the Precontemplation profile were less aware of the benefits of drinking on their mood and social interactions compared to those in the Contemplation/ Action profile. It is of note that the study by Willoughby and Eden (1996) had a relatively small sample size which was restricted to individuals seeking an inpatient treatment programme. Similar findings were replicated by a subsequent study which did not find that stage profiles were significantly associated with substance use and treatment completion (Blanchard et al., 2003).

Generally, non-cluster analytic studies have documented that older participants were more motivated to change problematic behaviours (Freyer et al., 2005; Nigg et al., 1999). Cluster analytic studies, on the other hand, have yielded mixed findings where some studies have not found any correlation between stage profiles and demographic characteristics such as gender, ethnicity and socioeconomic status (DiClemente & Hughes, 1990; Willoughby &

Edens, 1996). On the other hand, the study by Li et al. (2011) found that older participants entering a methadone maintenance programme had stage profiles that represented lower motivation to change.

Thus, these studies have yielded evidence for the utility of stage profiles in predicting behavioural and treatment outcomes, but the direction and presence of these relationships have been largely mixed.

Stage Profiles of Offenders

Within Corrections, researchers have found differing numbers of stage profiles ranging from two to seven (Alexander & Morris, 2008; P. J. Cohen et al., 2005; El-Bassel et al., 1998; Lewis, 2004). Studies with the offending population have found that majority of offenders are in the precontemplation stage, showing limited readiness to change, with a smaller proportion in the preparation and action stages (e.g., P. J. Cohen et al., 2005; El-Bassel et al., 1998; Levesque et al., 2000; Lewis, 2004). These studies have not generated profiles representing the contemplation and maintenance stages. It is surprising that no studies with offenders have generated distinct profiles for the Contemplation stage, particularly since clinicians and researchers alike have found that majority of offenders are either resistant or ambivalent towards change (Devereux, 2009; Lewis, 2004; McMurrin, 2003). Reflecting upon the lack of representation of the Contemplation profile within Corrections, Levesque et al. (2000) suggested that to find individuals who were purely contemplating change would require researchers to look at a non-clinical sample within the community. Levesque et al. (2000) also argued that the Maintenance profile has not been elicited with the offending population as cluster analytic studies have not involved rehabilitated offenders within the community who have not reoffended. In addition, incarceration offers limited real-world opportunities for offenders to make changes to their offending behaviour (Casey et al., 2005). This restriction makes it difficult for offenders to

appraise how motivated they may be to change their problem behaviour which may result in poor reliability and validity of responses to SoC measurements, particularly on the maintenance subscale (Casey et al., 2005; DiClemente et al., 2004).

Apart from that, there remains a scarcity of studies that have looked at the ability of stage profiles to predict offending behaviour and rehabilitation outcomes, and majority of these studies have been with domestic violence perpetrators. A study involving incarcerated women with a history of drug abuse found that stage profiles did not differ across current drug use and history of drug use (El-Bassel et al., 1998). However, this study found that those with profiles reflecting active efforts to change (Participation profile) and those who have tried and given up on changing (Uninvolved profile) experienced more psychological distress compared to those who did not acknowledge their drug problem (Ambivalent and Denial profiles) or who were preparing to change (Decision-making profile).

Alexander and Morris (2008) conducted a cluster analytic study with domestic violence perpetrators. Following a court-referred batterer intervention programme, they generated stage profiles resembling the Participation and Immotive profiles. Perpetrators with the less-motivated profile reported lower self-reported violence and poorer improvements on their levels of distress and anger control compared to those with the more-motivated profile. However, no differences were observed on treatment attrition and partner-reported violence across both profiles. As stage profiles were not elicited at pre-treatment, it is unclear how men with different stage profiles would respond to the intervention. A number of other researchers have conducted similar outcome studies with domestic violence abusers, and have found that perpetrators with more motivated stage profiles were more likely to engage in behaviour change strategies compared to those with less motivated profiles (Babcock et al., 2005; Eckhardt et al., 2004; Levesque et al., 2000). In addition, one study with domestic violence perpetrators found that those with more motivated stage profiles demonstrated

higher self- and partner-reported recidivism, but no differences were demonstrated across stage profiles on treatment completion and post-adjudication arrests (Eckhardt, Holtzworth-Munroe, Norlander, Sibley, & Cahill, 2008). Apart from the study by Alexander and Morris (2008), these other studies with domestic violence perpetrators have limited comparability to the original URICA as they employed a domestic violence adaptation of the URICA (URICA-DV; Levesque et al., 2000) which contains items that are qualitatively different from the original URICA.

An unpublished doctoral dissertation (Lewis, 2004) looked at the relationship between stage profiles for a group of violent offenders and their engagement in an aggression control treatment programme. She found that individuals with more highly-motivated stage profiles showed more consistent improvement in behaviour during group therapy sessions, and demonstrated less difficulties with anger and criminal attitudes (i.e., attitudes that are favourable to criminal behaviour and criminal others) following treatment. Less-motivated stage profiles were found to minimally predict violent institutional misconduct following treatment. However, stage profiles did not vary on knowledge of relapse prevention techniques, reoffending and risk variables such as risk of violent recidivism and psychopathology. Lewis (2004) also looked at changes in stage profiles and her study is the only study to date that has investigated changes in stage profiles. Using a movement matrix comprising pre- and post-treatment stage profiles, her study found that those who started treatment in more motivated stage profiles were more likely to regress, and less likely to have progressed or remain in the same profile. This finding suggested that relapse may be a common occurrence in offenders involved in more motivated stages.

With regards to the correlation between demographic characteristics and offenders' stage profiles, stage profiles did not appear to differ significantly with age, ethnicity, marital status and socioeconomic status (Alexander & Morris, 2008; Eckhardt et al., 2008; El-Bassel

et al., 1998; Lewis, 2004). It is unexpected that age did not appear to be a motivator for change as theorists have argued that many offenders do “mature out” of their offending lifestyle as they grow older (Prochaska & Levesque, 2002). However, too few cluster analytic studies with offenders have been conducted to draw firm conclusions.

In summary, studies show that majority of offenders appear to demonstrate stage of change profiles that are characterised by an unwillingness and denial of the need to change their offending behaviour, with a smaller proportion who are preparing to make changes or actively making changes. There is a real need for further research on the usefulness of stage profiles with the offending population so that clinicians and researchers alike are able to better understand this population and work more effectively with them.

Rationale for the current study

Some researchers have argued that the differences in the nature and frequency of offending behaviour and addictive behaviours, the area in which the SoC model originated from, may render the model unsuitable for the offending population (Casey et al., 2005). Nevertheless, there is accumulating evidence for the usefulness of stage profiles with the offending population; however, research in this area is still in its infancy.

Cluster analytic studies of the URICA have shown that majority of offenders are in the precontemplation stage and stage profiles corresponding to this stage have been generated with the offending population. The preparation and action stage profiles have also been identified in studies with offenders. This study will contribute to the body of literature on the stage profiles of offenders, which seeks to extend current empirical and theoretical understanding of offenders' readiness and commitment to change (McMurrin & Ward, 2004).

Cluster analytic studies with offenders have focused primarily on specific subgroups of offenders such as domestic violence offenders (Alexander & Morris, 2008; Eckhardt & Utschig, 2007; Levesque et al., 2000) and offenders who abuse substances (El-Bassel et al., 1998). A study on stage profiles with general offenders is needed to evaluate whether distinct stage profiles can be identified across a heterogeneous sample of offenders. Additionally, using this sample, this study will permit comparison with other subgroups of offenders and non-offenders.

It is also imperative that further studies are conducted on the applicability of stage profiles in predicting outcomes. In particular, there is a need for further research on how stage profiles can facilitate better understanding of the likelihood of offenders benefitting from treatment, and how it may be related to potential barriers to treatment and future recidivism (McMurrin, 2003). Furthermore, apart from one unpublished doctoral dissertation

by Lewis (2004) little is known on the usefulness of stage profiles in understanding movement across the stages and how this might be useful in predicting behavioural and treatment outcomes. Hence, this study seeks to extend findings on the ability of stage profiles to assess change in offenders following a brief motivational intervention. It will also contribute to the existing literature on how stage profiles and stage movement may be related to reoffending.

Chapter Three: Aims and Hypotheses



The overarching aim of this study is to investigate the nature of readiness to change in a large group of general offenders using their stage of change profiles. More specifically, the following investigations will be undertaken.

1. Firstly, this study aimed to generate distinct homogenous stage profiles that reflect the stages of change in a sample of general male offenders before the Short Motivational Programme (SMP), and to examine possible correspondence with earlier cluster analyses that generated stage profiles. Based on the findings of past studies with offenders see (Appendix A Table A1), it was expected that stage profiles primarily representative of the precontemplation and contemplation stages would be generated for the majority of men in this study.
2. Secondly, this study aimed to investigate stage movements following the SMP by comparing stage profiles at pre- and post-SMP. This was an exploratory aim to investigate how offenders with different stage profiles would respond to the SMP. In this study, pre-action stages will refer to the precontemplation and contemplation as these stages refer to individuals who were not taking any steps to make changes; whereas action-oriented stages will be used to refer to the preparation, action and maintenance stages (Prochaska & Norcross, 2001). Based on previous studies investigating stage movement (Callaghan et al., 2007; Lewis, 2004), the stage movements investigated were as follows (see Figure 1 for a pictorial depiction):
 - a. Participants who *progressed* within the stages.
 - b. Participants who *regressed* within the stages.
 - c. Participants who *remained* in the same pre-action stage.
 - d. Participants who *remained* in the same action-oriented stage.

3. Finally, this study also sought to explore whether recidivism would be predicted by stage profiles, particularly the Precontemplation and Contemplation profiles; and stage movement, particularly stage regression and remaining in the same pre-action stage; after controlling for age, sentence length, crime seriousness, ethnicity and SMP completion.

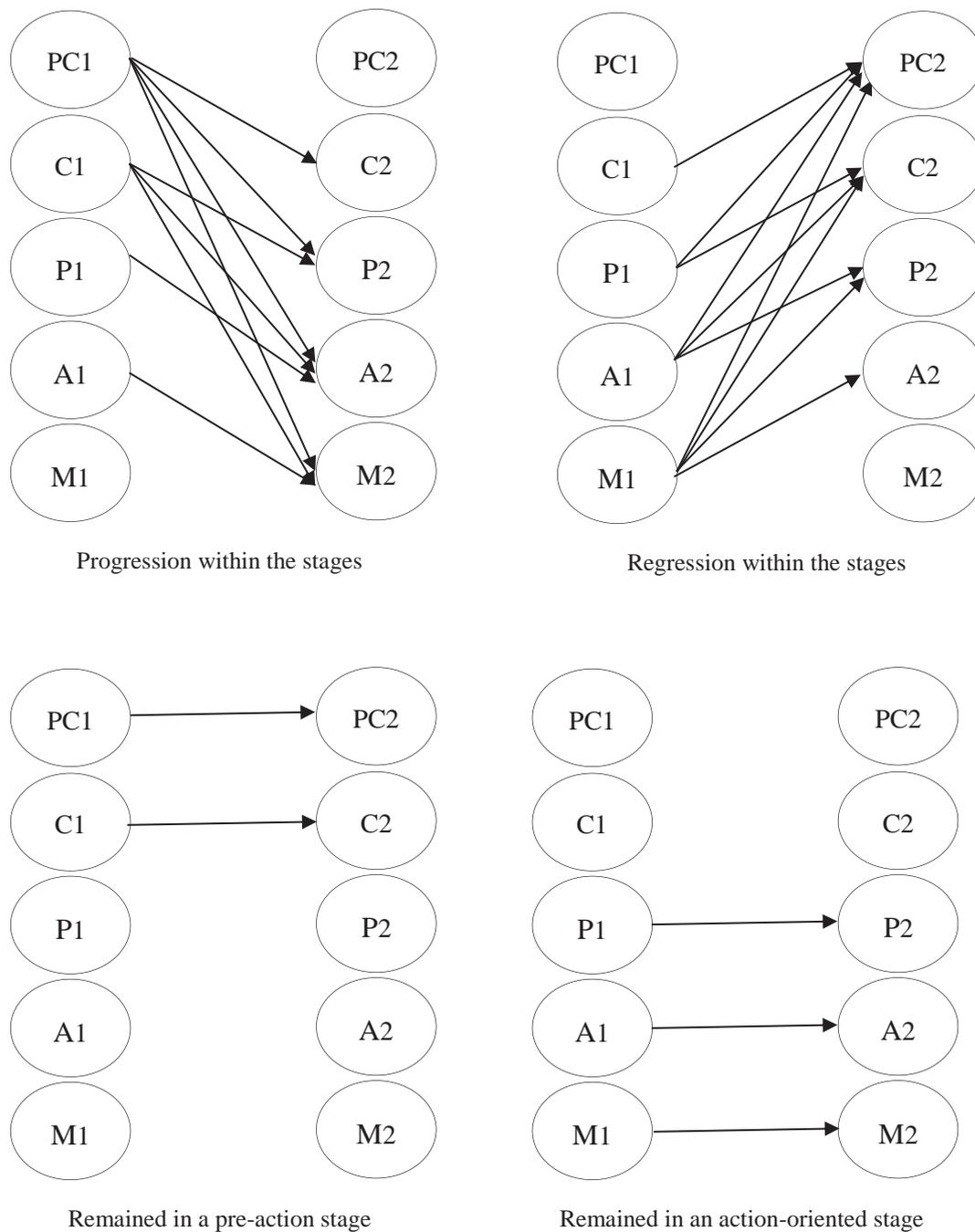


Figure 1. Four figures demonstrating the stage movements described in Hypothesis 2. PC = precontemplation; C = contemplation; P = preparation; A = action; M = maintenance; 1 = pre-SMP; 2 = post-SMP.

Chapter Four: Method



This chapter describes participant characteristics, measures, procedures of the study and planned data analysis strategies.

Participants

Participants included a total of 481 male offenders within the New Zealand corrections system, who had completed the Short Motivational Programme (SMP) between the years 2006 to 2012. The 481 participants were taken from a larger sample of 496 male offenders, 15 of which were not included in the study as they would have had less than 18 months in the community post-release, and a few were still serving prison sentences around the time the data was collected for this study (i.e., their sentences were ending between the years 2015 to 2017). The ages of participants commencing the SMP ranged from 16 to 57 years ($M = 30.28$, $SD = 8.93$). The sentence length of participants ranged from 55 to 3,932 days ($M = 536.54$, $SD = 457.52$). The large majority of offenders identified as being New Zealand Māori (49%), with New Zealand European (36%) and Pacific Island descent (10%) being the other most common ethnic identities. The most common index offences consisted of assault charges (23%), driving offences (20%), burglary (17%), drug offences (9%), and robbery (8%).

On an actuarial measure of risk, the Risk of Reconviction by Risk of Reincarceration scale (RoC*RoI scale; Bakker, O'Malley, & Riley, 1999) was used. The RoC*RoI scale assesses the future probability an individual will be re-convicted and imprisoned for a criminal offence within 5 years. The scores categorise offenders into three categories: low risk (below .30), medium risk (between .30 to .69) and high risk (above .69). The risk of recidivism of the participants were mainly in the medium range (84%), with low and high risk at 10% and 6%, respectively. The average RoC*RoI score was .51 ($SD = .15$). Most

offenders completed the SMP while in prison (61%), with the remaining completing it in a community setting. Offenders who participated in the SMP may have served community and/or prison based sentences. Across both settings, offenders had similar characteristics for age, ethnicity, index offences and were mainly within the medium range for risk of recidivism. Of the 481 participants, 83% completed the SMP. As shown in Appendix B Table B1 and Table B2, SMP completers and non-completers were comparable in age, ethnicity, risk of recidivism, seriousness of original offence, sentence length and URICA-21 scores. However, reoffending rates and setting did vary between SMP completers and non-completers, with SMP completers having a slightly higher proportion of men who did not reoffend and a slightly lower composition of men who were serving community-based sentences.

When compared to the overall New Zealand male prison population (New Zealand Department of Corrections, 2013), the sample's ethnicity composition and age distribution were similar (see Appendix B Table B3).

Intervention

The Short Motivational Programme (SMP) is a low intensity programme individually-delivered over five weekly 1-hour sessions to offenders by trained facilitators from the Department of Corrections (Anstiss, 2003; Devereux, 2009). It is a programme that is targeted mainly towards medium risk offenders serving both prison and community-based sentences (Devereux, 2009). The majority of offenders were mandated by the court to participate in the SMP. In this study, non-completion of the SMP was defined as non-completion of all five sessions, irrespective of the reasons for non-completion.

Facilitators typically undergo three days of training in MI and are supervised weekly by trained clinicians. Their training includes the theoretical framework of MI, understanding the SoC model and practice delivering the sessions. It is manual-based and is administered according to MI and cognitive behavioural principles. The goal of the SMP is to enhance

motivation to change criminogenic needs (e.g., substance abuse and anger management), resulting in an increased motivation to set and engage in prosocial goals, and subsequently, increase engagement in more action-oriented rehabilitation programmes.

Prior to the five SMP sessions, an initial session is conducted to introduce the participant to the SMP by briefly explaining the purpose of SMP to prepare him or her for more offence-focused rehabilitation programmes, what to expect over the next five sessions and the role of the facilitator. During this initial session, written consent is obtained from the offenders for their data to be used for research during this initial session (refer to Appendix C for the SMP consent form). If consent was obtained, participants would be provided with the Short Motivational Programme adaptation of the University of Rhode Island Change Assessment questionnaire (URICA; Anstiss, 2003; McConaughy et al., 1989) during this initial session and after the completion of the SMP.

Session 1: Rehabilitative needs identification and education. Collaboratively, the facilitator and offender work together to identify the offender's unique rehabilitative goals associated with offending behaviour (Andrews & Bonta, 2010), while being guided by MI principles outlined by Miller and Rollnick (2002). This session also involved discussion of lifestyle factors, social context and cognitive styles that may have contributed to their offending.

Session 2: Offence chain development. This session involves guiding offenders to map an offence chain which is parallel to socialising them to the cognitive model (Beck, Rush, Shaw, & Emery, 1980). The facilitator guides the offender to identify thoughts, emotions and rehabilitated needs that were associated with events leading up to the offence.

Session 3: Uncovering positive motivation. A decision grid is explored with the offender to explore the short and long-term costs and benefits of changing their offending behaviour. The aim of this decision grid was to develop discrepancy for offenders'

rehabilitation needs. In the spirit of MI, the facilitator uses reflective listening to accurately reflect both the pros and cons of the behaviour.

Session 4: Exploring barriers to change. This session takes the form of a cognitive behaviour approach whereby the offender is introduced to how their thoughts, emotions and offending behaviour interlink. The offender is guided to identify cognitive distortions that might be a barrier to changing their offending behaviour.

Session 5: Strengthening commitment and reassessing motivation to change. A specific change plan is developed collaboratively with the offender whereby specific prosocial goals and concrete steps on how to achieve these goals were identified.

Measures

The University of Rhode Island Change Assessment Questionnaire

The instrument used in this study was an adapted version of the University of Rhode Island Change Assessment questionnaire (URICA; McConaughy et al., 1989), a questionnaire designed to measure Stage of Change. The original version of the URICA contains four subscales (i.e., the precontemplation, contemplation, action and maintenance subscales) with eight questions corresponding to each subscale. Each question is scored using a five-point Likert scale on which participants are asked to rate the level of their agreement from (1) “strongly disagree”, (2) “disagree”, (3) “undecided”, (4) “agree”, and (5) “strongly agree”. A *low score* on the Precontemplation subscale represents agreement that change needs to occur, whereas a *high score* on the other three subscales represents greater motivation to change.

Items in the measure were adapted to reflect the nature of the offending population in the study and the measure was renamed the Short Motivational Programme URICA (Anstiss, 2003). For example, “problems” were changed to “offending problems” and the environment reflected where the programme was delivered (see Appendix D for the community version

and Appendix E for the prison version of the SMP URICA). Within the Department of Corrections, the URICA is administered prior to and after the completion of the SMP. The complete 32-item URICA was administered to all participants, but this study will focus only on the 21 items within the scale (hereafter called the URICA-21: see article authored by present study's author, Yong et al., 2015). Article not included as consent was not given for publishing article in thesis, but see Appendix F for the statement of present author's contribution to the article. The URICA-21 was generated from a factor analytic study by Yong et al. (2015) and has four items measuring the Precontemplation subscale, eight measuring the Contemplation subscale, five measuring the Action subscale, and four measuring the Maintenance subscale (see Appendix G for a description of the URICA-21 items).

In one of the earliest studies on the 32-item URICA, McConaughy et al. (1983) found that Cronbach's coefficient alphas of the four subscales were between .88 to .89 in their sample of psychotherapy clients. Later studies in a range of non-offending settings such as mental health, alcohol and drug treatment clients (DiClemente & Hughes, 1990; Pantalon & Swanson, 2003) demonstrated acceptable levels of internal consistency of .7 and above (Tabachnick & Fidell, 2007). In studies with offenders, the Cronbach's coefficient alphas have ranged between .60 and .93. The subscales that did not show acceptable levels of internal consistency varied across studies: Precontemplation, .69 (P. J. Cohen et al., 2005); Contemplation, .60 (Polaschek et al., 2010); and Maintenance, .61 (Austin et al., 2011). Cronbach's coefficient alphas for the URICA-21 in this study were as follows at pre-SMP: Full scale = .78, Precontemplation = .62, Contemplation = .85, Action = .80, and Maintenance = .77. With the exception of Precontemplation, the full scale and the other three subscales demonstrated acceptable levels of .70 and above (Tabachnick & Fidell, 2007).

The four-factor model of the URICA initially proposed by McConaughy et al. (1989) has been established in non-offending studies (e.g., Field, Adinoff, Harris, Ball, & Carroll, 2009; Pantaloni & Swanson, 2003), but no clear factor structure has emerged in studies with offenders. The factorial validity of the URICA is even harder to ascertain in offending samples given the paucity of studies in this area. To date, only three studies on general offenders have found support for a four-factor structure (Levesque et al., 2000; Polaschek et al., 2010; Yong et al., 2015). Using a domestic violence adaptation of the URICA, an earlier study by Levesque et al. (2000) on 258 domestic violence offenders supported this four-factor structure. The study by Polaschek et al. (2010) reported cautious support for the four-factor structure with a non-normed fit index (NNFI) of .96 and a comparative fit index (CFI) of .97, but did not report the value for the root mean square error of approximation (RMSEA). Yong et al. (2015) first found poor fit when the original URICA was subjected to a confirmatory factor analysis in a sample of general offenders. They subsequently conducted an exploratory factor analysis of the URICA which yielded a four-factor structure only after re-specifying six items and deleting 11 items. Cross-validation of the URICA-21 revealed acceptable levels of fit for the four-factor solution proposed by the developers of the URICA (McConaughy et al., 1989) with a CFI of .91 and an RMSEA of .06. Other studies involving the offending population found support for fewer than four factors (P. J. Cohen et al., 2005; Eckhardt et al., 2004; Eckhardt & Utschig, 2007; Hemphill & Howell, 2000; Kim & Song, 2009). Some of these studies utilised a domestic violence adaptation of the URICA (Eckhardt et al., 2004; Eckhardt & Utschig, 2007; Levesque et al., 2000), thus, limiting the comparability of these studies with those using the original version of the URICA.

Data

Ethical approval for this study was obtained from the New Zealand Department of Corrections and the Massey University Human Ethics Committee as part of a larger study

(refer to Appendix H and Appendix I for copies of the approval letter, and the research agreement with the Department of Corrections). The demographic data was retrieved from the New Zealand Department of Correction's database. The accuracy of the data was checked and verified by Corrections staff. All identifying details of participants were removed or recoded as necessary to ensure anonymity.

Massey University Seriousness of Offence Scale

The offence seriousness of each index offence and reconviction was measured using the Massey University Seriousness of Offence Scale, a six-point Likert scale whereby a rating of 1 corresponds to very low severity, and a rating of 6 corresponds to very high severity (see Appendix J for a detailed explanation of the development of this scale). When an offender had more than one index offence, all offences were rated and the highest rating (i.e., the most severe offence) was selected for the particular index offence. The same was applied when rating an offender's reconviction offence. In the event where an offender did not reoffend, a blank score was assigned. The inter-rater reliability for this rating scale averaged over three sets of ratings by an experienced Short Motivational Programme's facilitator and two trained raters were calculated using the intraclass correlation coefficient. An offence seriousness change score was calculated for those who had re-offended. When examining change in offence seriousness, offenders were seen to not reoffend, decrease (i.e., reconviction offence was less serious than index offence), increase (i.e., reconviction offence was more serious than index offence) or remain unchanged (i.e., index and reconviction offence were on the same level of seriousness).

Inter-rater Reliability

Inter-rater reliability is the degree of consistency to which the same information is rated by two or more different raters. There are a few forms of intraclass correlation

coefficients (ICCs) and the selection of an appropriate ICC needs to be guided by the aim and design of the reliability study (Shrout & Fleiss, 1979).

The initial step in selecting an appropriate ICC requires one to establish whether or not the sample was rated by randomly selected or a fixed set of raters. The study used a fixed set of three raters who were not randomly chosen from a larger population. The participants rated constituted a random subsample of a larger sample. Each rater assigned ratings to all the participants within the subsample. Instead of obtaining average ratings of the three raters, the study sought to determine how reliable it would be to only use one rater as well as the degree of agreement between the three raters indicating that the ICC for single measurements would be appropriate for this study (McGraw & Wong, 1996). Thus, the single score ICC for the two-way mixed ANOVA model was selected to represent the severity scores (McGraw & Wong, 1996).

The next step in selecting an appropriate ICC requires one to establish whether the calculation of the ICC is aimed at computing the extent to which the raters gave the same absolute values to the same targets, or the consistency between the ratings which refers to the extent to which raters systematically varied when assigning ratings to the same targets (McGraw & Wong, 1996). As this study considered it important for raters to agree consistently on exact ratings, the absolute agreement of measurements alternative was selected.

Inter-rater reliability for present study. The subsample of participants ($n = 104$) selected for inter-rater agreement was randomly selected using a random number generator. Severity scores were rated by a trainee psychologist and two trained facilitators working with the Department of Corrections. Raters were trained and provided with guidelines on the use of the severity rating scale. The intraclass correlation coefficient (ICC) was used to evaluate inter-rater reliability. Cicchetti's (1994) categorisation system was used to judge ICCs. A correlation coefficient of below .40 is poor, .40 to .59 is fair, .59 to .74 is good and .75 to 1.0 is excellent. Excellent inter-rater reliability was observed across the three raters for the index offence severity scores (ICC = .90) and reconviction offence severity scores (ICC = .89).

Data Analysis

The Statistical Package for Social Sciences (SPSS) for Windows Version 19 (SPSS, 2010) was used to perform the statistical analyses involved in this study. The following analyses were undertaken to investigate the aims for the present study.

Aim 1: Examining the presence of stages of change profiles in a group of general male offenders. Hierarchical agglomerative cluster analysis using the Ward (1963) method was carried out on the four URICA-21 subscales to identify homogenous stage of change profiles at pre- and post-SMP with a sample of general male offenders. Cluster analysis is employed to group objects on the basis of similar scores on relevant variables to generate profiles, elucidate relational patterns and discriminate subgroups in large samples (Hair, Black, Babin, & Anderson, 2010). Cluster analysis in the present study was conducted according to the five stages recommended by Hair et al. (2010). The first step in cluster analysis was to identify the objective of the cluster analysis and the clustering variables. The second step comprised detecting outliers (by converting the data to standard z scores), selecting the appropriate measure to assess similarity between individuals, and deciding

whether the data should be standardised. The third step involved evaluating the representativeness of the sample and the multicollinearity of the data.

It is important to assess for multicollinearity due to implicit weighting issues in cluster analysis (Hair et al., 2010). To assess for multicollinearity, regression analyses were carried out for each pre-SMP URICA subscale score assigned as a dependent variable and the remaining three pre-SMP subscales assigned as independent variables.

The fourth step involves selecting a clustering algorithm and deciding the final number of clusters to be formed. Hierarchical agglomerative cluster analysis using Ward's method (J. H. Ward, 1963) was carried out on the four URICA-21 subscales. Ward's method was used to cluster cases and subsequently, groups of cases, in a manner that minimizes within-cluster variability; and the clustering procedure proceeds until only a single cluster containing all clusters remains (Punj & Stewart, 1983). For Ward's method, the distance between clusters refers to the increase in sum of squares between two clusters, after merging, summed over all variables (Hair et al., 2010). This method was selected to maintain consistency with past research on cluster analysis (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990; Lewis, 2004; McConaughy et al., 1989, 1983). Additionally, a number of reviews on clustering methods have established that Ward's method is the most accurate hierarchical clustering method to elicit a data set's underlying structure (Breckenridge, 2000; Milligan & Cooper, 1987; Punj & Stewart, 1983). Ward's method is however, sensitive to outliers and tends to generate same-sized clusters (Hair et al., 2010).

When deciding the number of clusters, there are no standard guidelines to follow for cluster analysis (Hair et al., 2010). Milligan and Cooper (1987) cautioned against stopping with too few rather than too many clusters given that information is lost with the combination of different clusters. The distance at which the clusters are combined is a meaningful indicator of the optimal number of clusters. In this study, the relative magnitude of the

absolute distance between agglomeration coefficients was examined to determine the appropriate number of clusters. Apart from that, the optimal numbers of clusters are also determined based on having significant one-way analysis of variance results on clustering variables (in this study, the clustering variables are the precontemplation, contemplation, action and maintenance stages), sufficient numbers of participants across each cluster and interpretability (Rapkin & Luke, 1993).

The fifth step of cluster analysis was to interpret the clusters. This first involved transforming the z scores into T scores to allow comparisons of stage profiles with earlier studies. For ease of comparison between the present study and past studies, ranges of T scores were allocated to specific categories (see Appendix A Table A3). Next, each cluster was labelled according to the stage(s) that it most accurately represents. The naming of stage profiles generated at pre- and post-SMP for the present study was guided by the following cluster analytic URICA studies: Carney and Kivlahan (1995), Cohen et al. (2005), DiClemente and Hughes (1990), Lewis (2004) and McConaughy et al. (1989, 1983). Next, the stage profiles were ordered from lowest (i.e., the profile that most closely resembled precontemplation) to highest (i.e., the profile that most closely resembled maintenance).

Aim 2: Examining stage movement using stage profiles generated at pre- and post-SMP. After establishing the presence of stage profiles at pre- and post-SMP, a stage-transition matrix (Callaghan et al., 2007; Lewis, 2004) was constructed to identify the four stage movements stated in Hypothesis 2 (see Figure 1 for a pictorial depiction of these movements).

Aim 3: Examining stage profiles and stage movement as predictors of recidivism.

Stage profiles at pre- and post-SMP stage profiles, and stage movement were examined as predictors of recidivism in three separate logistic regression analyses. Other variables which have been empirically linked to recidivism were included in the model as

control variables. These included age, sentence length, ethnicity, crime seriousness scores as assessed on the MUSOS, risk of reoffending and treatment completion.

Chapter Five: Results



This chapter describes data screening findings and results of hypotheses testing.

Preliminary Analyses

Preliminary analyses on the data was undertaken to investigate the data accuracy regarding missing data, outliers and normality. There were no missing data, nor outliers for age, RoC*RoI scores, and MUSOS scores before and after the SMP, as assessed by a boxplot inspection. A number of outliers were uncovered for sentence length, and these were checked for their validity and retained. Normality was tested with the Kolmogorov-Smirnov (K-S) statistic as a large sample size was used in this study (outlined in Table 1). The K-S statistic for all the variables indicated that the assumption of normality was violated. However, the K-S test is a conservative test and sometimes the data violates normality when it is within acceptable limits, particularly in large sample sizes (Pallant, 2007). Thus, further normality assessments were carried out. All the variables with the exception of sentence length had critical values within ± 1.96 range for kurtosis and skewness, which supported a normal distribution (Hair et al., 2010). Visual inspection of detrended and normal Q-Q plots, and histograms suggested that the distribution of age, RoC*RoI scores, and seriousness scores before and after the SMP as measured by the MUSOS were not unduly skewed. However, the distribution for sentence length showed an extreme positive skew. Normality assessment for sentence length showed that it had violated the assumption of normality. Data screening of the URICA scores will be discussed in the next section to examine whether it meets the assumptions required for cluster analysis.

Table 1

Tests of Normality for Demographic and Risk Variables

Variable	<i>M</i>	<i>SD</i>	K-S value	Skewness	Kurtosis
Age (years) ^a	30.28	8.93	.06*	.69	-.39
RoC*RoI ^a	.51	.15	.11*	-.39	-.13
Sentence length (days) ^a	536.54	457.52	.21*	3.21	14.22
MUSOS T1 ^a	4.10	1.21	.17*	-.06	-.89
MUSOS T2 ^b	1.80	1.45	.15*	.44	-.59

Note RoC*RoI = risk of recidivism by risk of reincarceration scale scores; MUSOS = Massey University Seriousness of Offence Scale; T1 = pre-SMP; T2 = post-SMP.

* $p < .001$.

^a $N = 481$. ^b $n = 401$.

Testing of Aims

Testing the Presence of Stages of Change Profiles at Pre-SMP (Aim 1)

The first step of cluster analysis involved specifying the objective of the analysis and the clustering variables. The objective of cluster analyses in the present study was to generate homogenous stage profiles that represented the stages of change using URICA data before and after motivational interviewing. The clustering variables chosen for this study were the four stages of change represented by the four URICA subscales.

Secondly, outliers were identified using univariate detection which identifies cases that fall at the extreme ends of the distribution. The data was first converted to standard z scores and examined against a threshold value. As the sample sizes before and after treatment were greater than 80, the threshold value selected was 4 (Hair et al., 2010). Punj and Stewart (1983) argued that it was important to identify outliers when performing cluster analysis as it can compromise the clustering algorithms' performances. Individuals with z scores exceeding +4 or z scores below -4 on two or more of the variables would be excluded from the analyses. No outliers were identified among participants' URICA responses at pre-SMP. Next, it was decided that inter-individual similarity would be measured using the squared Euclidean distance method which is the most frequently utilised distance measure for continuous data and the recommended measure for Ward's clustering algorithm (Everitt, Landau, Leese, &

Stahl, 2011). It generates information regarding the shape, elevation and scatter of cluster profiles (Gore, 2000). URICA-21 subscale scores were standardised as it is recommended for data to be standardised when the squared Euclidean distance method is employed, and to make it easier to compare different variables with different means (Gore, 2000; Hair et al., 2010).

The third step evaluated the sample's representativeness and assessed for multicollinearity. Correlations between predictors above .7, a tolerance statistic of .10 or below, and a variance inflation factor (VIF) value of 10 or more signify multicollinearity (Hair et al., 2010). The study's sample was representative of the general male offending population as it had a very similar age distribution and ethnic composition (see Appendix B Table B3). There was no evidence for multicollinearity as none of the pre-SMP URICA stage scores generated values that signified multicollinearity (see Appendix K Table K1). Subsequently, each stage was included as a clustering variable into the cluster analysis.

The fourth step involved subjecting the pre-SMP URICA data to Ward's hierarchical clustering method. The percentage of change in agglomeration coefficients was examined to determine large relative increments in agglomeration coefficients (see Table 2). Large increments would suggest that different clusters were combined. For example, the coefficient change going from six to five clusters is 9.3%, and the change going from five to four clusters is 19.6%. The difference in percentage change (10.3%) is a large one suggesting that the 5 cluster solution can be considered for the pre-SMP URICA data. The results suggested that the 3 and 5 cluster solutions were possible for the pre-SMP URICA data given that both cluster solutions had relatively large differences in percentage change (2.8% and 10.3% respectively). The 1 and 2 cluster solutions were not considered as both solutions lack theoretical utility and statistical power.

Table 2

Agglomeration Coefficient Analysis for Ward's Method for Pre-SMP URICA Scores

No. of clusters	Agglomeration coefficient			
	Current step	Change from last step	% change	Difference in % change
9	9,941.12	734.04	7.4	1.3
8	10,675.16	834.45	7.8	0.4
7	11,509.61	960.68	8.3	0.5
6	12,470.29	1,165.30	9.3	1.0
5	13,635.59	2,676.03	19.6	10.3
4	16,311.63	2,965.34	18.2	1.4
3	19,276.97	2,965.65	15.4	2.8
2	22,242.62	11,320.83	50.9	35.5
1	33,563.46	—	—	—

Note. % change = percentage of change in proportion to the agglomeration coefficient for the current step; % difference = difference in percentage between current and next step.

One-way ANOVAS were conducted on the clustering variables (precontemplation, contemplation, action and maintenance) for the 3 and 5 cluster solutions. The *F* values for each stage in the solutions were statistically significant, indicating that for both cluster solutions, each of the four stages was reliably distinguished between the clusters (see Table 3).

Table 3

Analysis of Variance for 3 and 5 Cluster Solutions for Pre-SMP URICA Scores

Cluster solution	Stage	<i>df</i>	<i>F</i>
3	P	2	49.88**
	C	2	477.99***
	A	2	38.23***
	M	2	102.38***
5	P	4	123.81***
	C	4	525.37***
	A	4	32.05***
	M	4	89.88***

Note. P = precontemplation; C = contemplation; A = action; M = maintenance.
** $p < .01$. *** $p < .001$

Next, Tukey's HSD tests were carried out for the 3 and 5 cluster solutions to determine which group means differ from each other (see Table 4). Results revealed that the 3 and 5 cluster solutions had a number of significant differences across means. Significant mean differences were observed for 92% of the comparisons for the 3 cluster solution, and 90% of the comparisons for the 5 cluster solution.

Table 4
Tukey HSD Comparisons for Pre-SMP Cluster Solutions

Cluster solution	Stage			
	P	C	A	M
3	10.41 _a	31.67 _a	19.70 _a	14.52 _a
	10.99 _a	23.23 _b	18.79 _b	11.99 _b
	6.87 _b	35.79 _c	22.38 _c	17.54 _c
5	8.49 _a	30.89 _a	19.40 _a	13.92 _a
	10.95 _b	25.16 _b	19.59 _{a, b}	13.01 _b
	14.99 _c	33.53 _c	20.41 _{a, b}	15.94 _c
	6.87 _d	35.79 _d	22.38 _c	17.54 _d
	11.15 _b	16.38 _e	15.94 _d	8.38 _e

Note. P = precontemplation; C = contemplation; A = action; M = maintenance; Means with different subscripts within the same column differ significantly at the .05 level.

For the 3 cluster solution, there were 237, 155 and 89 individuals across the groups.

For the 5 cluster solution, there were 167, 121, 70, 89 and 34 individuals across the groups.

Compared to the 3 cluster solution, the 5 cluster solution had a markedly larger difference in percentage change. Although the 3 cluster solution had a slightly larger proportion of significant mean differences (92%), it was comparable to the 90% proportion of significant mean differences present in the 5 cluster solution. Thus, it was decided that the 5 cluster solution was the superior solution on a statistical basis. In addition, the 5 cluster solution would be more meaningful on a theoretical level as it will allow a more detailed examination of movement between the stages of change.

The fifth step of cluster analysis was to interpret the clusters. The standardised *T* scores for each stage and percentage of individuals placed into each cluster are presented in Table 5.

Table 5

Standardised T Scores and Proportion of Participants for the Pre-SMP 5 Cluster Solution

Cluster profile	<i>T</i> scores				<i>n</i>	% of total sample
	P	C	A	M		
Cluster 1 (Preparticipation)	46.0	52.0	48.5	49.0	167	35
Cluster 2 (Non- Reflective Action)	52.8	42.1	49.1	46.4	121	25
Cluster 3 (Ambivalent)	64.1	56.6	51.5	54.8	70	15
Cluster 4 (Participation)	41.4	60.5	57.4	59.3	89	18
Cluster 5 (Precontemplation)	53.4	26.9	38.2	33.2	34	7

Note. P = precontemplation; C = contemplation; A = action; M = maintenance

The cluster profiles were compared to profiles identified in past research (see Appendix A Table A1) and ranked based on each profile's position in the stages of change. The five clusters are described below in an order that appears to represent a progression from the least to the most advanced in the stages of change (see Figure 2) for a depiction of the five cluster profiles).

1. Ambivalent (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990; Lewis, 2004). This cluster is composed of 70 individuals. On the URICA subscales, the men in this cluster were above average on precontemplation, slightly above average on contemplation, and average on action and maintenance.
2. Non-Reflective Action (McConaughy et al., 1983). This cluster is composed of 121 individuals. The men in this cluster were average on precontemplation, action and maintenance, and slightly below average on contemplation.

3. Precontemplation (Carney & Kivlahan, 1995; P. J. Cohen et al., 2005; DiClemente & Hughes, 1990; Lewis, 2004; McConnaughy et al., 1989). This cluster is composed of 34 individuals. The men in this cluster were average on precontemplation, well below average on contemplation and maintenance, and below average on action.
4. Preparticipation (Lewis, 2004; McConnaughy et al., 1983). This cluster is composed of 167 individuals. The men in this cluster were average across all the subscales.
5. Participation (Alexander & Morris, 2008; Carney & Kivlahan, 1995; P. J. Cohen et al., 2005; DiClemente & Hughes, 1990; Lewis, 2004; McConnaughy et al., 1989, 1983). This cluster is composed of 89 individuals. The men in this cluster were slightly below average on precontemplation, and slightly above average on the other subscales.

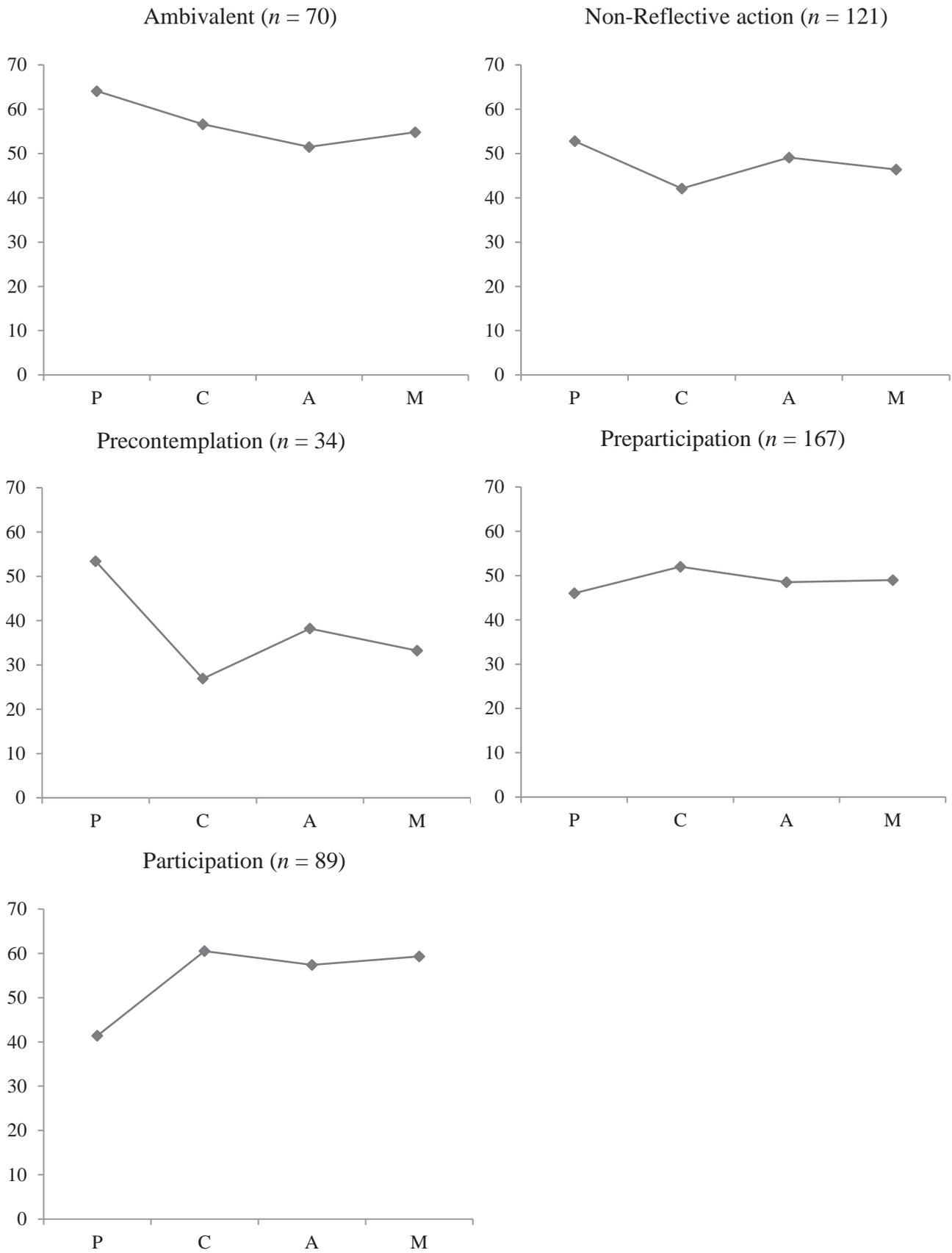


Figure 2. Mean-score distribution for five types of stage profiles at pre-SMP; P = precontemplation; C = contemplation; A = action; M = maintenance.

The Presence of Stage of Change Profiles at Post-SMP

The five steps of cluster analysis were replicated for the post-SMP URICA scores. The objective of cluster analysis at post-SMP was to generate homogenous stage profiles at post-SMP. The same clustering variables selected at pre-SMP will be used at post-SMP. No outliers were found for post-SMP URICA scores and there was no evidence for multicollinearity (see Appendix K Table K1). Thus, each stage was included as a clustering variable into the cluster analysis. The fourth step involved subjecting the post-SMP URICA data to Ward's hierarchical clustering method. The percentage of change in agglomeration coefficients was calculated to determine large relative increments in agglomeration coefficients (see Table 6). For example, the coefficient change going from five to four clusters is 15.1%, and the change going from three to two clusters is 22.4%. The difference in percentage change (7.2%) is relatively large suggesting that a 4 cluster solution can be considered for the post-SMP URICA data. The results suggested that 3, 4 and 6 cluster solutions were possible for the post-SMP URICA data given that these cluster solutions had relatively large differences in percentage change (14.4%, 7.2 and 6.2% respectively). The 1 and 2 cluster solutions were not considered due to a lack of theoretical utility and statistical power.

Table 6

Agglomeration Coefficient Analysis for Ward's Method for Post-SMP URICA scores

No. of clusters	Agglomeration coefficient			
	Current step	Change from last step	% change	Difference in % change
9	6,848.71	641.26	9.4	3.5
8	7,489.97	641.61	8.6	0.8
7	8,131.58	699.52	8.6	0.0
6	8,831.11	1,311.01	14.8	6.2
5	10,142.11	1,534.69	15.1	0.3
4	11,676.81	2,610.07	22.4	7.2
3	14,286.88	5,254.82	36.8	14.4
2	19,541.71	8,398.16	43.0	6.2
1	27,939.87	—	—	—

Note. % change = percentage of change in proportion to the agglomeration coefficient for the current step; % difference = difference in percentage between current and next step.

One-way ANOVAS were conducted on the clustering variables (precontemplation, contemplation, action and maintenance) for the 3, 4 and 6 cluster solutions. The *F* values for each stage in all the solutions were statistically significant, indicating that each of the four stages were reliably distinguished for the 3, 4 and 6 clusters (see Table 7).

Table 7

Analysis of Variance for 3, 4 and 6 Cluster Solutions for Post-SMP URICA Scores

Cluster solution	Stage	<i>df</i>	<i>F</i>
3	P	2	93.25***
	C	2	379.51***
	A	2	53.51***
	M	2	136.89***
4	P	3	269.31***
	C	3	271.46***
	A	3	36.51***
	M	3	103.51***
6	P	5	182.14***
	C	5	313.64***
	A	5	30.43***
	M	5	116.66***

Note. P = precontemplation; C = contemplation; A = action; M = maintenance. *** $p < .001$

Next, Tukey's HSD tests were carried out for the 3, 4 and 6 cluster solutions to determine which group means differ from each other (see Table 8). Results revealed that the 3, 4 and 6 cluster solutions had a number of significant differences across means. Significant mean differences were observed for 92% of the comparisons for the 3 cluster solution, 96% of the comparisons for the 4 cluster solution and 85% of the comparisons for the 6 cluster solution.

Table 8

Tukey HSD Comparisons for Post-SMP Cluster Solutions

Cluster solution	Stage			
	P	C	A	M
3	10.47 _a	30.29 _a	20.88 _a	14.24 _a
	5.50 _b	35.55 _b	23.29 _b	17.40 _b
	10.97 _a	16.73 _c	18.94 _c	9.09 _c
4	8.46 _a	29.65 _a	20.73 _a	13.73 _a
	5.50 _b	35.55 _b	23.29 _b	17.40 _b
	10.97 _c	16.73 _c	18.94 _c	9.09 _c
	14.77 _d	31.66 _d	21.22 _a	15.34 _d
6	7.00 _a	26.67 _a	21.87 _a	11.11 _a
	5.50 _b	35.55 _b	23.29 _b	17.40 _b
	9.12 _c	31.01 _c	20.21 _c	14.92 _c
	10.97 _d	16.73 _d	18.94 _{c, d}	9.09 _d
	14.71 _e	36.23 _b	22.55 _{a, b}	17.26 _b
	14.80 _e	28.88 _e	20.41 _{c, d}	14.18 _c

Note. P = precontemplation; C = contemplation; A = action; M = maintenance; Means with different subscripts within the same column differ significantly at the .05 level.

For the 3 cluster solution, there were 258, 110 and 33 individuals across the groups. For the 4 cluster solution, there were 176, 110, 33 and 82 individuals across the groups. For the 6 cluster solution, there were 55, 110, 121, 33, 31 and 51 individuals across the groups.

The 3 cluster solution had the largest percentage change in the clustering coefficient than the 4 and 6 cluster solutions (14.4% vs 7.2% and 6.2%), suggesting that there is greater between-cluster variation for the 3 cluster solution compared to the other two solutions. The 4

cluster solution had the largest percentage of significant post-hoc comparisons compared to the 3 and 6 cluster solutions (96% vs 92% and 85%), suggesting that the significant differences between the clustering variables for the 4 cluster solution is greater than the other two solutions. It is of note that the 3 cluster solution produced one cluster that contained more than half of the individuals involved in the post-SMP analysis, which was not reflected in previous studies. In comparison to the 6 cluster solution, the 3 and 4 cluster solutions were more superior on a statistical basis. The 4 cluster solution was also more meaningful on a theoretical level than the 3 cluster solution. Thus, it was decided that the 4 cluster solution was the superior solution of the three.

The fifth step of cluster analysis was to interpret the clusters. The standardised *T* scores for each stage and percentage of individuals placed into each cluster are presented in Table 9.

Table 9

Standardised T Scores and Proportion of Participants for the Post-SMP 4 Cluster Solution

Cluster profile	<i>T</i> scores				<i>n</i>	% of total sample
	P	C	A	M		
Cluster 1 (Preparticipation)	48.3	48.4	47.6	47.2	176	44
Cluster 2 (Participation)	40.8	58.4	56.8	58.0	110	27
Cluster 3 (Precontemplation)	54.6	26.4	41.3	33.6	33	8
Cluster 4 (Ambivalent)	64.1	51.8	49.4	51.9	82	21

Note. P = precontemplation; C = contemplation; A = action; M = maintenance

As in the pre-SMP cluster analysis, the post-SMP cluster profiles were compared to profiles identified in past research (see Appendix A Table A1) and ranked according to each profile's position in the stages of change. The four clusters are described below in an order

that shows a progression from the earliest to the most advanced stage of change (see Figure 3 for a depiction of the four cluster profiles).

1. Ambivalent (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990; Lewis, 2004). This cluster comprised 82 individuals. On the URICA subscales, the men in this cluster were above average on precontemplation, and average on contemplation, action and maintenance.
2. Precontemplation (Carney & Kivlahan, 1995; P. J. Cohen et al., 2005; DiClemente & Hughes, 1990; Lewis, 2004; McConaughy et al., 1989). This cluster consisted of 33 individuals. The men in this cluster were slightly above average on precontemplation, well below average on contemplation and maintenance, and slightly below average on action.
3. Preparticipation (Lewis, 2004; McConaughy et al., 1983). This cluster consisted of 176 individuals. The men in this cluster were average across all the subscales.
4. Participation (Alexander & Morris, 2008; Carney & Kivlahan, 1995; P. J. Cohen et al., 2005; DiClemente & Hughes, 1990; Lewis, 2004; McConaughy et al., 1989, 1983). This cluster is composed of 110 individuals. The men in this cluster were slightly below average on precontemplation, and slightly above average on the other subscales.

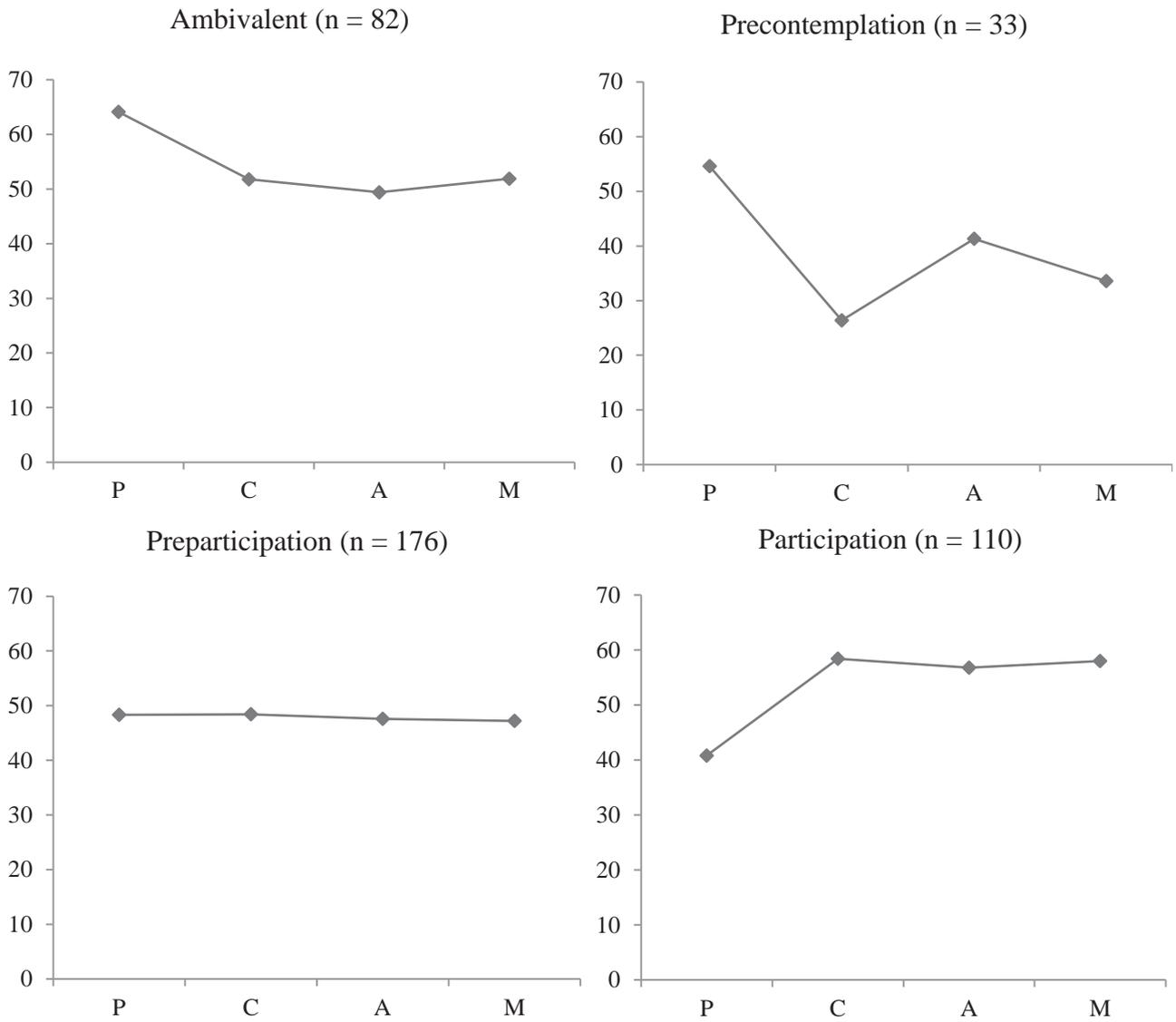


Figure 3. Mean-score distribution for four types of stage profiles at post-SMP; P = precontemplation; C = contemplation; A = action; M = maintenance.

Characteristics of Stage Profiles

Using one-way ANOVAs and chi square analyses, the differences across stage profiles on demographic factors, risk and outcome variables were investigated. As sentence length violated the normality assumption, it was decided that the Kruskal-Wallis test would be used to examine differences in sentence length across the stage profiles. For pre-SMP analyses, Bonferroni correction was performed and differences were only significant at the .005 level (.05/10) (Tabachnick & Fidell, 2007). For post-SMP analyses, Bonferroni correction was performed and differences were only significant at the .008 level (.05/6). The tables in Appendix L demonstrate the distribution of demographic, risk and outcome variables across the stage profiles at pre-SMP and post-SMP.

At pre-SMP, significant differences were observed across stage profiles on sentence length, $\chi^2(4) = 16.91, p = .001$; and setting, $\chi^2(4) = 26.51, p < .001$. At post-SMP, significant differences were observed across stage profiles on sentence length, $\chi^2(3) = 12.77, p = .005$; likelihood of reoffending, $\chi^2(3) = 13.71, p = .003$; and setting of the offenders, $\chi^2(3) = 21.18, p < .001$.

Further analyses were carried out on pairs of categorical variables whereby stage profiles were recoded into separate dummy variables with the particular stage profile being investigated was coded as 1 (e.g., the Precontemplation profile) and those with different profiles were coded as 0; for setting, prison was coded as 1 and community as 0; and for reoffending, 1 is coded as reoffending and 0 is coded as not reoffending. According to Cohen's (1988) standards, an eta squared (η^2) of .01 is classified as a small effect, .06 as a moderate effect and .14 as a large effect; whereas for Cramer's V, Cohen classifies an effect size of .1 as a small effect, .3 as a medium one and .5 as a large one.

At pre-SMP, post hoc analysis revealed significant differences in median sentence lengths between the Precontemplation, $Mdn = 363.50$, and Ambivalent profiles, $Mdn =$

454.50, $p = .001$, at a moderate effect size, $\eta^2 = .10$; and the Precontemplation and Participation profiles, $Mdn = 456.00$, $p = .001$, at a moderate effect size, $\eta^2 = .07$. Further analysis also revealed that only the Participation profile was significantly associated with setting at a small effect size, whereby Participators were more likely to be serving prison-based sentences, Cramer's $V = .20$.

At post-SMP, post hoc analysis revealed significant differences in median sentence lengths between the Precontemplation, $Mdn = 364.00$, and Ambivalent profiles, $Mdn = 508.50$, $p = .002$, at a moderate effect size, $\eta^2 = .08$; and the Ambivalent and Preparticipation profiles, $Mdn = 365.50$, $p = .003$, at a small effect size, $\eta^2 = .03$. Further analysis also revealed that only the Ambivalent profile was significantly associated with reoffending, whereby those with the Ambivalent profile were less likely to reoffend, at a small effect size, Cramer's $V = -.18$. At post-SMP, men with the Precontemplation profile were more likely to be serving community-based sentences, at a small effect size, Cramer's $V = -.19$.

Testing the Presence of Stage Movements Following the SMP (Aim 2)

Movement through the stages from pre- to post-treatment was assessed by comparing participants' URICA scores at pre- and post-SMP using a movement matrix (see Table 10). The same stage profiles were generated at pre- and post-SMP. Of these profiles, the pre-action stage profiles are Precontemplation, Non-Reflective Action and Ambivalent profiles, all of which corresponds to the precontemplation stage. The action-oriented stage profiles are the Preparticipation and Participation profiles, with Preparticipation corresponding to the preparation stage, and Participation to the action stage. Table 11 details the stage profiles involved in the four types of stage movements depicted in Figure 2.

Table 10

Numbers of Participants Moving from Pre-SMP to Post-SMP (n = 401)

Pre Post	Pre-action stages			Action-oriented stages		
	AM	NRA	PC	PP	P	
AM	37	27	2	11	5	
PC	2	8	18	4	1	
PP	13	47	6	90	20	
P	7	10	2	41	50	

Note. AM = Ambivalent; NRA = Non-Reflective Action; PC = Precontemplation; PP = Preparticipation; P = Participation.

Table 11

Stage Movements from Pre-SMP to Post-SMP

Stage movement	Stage profiles	<i>n</i>	% of total sample
Progression within the stages	AM/ NRA/ PC → PP	126	31
	AM/ NRA/ PC → P		
	PP → P		
Regression within the stages	PP → AM/ PC	41	10
	P → AM/ PC		
	P → PP		
Remained in the same pre-action stage	PC → AM/ PC	94	24
	NRA → AM/ PC		
	AM → AM/ PC		
Remained in the same action-oriented stage	PP → PP	140	35
	P → P		

Note. AM = Ambivalent; NRA = Non-Reflective Action; PC = Precontemplation; PP = Preparticipation; P = Participation.

Characteristics of Stage Movements

Using one-way ANOVAs and chi square analyses, the differences across stage movement on demographic factors, risk and outcome variables were investigated. As sentence length violated the normality assumption, the Kruskal-Wallis test would be used to examine differences in sentence length across the stage movements. Bonferroni correction was performed and differences were only significant at the .008 level (.05/6). The tables in Appendix M demonstrate the distribution of demographic, risk and outcome variables across the stage movements. No significant differences were observed across stage movements on the variables examined.

Examining stage profiles and stage movement as predictors of recidivism (Aim 3)

Recidivism is represented as a binary outcome with 1 coded as reoffending and 0 coded as not reoffending. Apart from stage profiles and stage movement being included as predictors of recidivism, the following variables were also included into the model as controls given the evidence in the literature on the relationship of these variables with recidivism: treatment completion, risk variables (i.e., risk of reoffending and crime seriousness scores as assessed on the MUSOS) and demographic variables (i.e., age, ethnicity and sentence length). There is evidence pointing to the relationship between non-completion of rehabilitation programmes and a higher risk of reoffending (McMurrin & Theodosi, 2007; Wormith & Olver, 2002). Age was included as a control variable as the literature suggests that younger offenders are more likely to reoffend (Prochaska & Levesque, 2002). Sentence length has also been found to be related to recidivism whereby shorter sentence lengths have been found to be correlated with recidivism (Friendship, Blud, Erikson, Travers, & Thornton, 2003). Another demographic variable included as a control variable was ethnicity due to the overrepresentation of Māori in the criminal justice system and the higher rates of reoffending reported for Māori (58%) compared to NZ Europeans (45%) (New Zealand Department of Corrections, 2013). Correlations among study variables are provided in Table 12 (for correlations among ethnicity, stage profile and stage movement variables refer to Appendix N Table N1).

The predictor variables in the correlation table and logistic regression were coded as follows: for treatment completion, completion was coded as 1 and non-completion as 0; for ethnicity, the specific ethnicity being investigated was coded as 1 (e.g., Māori) and men who were not of Māori descent were coded as 0; for stage profiles, the particular stage profile being investigated was coded as 1 (e.g., Precontemplation) and those with different profiles were coded as 0; and lastly, for stage movement, the particular stage movement being

investigated was coded as 1 (e.g., progression) and those who did not progress was coded as 0.

Variables which were significantly correlated with recidivism were as follows: age, sentence length, risk of recidivism, completion of the short motivational programme, MUSOS scores at pre-SMP, the “other” ethnicity group, the pre-SMP and post-SMP Ambivalent profile, and lastly, staying in the same pre-action stage.

Three separate logistic regression analyses were performed to ascertain the effects of stage profiles at pre- and post-SMP, and stage movement on recidivism, while controlling for the risk and demographic variables stated earlier. Multicollinearity assessment revealed that the correlations between the predictor variables for the regression model were all below .7 and variance inflation factors (VIF) were all below 4. There was a slightly high correlation between the post-SMP Ambivalent profile and remaining in the same pre-action stage (.68), but this was still below .7. Linearity of the continuous variables with respect to the logit of the dependent variable for the three models were assessed using the Box-Tidwell (1962) procedure. Based on this assessment, all the continuous predictor variables were found to be linearly related to the logit of recidivism.

Table 12
Intercorrelations Among Study Variables

Variable	1	2	3	4	5	6
1. Recidivism	—					
2. Age ^a	-.19***	—				
3. Sentence length	-.21***	.11*	—			
4. RoC*RoI ^a	.28***	-.26***	.07	—		
5. SMP completion ^a	-.09*	.04	.07	-.04	—	
6. MUSOS T1 ^a	-.12**	-.11*	.50***	.09*	.01	—
Ethnicity ^a						
7. NZ Māori	.06	-.01	-.03	.11*	-.04	.01
8. NZ European	-.01	-.05	-.01	-.02	.07	-.10*
9. Pacific Islander	-.01	-.11*	.10*	-.06	-.05	.16***
10. Other	-.12*	.06	-.03	-.14*	.01	-.03
T1 stage profiles ^a						
11. AM	-.10*	.09	.02	.03	.01	-.01
12. NRA	-.01	-.10*	-.05	.06	-.11*	-.03
13. PC	-.06	.02	-.07	-.09*	-.01	-.05
14. PP	.08	.04	.01	-.12*	.08	-.01
15. P	.03	-.04	.07	.11*	.03	.07
T2 stage profiles ^b						
16. AM	-.18***	.03	.11*	-.02	—	.10*
17. PC	.03	-.07	-.10	-.04	—	.04
18. PP	.06	.05	-.09	-.05	—	-.08
19. P	.08	-.03	.06	.09	—	-.03
Stage movement ^b						
20. Progressed	.05	-.01	-.07	-.04	—	-.12*
21. Regressed	.01	-.02	.01	-.01	—	.07
22. Stayed in PA stage	-.15**	-.01	.04	-.01	—	.07
23. Stayed in AO stage	.07	.03	.03	.04	—	.01

Note. RoC*RoI = risk of recidivism by risk of reincarceration scale scores; SMP = short motivational programme; MUSOS = Massey University Seriousness of Offence Scale; T1 = pre-SMP; T2 = post-SMP; AM = Ambivalent; NRA = Non-Reflective Action; PC = Precontemplation; PP = Preparation; P = Participation; PA = pre-action; AO = action-oriented.

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

^a $N = 481$. ^b $n = 401$.

Stage profiles at pre-SMP and recidivism. The logistic regression model predicting the effects of pre-SMP stage profiles while controlling for the other variables (i.e., age, ethnicity, sentence length, RoC*RoI scores, pre-SMP MUSOS scores and SMP completion) on recidivism was statistically significant, $\chi^2(12) = 87.16, p < .001$. The Hosmer Lemeshow goodness of fit of the model test was not significant, $\chi^2(8) = 6.26, p = .62$, indicating that there was an adequate model fit. The model explained 24.8% (Nagelkerke R^2) of the variance in recidivism and correctly classified 78.6% of cases. Sensitivity was 94.3% and specificity was 28.7%. With Preparticipation as the baseline profile, the pre-SMP profiles which significantly predicted recidivism were the Ambivalent, Non-Reflective Action and Precontemplation profiles (see Table 13). Compared to the Preparticipation profile, men with the Ambivalent profile had 67% lower odds of reoffending, those with the Non-Reflective Action profile had 52% lower odds of reoffending; and those with the Precontemplation profile had 60% lower odds of reoffending. Refer to Appendix N Table N2 for logistic regression findings for the control variables.

Table 13

Logistic Regression for Pre-SMP Stage Profiles Predicting Recidivism (n = 481)

Predictor	<i>B</i>	<i>SE</i>	Wald statistic	<i>p</i>	95% CI	<i>OR</i>
Pre-SMP stage profiles						
AM	-1.13	.36	9.83	.002	[.16, .66]	.33
NRA	-.74	.33	5.00	.025	[.25, .91]	.48
PC	-.93	.47	3.89	.049	[.16, .99]	.40
P	-.48	.36	1.72	.19	[.30, 1.27]	.62
PP ^a	—	—	—	—	—	1.00

Note. These findings controlled for effects of age, crime seriousness, risk of reoffending, sentence length and ethnicity on reoffending. CI = confidence interval for odds ratio (*OR*). AM = Ambivalent; NRA = Non-Reflective Action; PC = Precontemplation; PP = Preparticipation; P = Participation.

^aReference sub-group.

Stage profiles at post-SMP and recidivism. The logistic regression model predicting the effects of post-SMP stage profiles and the other variables (i.e., age, ethnicity, sentence length, RoC*RoI scores and pre-SMP MUSOS scores) on recidivism was statistically significant, $\chi^2(10) = 79.82, p < .001$. The Hosmer Lemeshow goodness of fit of the model test was not significant, $\chi^2(8) = 3.56, p = .90$, indicating that there was an adequate model fit. The model explained 26.5% (Nagelkerke R^2) of the variance in recidivism and correctly classified 78.8% of cases. Sensitivity was 94.0% and specificity was 35.0%. With Preparticipation as the baseline profile, the post-SMP profile which significantly predicted recidivism was the Ambivalent profile (see Table 14). Compared to the Preparticipation profile, men with the Ambivalent profile had 57% lower odds of reoffending. Refer to Appendix N Table N3 for logistic regression findings for the control variables.

Table 14

Logistic Regression for Post-SMP Profiles Predicting Recidivism (n = 401)

Predictor	<i>B</i>	<i>SE</i>	Wald statistic	<i>p</i>	95% CI	<i>OR</i>
Post-SMP stage profiles						
AM	-.85	.32	7.13	.008	[.23, .80]	.43
PC	.08	.52	.02	.88	[.39, 3.00]	1.08
P	.14	.34	.16	.69	[.59, 2.21]	1.15
PP ^a	—	—	—	—	—	1.00

Note. These findings controlled for effects of age, crime seriousness, risk of reoffending, sentence length and ethnicity on reoffending. CI = confidence interval for odds ratio (*OR*). AM = Ambivalent; PC = Precontemplation; PP = Preparticipation; P = Participation.

^aReference sub-group.

Stage movement and recidivism. The logistic regression model predicting the effects of stage movement and the other variables (i.e., age, ethnicity, sentence length, RoC*RoI scores and pre-SMP MUSOS scores) on recidivism was statistically significant, $\chi^2(10) = 78.31, p < .001$. The Hosmer Lemeshow goodness of fit of the model test was not significant, $\chi^2(8) = 7.93, p = .44$, indicating that there was an adequate model fit. The model explained 26.1% (Nagelkerke R^2) of the variance in recidivism and correctly classified 77.3% of cases. Sensitivity was 93.3% and specificity was 31.1%. With remaining in the same action-oriented stage as the baseline movement, the stage movement which significantly predicted recidivism was staying in the same pre-action stage (see Table 15). Compared to men who remained in the same action-oriented stage, those who remained in the same pre-action stage had 58% lower odds of reoffending. Refer to Appendix N Table N4 for logistic regression findings for the other variables.

Table 15

Logistic Regression for Stage Movement Predicting Recidivism (n = 401)

Predictor	<i>B</i>	<i>SE</i>	Wald statistic	<i>p</i>	95% CI	<i>OR</i>
Stage movement						
Progressed	-.13	.33	0.16	.69	[0.46, 1.68]	0.88
Regressed	-.11	.47	0.05	.82	[0.36, 2.25]	0.90
Stayed in PA stage	-.88	.33	7.07	.008	[0.22, 0.80]	0.42
Stayed in AO stage ^a	—	—	—	—	—	1.00

Note. These findings controlled for effects of age, crime seriousness, risk of reoffending, sentence length and ethnicity on reoffending. CI = confidence interval for odds ratio (*OR*); PA = pre-action; AO = action-oriented.

^aReference sub-group.

Chapter Six: Discussion



The overarching goal of this study was to investigate the stages of change profiles in a group of general male offenders. This study investigated the stage profiles before and after an intervention called the Short Motivational Programme (SMP), and stage movements following the SMP. It also explored the effects of stage profiles and stage movement on recidivism. This chapter summarises the major findings of this study and discusses these in relation to other research. It also discusses the limitations of the present study, suggestions for future research, strengths and implications of the study findings.

Stage Profiles in a Group of General Male Offenders

Distinct homogenous stage profiles that reflected the stages of change were generated before and after the SMP. Profiles representing the precontemplation, preparation and action stages were elicited in this study, however, no distinct profiles representing the contemplation and maintenance stages were generated from the data. Prior to the SMP, the Ambivalent, Non-Reflective Action, Precontemplation, Preparticipation and Participation profiles were identified. At pre-SMP, nearly half of the sample (47%) had profiles representative of the precontemplation stage (i.e., Ambivalent, 15%; Non-Reflective Action, 25%; and Precontemplation, 7%). 35% of men had the Preparticipation profile which represented the preparation stage, while 18% had the Participation profile which represented the action stage. At post-SMP, the same profiles identified before the SMP were identified except for the Non-Reflective Action profile. Following the SMP, there was a slightly lower proportion of men with profiles representative of the precontemplation stage whereby they now comprised about one-third of the post-SMP sample (i.e., Ambivalent, 21%; and Precontemplation, 8%). The proportion of men with the Preparticipation (44%) and Participation (27%) profiles had also increased slightly.

The Ambivalent profile (*ambivalent precontemplators*) has been elicited in samples of individuals seeking treatment for substance abuse (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990) and in a group of violent offenders (Lewis, 2004). Ambivalent precontemplators strongly endorsed (i.e., above average scores) the precontemplation subscale, and moderately endorsed (i.e., average scores) the other subscales. They appeared to perceive themselves as making an active effort to change their offending behaviour and acknowledged that their offending behaviour was problematic. However, their strong endorsement of conflicting items on the precontemplation subscale demonstrated that they were in “two minds” about changing their offending behaviour (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990; Lewis, 2004). Prochaska and Levesque (2002) stated that this “love-hate” relationship with changing their offending behaviour is often accompanied by “behavioural procrastination” and can cause individuals to remain stuck in this stage for lengthy periods of time.

The Non-Reflective Action profile (*unreflective precontemplators*) was elicited in a group of individuals seeking psychological therapy (McConaughy et al., 1983), but since then, had not been replicated. This profile also represents the precontemplation stage. Unreflective precontemplators appeared to perceive themselves as working on their offending problems and maintaining these changes (average scores on the action and maintenance subscales). At the same time, they appeared to be unwilling to address their offending problems (average score on the precontemplation subscale), and did not see the need to seek help to change them (below average score on the contemplation subscale). Such a profile is not surprising within this population as the majority of the men were mandated by court to attend the SMP. Externally, offenders with this profile may appear to be engaged in change, but may lack intrinsic motivation to make positive changes and sustain them. In other words, these men may be “going through the motions” whereby they may have participated in the

SMP with minimal acknowledgement and contemplation over the seriousness of their offending problems.

The Precontemplation profile (*resistant precontemplators*) has been elicited in samples of individuals seeking treatment for substance abuse (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990), therapy clients (McConaughy et al., 1989), incarcerated adolescents (P. J. Cohen et al., 2005) and violent offenders (Lewis, 2004). This profile is characterised by a moderate endorsement on the precontemplation subscale (average score on precontemplation) and a weak endorsement of the other subscales (well below average scores on the contemplation and maintenance subscales, and a below average score on the action subscale). Of the three subtypes of precontemplators in this study, resistant precontemplators endorsed items which demonstrated the lowest investment and engagement in working on their offending problems. This finding suggested that they may be more likely to show active opposition towards change given that they mainly endorsed items which reflected resistance towards changing their offending behaviour and an unwillingness to acknowledge the seriousness of it. Earlier researchers who discovered this profile stated that these resistant precontemplators were maintaining the status quo with respect to their problems and reluctant to employ the resources needed to change (P. J. Cohen et al., 2005; DiClemente & Hughes, 1990).

The Preparticipation profile (*preparticipators*) has been found in groups of individuals seeking psychological therapy (McConaughy et al., 1983) and violent offenders (Lewis, 2004). Preparticipators moderately endorsed (i.e., average scores) on all the subscales. Past researchers have conceptualised this profile as being representative of the preparation stage. Offenders with this profile appeared to acknowledge the presence of their offending problems, expressed intentions to make changes and maintain them, and are likely to have taken small steps to change their offending problems (Lewis, 2004; McConaughy et

al., 1983). Although not pointed out by past studies, preparticipators also endorsed the precontemplation subscale (though not as strongly as men with the Ambivalent profile), indicating that they have not completely resolved their ambivalence towards changing. This finding was supported by DiClemente and Velasquez (2002) who observed that those who were prepared for action still had some ambivalence around changing their behaviours. Moreover, although committed to making changes in the near future, preparticipators still need to develop a workable change plan, and invest significant time and effort to work on their offending problems before they can achieve lasting change (Prochaska & Levesque, 2002).

The Participation profile (*participators*) has been generated in studies involving individuals seeking treatment for substance abuse (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990), individuals seeking psychological therapy (McConaughy et al., 1989, 1983), incarcerated adolescents (P. J. Cohen et al., 2005), violent offenders (Lewis, 2004) and domestic violence offenders (Alexander & Morris, 2008). This profile mapped well onto the action stage as men with this profile had a slightly below average score on the precontemplation subscale, and slightly above average scores on the other subscales. Similar to preparticipators, participators perceived themselves as having acknowledged the seriousness of their offending behaviour and were ready to seek help to change them. However, their below average endorsement on the precontemplation subscale suggested that they would have resolved most of their ambivalence towards changing, and were more invested and engaged in working on their offending problems. Prochaska and Levesque (2002) stated that offenders within the action stage would be making concrete behavioural changes to their offending behaviour and that these changes were sufficient to decrease the risk of harm to others or themselves.

Differences in demographic and risk variables across stage profiles

These stage profiles did not differ significantly across age, ethnicity, risk of reoffending, seriousness scores and SMP completion. Conversely, stage profiles differed significantly across sentence length and setting.

Previous studies with offenders and non-offenders have mainly found non-significant associations between stage profiles and a range of demographic and risk variables, including age, ethnicity and risk of recidivism (Alexander & Morris, 2008; Eckhardt et al., 2008; El-Bassel et al., 1998; Lewis, 2004). No earlier studies have investigated how stage profiles related to crime seriousness, sentence length and setting. These findings suggest that offenders' stage profiles are independent of demographic and risk variables, and that varying levels of readiness to change exist across offenders of different ages, ethnicities, risks of reoffending and crime seriousness.

There has been mixed findings on the relationship between stage profiles and treatment participation, and previous studies have only looked at the completion of action-oriented interventions as opposed to motivational interviewing programmes (Blanchard et al., 2003; Lewis, 2004; Petry, 2005; Willoughby & Edens, 1996). As SMP participation was court-mandated for men in this study, legal coercion may account for the high and similar retention rates (ranged from 76% to 87% across the stage profiles). Another possible explanation for this finding was that men across the different stage profiles benefitted from the SMP. Previous research has found evidence for the effectiveness of motivational interviewing across the different stages of change, highlighting that a continued emphasis on facilitating motivation to change will help to increase self-efficacy and maintain behaviour changes (DiClemente & Velasquez, 2002). Changes in motivation across different stage profiles following the SMP will be further discussed in the next section. Thirdly, it is possible that the use of a binary outcome for SMP completion may lack the sensitivity to accurately

measure the relationship with stage profiles. For example, a study by Lewis (2004) studied this relationship by looking at a range of group behaviours such as punctuality, participation, self-disclosure, emotional expression and ability to provide constructive feedback and receive feedback. She found that the Decision-Making, Preparticipation and Participation profiles showed more consistent improvement throughout treatment compared to the pre-action profiles. However, there is still insufficient evidence in the literature to clarify the relationship between stage profiles and treatment completion. Another probable explanation according to Blanchard et al. (2003) is that the adaptation of the URICA in this study was not directly assessing motivation to engage in treatment, but motivation to change offending problems. Their research which employed a URICA measure which assessed motivation to change substance use behaviours also did not find a relationship between stage profiles and treatment attendance.

Men with different stage profiles did differ significantly across sentence lengths and setting. However, a closer look at these differences revealed very similar sentence lengths (medians of 12 to 15 months). There was a larger proportion of Participants who were serving prison-based sentences (81%) while the other profiles had similar proportions of men in the community and prison. It is interesting that the most highly-motivated stage profile in the present study comprised mainly of offenders who were incarcerated. According to the multifactor offender readiness model (T. Ward, Day, Howells, & Birgden, 2004), location (community vs prison) can influence on offenders' opportunities to learn and make meaningful decisions, and subsequently, their motivation to change. It is possible that the structured prison environment as well as the availability of support from Corrections staff may have meant that offenders faced less temptation to engage in offending behaviour and had more access to support, which may have increased their motivation to work on their offending problems. The stages of change model proposed that stage-matching interventions

lead to better outcomes (Prochaska et al., 1993). This finding demonstrated that there was a sizeable proportion of incarcerated offenders who were in the action stage, indicating that they may benefit from action-oriented intervention. Hence, this finding also points to the need to provide adequate psychological resources while offenders are incarcerated.

Stage profile findings in comparison to offending and non-offending populations

At pre-SMP, the stage profiles elicited were primarily representative of the precontemplation stage whereby nearly half of the sample had precontemplation-oriented profiles. This finding was in line with earlier studies with offenders prior to receiving an intervention which also found that around half to three-fourths of their sample had profiles representing the precontemplation stage. They involved groups of incarcerated adolescents (P. J. Cohen et al., 2005), domestic violence offenders (Alexander & Morris, 2008), violent offenders (Lewis, 2004) and incarcerated drug-using women (El-Bassel et al., 1998). These previous studies with offenders had also elicited the Preparticipation and Participation profiles which comprised a smaller proportion of their sample compared to precontemplation-oriented profiles. Cluster analytic studies with non-offending populations seeking treatment have also found that a large proportion of their samples (i.e., one-third to half) generating profiles representing the Precontemplation stage (Carney & Kivlahan, 1995; DiClemente & Hughes, 1990; McConaughy et al., 1989, 1983) with a smaller proportion in profiles representing the other stages.

In addition, the presence of different of precontemplation-oriented profiles supported DiClemente and Velasquez's (2002) notion of precontemplation subtypes. This study found ambivalent precontemplators (Ambivalent profile) who feel two ways about their offending behaviour whereby they have arguments for and against changing their behaviour; unreflective precontemplators (Non-Reflective Action profile) who may have participated in the SMP without reflecting on their need to change their behaviour; and resistant

precontemplators (Precontemplation profile) who were resistant towards change, and unwilling to make an effort to change and contemplate the seriousness of their offending behaviour. This finding also underscores the importance of not only identifying an offender's stage of change, but also, the underlying reasons why they were at that level of readiness to change. By guiding offenders to explore their personal reasons for not wanting to change, this defuses their resistance and supports them to take responsibility or ownership over their decision to change (Miller & Rollnick, 2013).

Noticeably absent in the stage profiles at pre- and post-SMP were profiles representing the contemplation and maintenance stages. The absence of these stages is concurrent with past cluster analytic studies with offenders (e.g., Lewis, 2004). On the other hand, studies with non-offenders have generated stage profiles representative of the contemplation and maintenance stages (e.g., McConaughy et al., 1989). In discussing the absence of the Contemplation profile within the offending population, Levesque et al. (2000) proposed that a non-clinical sample within the community would be needed to obtain a "true" Contemplation profile (i.e., above average scores on the contemplation subscale and below average to average scores on the remaining subscales). Another explanation for this finding is that perhaps there is no "true" contemplation stage within the offending population, but instead, a "more advanced" precontemplation stage characterised by simultaneous involvement in the precontemplation and contemplation stages whereby an offender faces ambivalence about changing their offending behaviour. Here, they will need to wrestle with and resolve their ambivalence about leaving their criminal lifestyle before they can progress to an action-oriented stage (Ginsburg et al., 2002). The profile generated in this study that most closely reflects engagement in both the precontemplation and contemplation stages is the Ambivalent profile as men in this profile showed moderate to strong endorsements of both the precontemplation and contemplation subscales. This suggests that while they were

resistant towards changing, they were also open to contemplating making positive changes to their offending behaviour.

The absence of the Maintenance profile suggested that men in this study did not perceive themselves to be consistently using helpful skills and developing new patterns of behaviours to manage their offending problems. This finding was expected as participants may not have had sufficient time to make and sustain changes, and some may have yet to engage in more intensive action-oriented interventions. Levesque et al. (2000) also contended that cluster analytic research with offenders have mainly involved those who were still serving their individual sentences, and that to obtain the Maintenance profile, studies will need to also include offenders who have completed treatment programmes as well as those in the community who have not reoffended for some time.

The stage profiles generated in this study at pre- and post-SMP were consistent with profiles found in previous studies (see Appendix A Table A1). Distinct homogenous stage profiles were elicited in this study's sample of general male offenders, and they mapped well onto the stages of change as it reflected qualitatively different levels of readiness to change. It was apparent from this study's findings that majority of offenders were resistant towards changing their offending behaviour while a smaller proportion were preparing for change as well as already making an effort to change. The absence of profiles representing the contemplation and maintenance stages was in line with previous research with offenders, suggesting that the offenders are not usually only contemplating change, but are often in "two minds" about changing and not changing. Thus, the presence of these stage profiles at both pre- and post-SMP lends evidence for the validity of these stage profiles across differing offending populations.

Movement across Stage Profiles following the SMP

While the purpose of this study was not directed at examining the effectiveness of the SMP, the changes in stage profiles following the SMP is an important consideration in understanding how motivation in offenders might change following a brief motivational intervention. The second aim was to examine stage movements following the SMP. Men in the present study showed all the four movements predicted by the stages of change (SoC) model: progression, regression, remaining in the same pre-action stage and remaining in the same action-oriented stage. Stage movements were independent of age, ethnicity, risk of reoffending, crime seriousness, setting and sentence length. This section discusses findings related to the second aim and explores how offenders with different stage profiles responded to the SMP.

To date, the only study that has investigated stage profile movement following an intervention is the study by Lewis (2004). She investigated movement in stage profiles following an aggressive behaviour intervention for violent offenders. Using stage profiles pre- and post-treatment, she also found the same ranges of movement elicited in this study. However, it appeared that the men in this study showed better treatment responsivity compared to Lewis' action-oriented intervention. The present study demonstrated a higher proportion of offenders who progressed (31% vs 22%) and a higher proportion of offenders who remained in the same action-oriented stage (35% vs 24%). Compared to the study by Lewis (2004), the present study also showed lower proportions of offenders who remained in pre-action stages (24% vs 36%) and regressed (10% vs 24%). These findings provide evidence for incorporating a motivational interviewing approach with offenders as it plays an important role in preparing offenders for more intensive action-oriented programmes. It is possible that the SMP was a better match for the motivational needs of the offenders than the

aggressive behaviour intervention programme in the study by Lewis (2004), thus, resulting in greater responsivity to the intervention.

Apart from that, the movements demonstrated by pre-SMP stage profiles following the SMP also provided insight into the nature of these profiles and how motivational interviewing can be applied to the different needs of these individuals. Following the SMP, the same pre-SMP stage profiles were generated except for the Non-Reflective Action profile. A closer inspection of the men who had this profile at pre-SMP showed that majority of them progressed to an action-oriented stage (62%) while the remaining stayed in the precontemplation stage. In contrast, ambivalent and resistant precontemplators largely remained in the precontemplation stage. Unreflective precontemplators may present as men who were “going through the motions”, and may not feel that change is their responsibility. Nonetheless, of the three subtypes of precontemplators, this finding suggested that unreflective precontemplators may be the most open to contemplating and committing to change. Being more open to making changes, unreflective precontemplators may have found both the motivational interviewing and cognitive behavioural content of the SMP helpful in exploring their apathy towards change and gaining more insight into factors associated with their offending behaviour. It is also possible that the SMP may have encouraged these men to take responsibility over their own decision to change, thus, increasing their readiness to change.

In comparison to the other profiles, ambivalent and resistant precontemplators appeared to be the least responsive to the SMP as they recorded a significantly higher proportion of men who remained unmotivated to change (i.e., 66% and 71% respectively). This finding suggested that the SMP may not have been as good a fit with these men compared to men with the other profiles. While the SMP incorporates MI principles, some sessions appeared to be targeted towards individuals within action-oriented stages as it

focuses on goal-setting, understanding contributors to reoffending, exploring barriers to change and developing a change plan. Austin (2012) examined change talk in offenders during the SMP. In his study, he found that there was a decrease in change talk during SMP sessions incorporating cognitive behavioural material, showing their resistance towards acting on any insights acquired. He may have been describing ambivalent and resistant precontemplators in his study. Compared to unreflective precontemplators, these two subtypes of precontemplators appeared to be less open to work on their offending problems. Thus, when programme facilitators encouraged them to plan and prepare for change during the SMP, it is likely to have evoked resistance. In addition, some researchers have proposed that ambivalent precontemplators can remain stuck in their indecision for months to years (Prochaska & Levesque, 2002), suggesting that these men may require longer than five weeks to resolve their ambivalence. Without resolving their ambivalence, these men would be less likely to act on skills taught in action-oriented programmes. To tip the decisional balance in favour of leaving their criminal lifestyle, offenders will need to realistically examine the costs and benefits of changing their offending behaviour, and develop a discrepancy between their current ambivalence and desired goals (Ginsburg et al., 2002).

Compared to the other subtypes of precontemplators, resistant precontemplators showed the least participation in contemplating and acting on change, and may be the group which demonstrates more active opposition towards change. This suggested that they may be heavily invested in their offending behaviour and were unwilling to consider change. As a result, introducing more action-oriented strategies may evoke greater resistance towards change. Rather than teaching these men new skills, facilitators need to take more of an MI stance by rolling with resistance and providing these men with more opportunities to freely articulate their strong feelings about change while supporting their autonomy over their decision to change (DiClemente & Velasquez, 2002). When working with a resistant

precontemplator who expresses no intention to change, Miller and Rollnick (2013) proposed that the task of the therapist is to work with the client to create ambivalence. They stated that this process would involve gradually instilling discrepancy between their current offending problems and their values. Some ways this can be done include exploring clients' goals and values, imagining extremes (e.g., "how would things be different if you were successful in changing?"), and exploring pros and cons of their behaviour.

At post-SMP, the majority of men with the Preparticipation profile had the same stage profile (62%), while 28% progressed to action (represented by the Participation profile) and 10% regressed to precontemplation (i.e., represented by the precontemplation-oriented profiles). This finding suggested that the SMP was a good match for offenders who were preparing for change. Some researchers have proposed that while those in the preparation stage are ready to make changes within the near future, they do not necessarily have a workable plan of action on how to make these changes and may still experience some ambivalence towards changing (DiClemente & Velasquez, 2002; Prochaska & Levesque, 2002). Hence, facilitators need to focus on guiding them to resolve any remaining ambivalence, support their self-efficacy by identifying potential barriers to change and successful attempts to change in the past, and work collaboratively with them to make a concrete and realistic change plan. Those who progressed to action may have found the SMP helpful in developing a concrete and realistic change plan, whereas those who remained in the preparation stage may require more time to prepare for change and troubleshoot potential barriers.

The last profile, Participation, was the profile which showed the greatest motivation to change in this study. Participants perceived themselves as investing significant time and effort into their plans for change. A large proportion of Participants (66%) remained in the same stage after the SMP, while the remaining regressed to an earlier stage. The large

proportion of Participants who remained in the action stage following the SMP lends support to DiClemente and Velasquez's (2002) argument that motivational interviewing approaches can be helpful for individuals in action-oriented stages, as it builds self-efficacy and affirms efforts that are already in place. Of the Participants who regressed to an earlier stage, the majority regressed to the preparation stage (77%) while the remaining regressed to the precontemplation stage. Yong et al. (2015) proposed the notion that the SMP may have heightened offenders' awareness and understanding of their offending behaviour, which may have resulted in greater accuracy of self-reports after completing the SMP. Hence, it is plausible that these offenders who regressed may have come to realise at post-SMP that they were not actively engaged in any form of overt change and would need to begin to contemplate change and develop a workable plan of action to move forward.

Therefore, the present findings suggest that stage profiles were useful in measuring a range of movement following the SMP. It also appears that the ambivalent and resistant precontemplators may have benefitted from less action-oriented strategies and more opportunities to explore their resistance and ambivalence towards change. However, it is important to note that greater shifts in motivation were observed in response to the SMP in this study as opposed to the more intensive aggressive behaviour intervention programme investigated by Lewis (2004). In addition, the SMP appeared to benefit offenders across earlier as well as later stages of change, suggesting that a motivational interviewing approach is a helpful way to prepare offenders for action-oriented rehabilitation programmes, and they would likely benefit from continued integration of MI principles with these more intensive interventions.

Reoffending and the Stages of Change

The present study found that at pre-SMP, men with the three precontemplation-oriented profiles: Ambivalent, Non-Reflective Action and Precontemplation, were less likely

to reoffend than men with the Preparticipation profile. At post-SMP, however, only men with the Ambivalent profile were less likely to reoffend than men with the Preparticipation profile. This study concurrently found that those who remained in pre-action stages were more likely to reoffend than those who remained in action-oriented stages following the SMP.

While these findings were anomalous, it is not uncommon in the field of addictions which have found mixed findings on the relationship between stage profiles and the severity of addictive behaviours. There is some evidence for more highly-motivated stage profiles being associated with greater employment of change strategies and lower severity of addictive behaviours (Petry, 2005; Rosen et al., 2001). However, other studies have also found no differences in severity of addictive behaviours across stage profiles (Blanchard et al., 2003; El-Bassel et al., 1998; Willoughby & Edens, 1996), as well as less-motivated stage profiles being associated with less severe outcomes (Carney & Kivlahan, 1995; Li et al., 2011). For instance, men with the Ambivalent profile reported lower gambling debt in comparison to those with Preparation and Action profiles (Petry, 2005); and men with less-motivated stage profiles were found to have fewer referrals to inpatient treatment and endorsed lower severity for substance use compared to those with highly-motivated stage profiles (Carney & Kivlahan, 1995; Li et al., 2011). A review of the literature only found three earlier studies with offenders that have investigated the relationship between stage profiles and reoffending (Alexander & Morris, 2008; Eckhardt et al., 2008; Lewis, 2004). Contrary to the present study's findings, Lewis (2004) did not find any association between stage profiles at pre- and post-treatment with post-release recidivism. She did, however, find that less-motivated post-treatment stage profiles were associated to a small degree with greater institutional misconduct. Alexander and Morris' (2008) study examined post-treatment stage profiles of batterers and found that men with a stage profile resembling the Participation profile reported greater partner violence than those with a profile resembling the

Immotive profile, however, there were no differences in partner-reported violence across the profiles. This finding suggested that they did not differ in violent behaviour, but only with respect to their self-assessment of their violent behaviour. Eckhardt et al. (2008) investigated pre-treatment stage profiles in a group of men participating in a batterer intervention programme. They did not find a statistically significant association between pre-treatment stage profiles and reconviction (for any offence), but found that the Decision-Making profile (representative of the preparation stage) was associated with higher self-reported partner violence compared to the Reluctant, Unprepared Action and Preparticipation profiles. However, their study has limited comparability to the present study as it employed a qualitatively different domestic violence adaptation of the URICA.

The present study's findings provided further insight into the characteristics of men with the Preparticipation and Participation profiles. In fact, these findings raise questions on whether past studies have accurately conceptualised both stage profiles. Earlier studies have not taken into consideration that preparticipators' average scores across all the subscales demonstrated that they were also endorsing conflicting items on the precontemplation subscale. The nature of their responses reflected that they may still be experiencing a level of ambivalence towards changing as well as a lack of clarity and awareness on what constitutes successful behaviour change and the challenges involved along the way. On the surface, preparticipators may express commitment and readiness to change, but these findings suggest that preparticipators may be less ready to work on their offending problems than initially proposed and less likely to benefit from action-oriented interventions. Facilitators may be inclined towards encouraging these men to engage in more intensive action-oriented programmes. However, before action-oriented programmes are introduced to these men, these findings suggest that they may require more help to resolve their ambivalence, and select meaningful and achievable goals. In addition, Miller and Rollnick (2013) pointed out

that clients experiencing ambivalence to change can remain stuck in their ambivalence if they feel that the discrepancy between their current problem behaviour and their own values are too large. They also stated that a lack of self-efficacy can contribute to a large level of discrepancy, and can impede on offenders' readiness and confidence to change. This demonstrates the importance of supporting offenders' self-efficacy to work on their offending problems.

With regards to participants, it is possible that their readiness to work on their offending problems may be a result of external motivation as opposed to intrinsic motivation. Consequently, participants who tended to work on their offending problems to obtain external incentives may become unmotivated to continue working on them once they attain their desired incentives. For example, those who were engaging in rehabilitation programmes to obtain an earlier release may lose their motivation to sustain these changes once they complete their sentence and instead, return to their old criminal lifestyle.

Along a similar vein, these findings suggest that men with the precontemplation-oriented profiles may have made more realistic appraisals of their readiness to change, whereas those with the Preparticipation and Participation profiles may be overestimating their intentions and efforts to work on their offending problems. Subsequently, these precontemplators may have a better awareness of what may be involved in changing their offending behaviour, resulting in a lower likelihood of reoffending. This finding further highlights the need to help offenders more accurately appraise how ready they are to work on their offending problems. It is important to note, however, that these possible explanations are speculations and further research such as offender change talk is needed to draw firmer conclusions.

It is also possible that there were other potential mediating factors that may be related to these stage profiles which accounted for the unexpected findings in this study. For

example, self-efficacy (Wells-Parker, Kenne, Spratke, & Williams, 2000) and other risk factors such as personality disorders, previous criminal history, substance use, previous unemployment and family circumstances have been found to be associated with reoffending (Paul Gendreau, Little, & Goggin, 1996; Makarios, Steiner, & Travis, 2010; Olver, Stockdale, & Wormith, 2011; Serin, Lloyd, Helmus, Derkzen, & Luong, 2013).

Overall, these findings are difficult to interpret, but they suggest that offenders who perceive themselves to be in the action-oriented stage may need further support in clarifying their readiness to change and understanding what is involved in effective change so that they will be more aware of future barriers to change, and have greater self-efficacy in resolving those barriers and maintaining previous changes made.

Limitations of the Present Study

There are a number of limitations to the present study which need to be considered in light of the findings.

The absence of a controlled wait-list group of offenders would have been useful to assess whether movement across stage profiles were directly attributable to the SMP. However, it is important to note that this study was not conducted with the intention to assess the effectiveness of the SMP.

Another limitation of this study is that recidivism may have been influenced by participation in other rehabilitative programmes (Marquis, Bourgon, Armstrong, & Pfaff, 1996), which was not controlled for in the regression analysis. Engagement in multiple interventions, however, is a common occurrence among offenders within the New Zealand Corrections system, so it is possible that a large proportion of offenders in this study may have participated in a number of other programmes apart from the SMP, which may have contributed to changes in their stage profiles.

Offenders in this study had at least 18 months post-release, but their post-release time varied between 18 months to as long as 80 months. The varied time in the community among the offenders suggested that some had a longer chance to reoffend compared to those who were released for a longer time. However, there is evidence indicating that reconviction tends to occur within one year after the end of one's sentence, suggesting that 18 months post-release was a sufficiently long duration to measure reconviction (Lloyd, Mair, & Hough, 1994; Travers, Wakeling, Mann, & Hollin, 2013).

The possible presence of socially desirable responding on the URICA responses may compromise the validity of the URICA responses. Here, offenders may try to appear more motivated than they actually are to obtain incentives (e.g., earlier parole or lower security) (DiClemente et al., 2004; Tierney & McCabe, 2001). However, there is evidence within the Corrections setting that after statistically controlling for impression management, there was little change to self-report measures (Kroner, Mills, & Morgan, 2006; Mills, Loza, & Kroner, 2003). This suggests that impression management does not have a substantial impact on the construct validity and ability of self-report measures to predict reoffending. Mills et al. (2003) also found that impression management is more of an enduring person-based trait within the offending population rather than a contextually-bound response style.

The use of reoffending as a binary outcome variable is another limitation in this study. Although routinely used as an outcome variable, relying on a single outcome as an indicator of success precludes other important factors that contribute to reoffending, such as resolution of offending-related behaviours such as substance abuse, or successful engagement in treatment (Lösel, 1995). However, other researchers have also argued that reconviction is a relevant and straightforward outcome measure for researchers, policy makers and the public to understand research relating to reoffending (Raynor & Vanstone, 1996).

Another limitation in this study was that reoffending was measured too far in time from the measurement of stage profiles in this study. Lewis (2004) proposed that measuring motivation and outcomes too far in time may weaken the strength of their association. Nonetheless, it was apparent that this study still found some evidence for the impact of stage profiles on reoffending, indicating that stage profiles can be used to investigate longer term outcomes. This suggested that stage profiles may be more enduring than researchers initially thought.

This study involved mainly medium risk offenders who have committed a range of crimes and studies of motivation have revealed that people have different levels of motivation to address different problems (Rosen et al., 2001). For instance, they may be more motivated to change aggressive behaviour compared to alcohol-related problems. The SMP URICA-21, adapted to assess motivation to change offending behaviour, leaves it to offenders to define for themselves what their “offending problems” look like to them. Hence, one limitation of this study is that it does not allow for an assessment of offenders’ readiness to change a specific offending behaviour, but instead, provides an assessment of their readiness to change a broad range of offending behaviours. However, this study does demonstrate that the stages of change model has important implications even across a broad range of offending behaviour. This finding provides evidence against some researchers who have argued that this model is unsuitable in the field of Corrections as offending behaviour varies in nature and frequency to addictive behaviours, the area from which the SoC model originated (Casey et al., 2005).

Lastly, the use of cluster analysis to generate distinct homogenous groups of individuals in this study may have restricted assessment of the full spectrum of the stages of change. This is because cluster analysis is dependent on the sample used (Carey et al., 1999), and many studies on stage profiles of offenders have involved those still serving their

sentences (Levesque et al., 2000). To better understand the nature of offenders' stages of change, future studies will need to involve offenders who have completed more intensive action-oriented programme as well as rehabilitated offenders within the community.

Suggestions for Future Research

Future researchers should build on the findings of this study. Contrary to an earlier study stating that stage profiles are more useful for assessing short-term changes (Lewis, 2004), this study provides preliminary support for the stability of stage profiles and its ability to predict longer term outcomes. To more clearly understand the nature of offenders' motivation to work on their offending problems, it would be helpful to administer the URICA at a few time points (e.g., before, during and after an intervention, and upon release) to investigate whether stage profiles measured closer in time to an outcome variable showed stronger associations and predictive ability to the outcome variable.

To extend this study's findings, future studies could investigate the relationship between stages of change and other psychological constructs, and how they relate to reoffending. Self-efficacy is a prominent concept in the behaviour literature and previous studies within the non-offending population have looked at its relationship with the stages of change (e.g., DiClemente & Hughes, 1990; Petry, 2005; Wells-Parker et al., 2000). Personality disorders, such as antisocial and borderline personalities, have also been found to be related to stages of change of offenders, but research is still in its infancy (Eckhardt et al., 2008).

To acquire a better understanding on the influence of social desirability bias on motivation to change, it may be useful to include an assessment of a social desirability bias, such as the Balanced Inventory of Desirable Responding 7.0 (BIDR; Paulhus, 2002). Incorporating a response bias measure allows researchers to assess the presence and extent of response bias, and control for their influence. Furthermore, it will allow researchers to

explore whether specific stage profiles have a greater propensity towards impression management. This may have important clinical implications when working with offenders to develop greater intrinsic motivation.

There is also an urgent need for further outcome studies examining the ability of stage profiles to predict the likelihood of offenders benefitting from treatment, treatment engagement and future reoffending. It would be useful to investigate whether offenders with differing stage profiles benefit differentially from more intensive action-oriented programmes. In addition, using more sensitive measures of reoffending may elicit further information about how reoffending may be related to the stages of change (Lösel, 1995). Some examples are institutional recidivism, engagement in custodial regulations as well as obtaining self-reported measures of reoffending, such as the General Violence Measure (Waltz, Babcock, Jacobson, & Gottman, 2000) as an assessment of domestic violence behaviour, are some examples of more sensitive measures than a binary reoffending outcome.

Lastly, there is a need to extend the study of offenders' stages of change to female offenders as most studies have only involved male offenders. To date, only one study has investigated the stages of change in female offenders (El-Bassel et al., 1998).

Strengths of the Present Study and Potential Clinical Implications

The present study progresses theoretical understanding of the stages of change in a large sample of general male offenders through the generation of stage profiles before and after a brief motivational intervention. While a number of previous studies have interpreted the URICA inaccurately, this study employed the URICA according to the guidelines of its developers (Rossi et al., 1995), providing a more in-depth understanding of the stages of change. It also provides a more robust assessment of the relationship between the stages of change profiles and reoffending. Earlier studies have mainly examined the association between these two variables, and not the ability of stage profiles to predict reoffending

(Alexander & Morris, 2008; Eckhardt et al., 2008; Lewis, 2004). In contrast to these earlier studies, this study also controlled for a number of confounding variables, namely, age, risk of recidivism, sentence length, crime seriousness scores, SMP completion and ethnicity. In addition, the SMP URICA-21 employed in this study has been found to be good construct validity and internal consistency. The SMP URICA-21's community and prison adaptations also suggests that it has stronger face validity compared to other studies that have employed generic versions of the URICA.

The development of the Massey University Seriousness of Offence scale provides a standardised and straightforward way of assessing crime seriousness. It accounts for the nature of criminal acts as opposed to the prevalence of these acts, which Sellin and Wolfgang (1964) argued to be an important aspect of obtaining an accurate representation of crime seriousness. It is also a reliable measure of crime seriousness as evidenced by an excellent level of inter-rater reliability. This measure also permits further research on the relationship between crime seriousness and other related variables.

An important finding in this study is a better understanding of the nature of the stages of change in offenders. The finding of ambivalent, unreflective and resistant precontemplators in this study has important implications for assessment and treatment. It highlights the importance of not just assigning offenders to a particular stage of change, but finding out the underlying reasons contributing to their reluctance to change. If clinicians do not meet them where they are at, and attempt to make an argument for change or move them prematurely into a change process, it is likely that greater resistance will be evoked.

The stage movement findings following the SMP also suggested that change does not occur linearly, and the process of changing offending behaviour can involve progression, regression and remaining in the same stage. This lends further evidence for the sequential model of change proposed by DiClemente et al. (1991) whereby people do not move forward

in a straightforward manner, but relapse and recycle through the stages before they persist in long-lasting behavioural change. This has encouraging implications for working with offenders who have relapsed to an earlier stage. While relapse may be discouraging for both the client and the therapist, reconceptualising relapse as being integral and important to the change process provides a more helpful view of relapse, and creates a more positive learning atmosphere to learn from the relapse rather than becoming demoralised by it.

To the author's knowledge, the present study was the first study to investigate stage profiles before and after a brief motivational intervention. This study was important to elucidate a clearer understanding on the impact of a manual-based version of motivational interviewing, the SMP, on the stages of change of offenders. This study found evidence for the effectiveness of a motivational interviewing approach with offenders. Study participants demonstrated a greater increase in motivation as well as a greater proportion of participants remaining in action-oriented stages at post-SMP, compared to another study employing an action-oriented interventions with violent offenders (Lewis, 2004).

Another interesting post-SMP finding was that ambivalent and resistant precontemplators benefitted less from the SMP, as only one-third of these offenders showed an increase in motivation. This finding may be due to the SMP incorporating both motivational interviewing and cognitive behavioural therapy approaches. For these men who were ambivalent or resistant towards change, action-oriented strategies were likely to evoke greater resistance towards change. Austin (2012) also examined offenders' response to the SMP and found that their change and commitment change talk was the highest during SMP sessions that did not involve cognitive behavioural material. A psycholinguistic study of a manual-based MI session found that during the MI session change talk increased, but decreased unexpectedly towards the end (Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003). It turned out that the therapist was required to develop a specific change plan at the end of the

session, which often evoked resistance from clients who were not ready to change. An important implication of the present study's findings is that when working with offenders, there is a need for a more flexible administration of motivational interviewing principles as opposed to a one-size-fits-all programme. As observed in this study, some offenders required more input in defusing their resistance and resolving their ambivalence before cognitive behavioural material was introduced, whereas others needed input in preparing for change before they move into the action stage. Hence, this requires therapists skilled in MI to work at the level of MI needed.

The present study also provided a clearer depiction of the nature of action-oriented stages, namely, the preparation and action stages, represented by the Preparticipation and Participation profiles. An unexpected finding in this study was that men with precontemplation-oriented profiles showed lower odds of reoffending compared to men with the Preparticipation profile at both pre- and post-SMP. A similar finding in this study was that men who remained in the precontemplation stage had lower odds of reoffending than those who remained in the preparation and action stages. These findings shed light onto some of the barriers to change for offenders in these stages, whereby those in the preparation stage may still need support to resolve their ambivalence towards changing, and those in the action stage may need to further explore longer term goals or values (e.g., being a good role model for their child) so that they do not stop working on their problems once they attain shorter term goals such as obtaining an earlier release. There is also a need for further research on the change talk of offenders in the preparation and action stages to obtain a deeper understanding about the nature of motivation in these stages. Another important implication for this finding is the need to supplement self-report assessments of stages of change with clinical judgment to obtain a more accurate assessment of motivation and factors contributing to it. Therefore, it demonstrates that when clinicians are working therapeutically with offenders and tailoring

treatment to suit their needs, it is not sufficient for clinicians to assign offenders to a specific stage based on offenders' self-assessment. Instead, there is a need to further clarify the reasons underlying their current level of motivation to change, their thoughts around having to engage in a programme because they were mandated to by court, and their values and goals for the future.

Conclusion

The present study was the first study to investigate the stages of change profiles in general male offenders before and after the Short Motivational Programme (SMP). Offenders' URICA responses were subjected to cluster analysis and distinct homogenous stage profiles were generated before and after the SMP. These stage profiles were consistent with previous research and mapped well onto the stages of change, providing support for the applicability of the SoC model with offenders. This study found that the majority of offenders were in the precontemplation stage while a smaller percentage were preparing for change and actively involved in change. Three subtypes of precontemplators were found: ambivalent, unreflective and resistant precontemplators, lending support to the notion of precontemplation subtypes. Offenders with these diverse stage profiles benefitted differentially from the SMP, with those in the precontemplation stage showing less progress through the stages, and a large proportion of men in action-oriented stages either continuing to work on their problems or moving to a more highly-motivated stage. An unexpected finding in this study was that offenders with the Preparticipation profile (representing the preparation stage) were more likely to reoffend than those with precontemplation-oriented profiles. Similarly, this study found that offenders who remained in the preparation and action stages were more likely to reoffend than those who remained in the precontemplation stage. A review of the literature with the non-offending population showed that it was not uncommon for less-motivated stage profiles to be associated with better outcomes (e.g.,

(Carney & Kivlahan, 1995; Li et al., 2011; Petry, 2005). These findings suggested that men with the Preparticipation profile may be experiencing more ambivalence and confusion about working on their offending problems than past researchers have initially proposed. Although this is purely speculative and further research is needed, offenders who remained in the action stage (represented by the Participation profile) may be more externally rather than intrinsically motivated to work on their offending problems, and may lose their motivation to change once they have finished their sentences. Overall, this study demonstrated that qualitatively different stages of change were present in a group of general male offenders, yielding evidence for the validity of stage profiles with the offending population. Stage profiles was also found to be a useful way of measuring changes in motivation following a brief motivational intervention. Going forward, future research with offenders can continue to use stage profiles to understand the influence of motivation to change on a range of treatment and behavioural outcomes. The present study on stage profiles of offenders also reinforced the usefulness of the stages of change in selecting interventions that are more suited to offenders' rehabilitation needs. More specifically, this study demonstrated that a more flexible approach to motivational interviewing is required when working with offenders to address their specific motivational needs, as opposed to a one-size-fits-all programme.

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Appendices

Appendix A: Summary of stage profiles selected for comparison to present study

Table A1
Summary of Stage Profiles

Study	Stage profile (percentage of overall sample)	PC	C	AC	M	Stage	Description
McConaughy et al. (1983)	Non-contemplative action (9%)	A	Slightly BA	A	BA	Precontemplation	“not thinking about changing, nor are they maintaining any changes they may have made previously” (p. 372).
	Immotive (8.4%)	A	A	Slightly BA	A	Precontemplation	“not contemplating change, nor are they engaged in changing; rather they are maintaining the status quo” (p. 373).
	Uninvolved (9.7%)	A	A	Slightly BA	Slightly BA	Precontemplation	“lack of an action component to their profile. Meanwhile, they are not ignoring (nor are they thinking about) their problems” (p. 373).
	Reluctance (3.2%)	A	A	Well BA	BA	Precontemplation	“reluctant to take action on a problem, although there is a sense that they might be thinking about it. However, there is no commitment to change” (p. 373).
	Non-Reflective Action (3.9%)	Well AA	Slightly BA	AA	A	Precontemplation	“taking action while not acknowledging that a problem exists” (p. 373).
	Decision-making (12.9%)	Slightly BA	Slightly AA	Slightly AA	Slightly BA	Preparation	“still contemplating their problems, and yet they have begun to take some action” (p. 371).
	Maintenance (17.4%)	A	A	A	Slightly AA	Maintenance	“maintaining previous improvements, and tend not to be involved in rethinking or taking new action in the problem area” (p. 372).
	Participation (8.3%)	Slightly BA	AA	AA	AA	Action	“not ignoring the presence of a problem; rather they are engaged in thinking about the problem, taking some action on changing it, and maintaining changes already made” (p. 372).

	Preparticipation (17.4%)	A	A	A	A	A	A	Preparation and Action	“somewhat involved in thinking about, acting on, and maintaining changes, and tend not to ignore the existence of the problem” (p. 372).
McConaughy et al. (1989)	Immotive (12.5%)	AA	Slightly BA	Slightly BA	Slightly BA	A	A	Precontemplation	“not contemplating change, nor are they engaged in changing; rather, they seem to be maintaining the status quo” (p. 498).
	Precontemplation (5.5%)	Slightly AA	Well BA	Well BA	Well BA	Well BA	Well BA	Precontemplation	“a reluctance to change” (p. 498).
	Uninvolved (21.4%)	A	A	A	A	A	A	Precontemplation	“lack of an action component to their profile. Meanwhile, they are not ignoring (nor are they thinking about) their problem” (p. 499).
	Discouraged (10.7%)	A	A	A	A	BA	BA	Precontemplation	“not thinking about changing in new ways, nor are they working to maintain any changes they may have made previously” (p. 499).
	Contemplation (8.3%)	Slightly BA	A	A	BA	A	A	Contemplation	“thinking about changing but have not begun to take action on the problem” (p. 500).
	Decision-making (13.5%)	Slightly BA	Slightly AA	A	A	Slightly BA	A	Preparation	“involvement in thinking and taking action on the identified problem” (p. 498).
	Participation (10%)	Slightly BA	AA	AA	AA	AA	AA	Action	“involvement in changing” (p. 498).
	Maintenance (7.6%)	A	A	A	A	Slightly AA	Slightly AA	Maintenance	“maintaining previous behaviors” (p. 498).
DiClemente & Hughes (1990)	Precontemplation (28.1%)	Slightly AA	BA	A	A	A	A	Precontemplation	“neither contemplating nor engaging in change. . . maintaining the status quo with respect to their alcoholism problem and resisting the view that they have a problem” (p. 223).
	Ambivalent (13.4%)	AA	A	A	A	Slightly AA	Slightly AA	Precontemplation	“anomalous profile with a high level of endorsement across the subscales. Subjects with this profile seem somewhat reluctant or ambivalent about changing their alcohol-problem behavior and endorse conflicting statements” (p. 223).
	Uninvolved	A	A	BA	BA	Well	Well	Precontemplation	“low level of endorsement overall and seem rather listless in

(12.1%)	BA						affirming their ability to take action. They seemed uninvolved in changing their behaviors and may represent a group of subjects who have given up on change” (p. 223).
Contemplation (23.7%)	Slightly BA	A	A	A	Contemplation		“seem interested in changing, but have not yet begun to take action. They are best described as seriously thinking about change but not yet ready for action” (p. 223).
Participation (22.8%)	Slightly BA	Slightly AA	AA	Slightly AA	Action		“high level of investment and involvement in change” (p. 223).
Precontemplation (20%)	A	BA	A	Slightly BA	Precontemplation		“was not acknowledging a problem, was not considering change, and was not taking any steps to change their behaviour” (p. 139).
Ambivalent (22%)	AA	A	A	A	Precontemplation		“reflecting denial of problems. . . although not endorsing the existence of a problem, these individuals were still thinking about change and were even taking some action toward change, such as attending an orientation meeting to learn about treatment options” (p. 139).
Contemplation (17%)	Slightly BA	A	Slightly BA	A	Contemplation		“actively considered that they had a problem but had not yet taken action to facilitate change” (p. 139).
Participation (31%)	Slightly BA	Slightly AA	Slightly AA	A	Action		“thinking about change, taking some steps to create that change, and ensuring that the change would be maintained” (p. 139).
Precontemplators (30.5%)	A	BA	BA	Slightly BA	Precontemplation		“appeared to display ambivalence in acknowledging the existence of a problem, reluctance to change, and a lack of motivation in expending the resources needed to change” (p. p. 54-55).
Undifferentiated (46.6%)	Slightly AA	A	A	A	Precontemplation		“they neither ignored nor acknowledged a problem but, nevertheless, avoided taking action and reported minimal readiness for changes. . . slightly above sample means . . . inappropriate to label them “uninvolved,” because they appeared to be acknowledging the problem and making some changes. . . not fully committed to the change process” (p. 55).
Participators	BA	Slightly	Slightly	A	Action		“actively thinking about their problem(s), taking steps to change

(22.9%)	AA	AA	AA	AA	AA	their behavior, and maintaining prior behavioral changes” (p. 55).
Lewis (2004) at pre-treatment						
Immotive (27%)	Slightly AA	A	A	A	Early part of Precontemplation	“maintaining a pattern of not acknowledging the presence of their problems, and were neither thinking nor acting in a way to produce prosocial change” (p. 113).
Precontemplative (27%)	Slightly AA	Slightly BA	Slightly BA	Slightly BA	Middle or later part of Precontemplation	“Although these individuals were not thinking about changing, they may have been more open to considering change than individuals in the “immotive” profile” (p. 115).
Decision-making (21%)	Slightly BA	A	A	A	Later part of contemplation or early part of preparation	“seriously considering making prosocial changes in their lives but had not done so” (p. 117).
Preparticipation (14%)	A	Slightly AA	A	Slightly AA	Middle or later part of Preparation or early part of Action	“committing to making some form of behavioural change” (p. 119).
Participation (12%)	BA	AA	AA	Slightly AA	Action	“making and maintaining some type of changes to their lifestyles” (p. 121).
Lewis (2004) at post-treatment						
Immotive (39%)	A	A	Slightly BA	A	Early part of Precontemplation	“maintaining a pattern of not acknowledging the presence of their problems, and were neither thinking nor acting in a way to produce prosocial change” (p. 129).
Reluctant/ Discouraged (11%)	A	BA	Slightly BA	Well BA	Middle part of precontemplation	“While these individuals were not thinking about change currently, they may have been less likely to maintain a negative lifestyle than individuals in the “immotive” profile if they were approached in the proper manner” (p. 131).
Ambivalent (5%)	Well AA	A	AA	Slightly AA	Precontemplation	“these individuals were “of two minds” about their negative lifestyle. While they were into actively endorsing the existence of problems, they were drinking (and perhaps) acting in a prosocial manner” (p. 133).
Decision-making (33%)	Slightly BA	Slightly AA	Slightly AA	A	Later part of Contemplation or	“seriously considering making prosocial changes in their lives but had not done so” (p. 135).

	Participation (12%)	Slightly BA	Slightly AA	AA	AA	Firmly in Action	early part of Preparation
Alexander & Morris (2008)	Participation (49%)	A	Slightly BA	A	Slightly BA	Precontemplation	“denial and minimization” (p. 488).
	Participation (51%)	Slightly BA	Slightly AA	A	Slightly AA	Action	“later stage of stage” (p. 488).

Note. PC = Precontemplation, C = Contemplation, A = Action, M = Maintenance, BA = Below Average, A = Average, AA = Above Average.

Table A2

Summary of Study Characteristics

Study	Participants	Mean age (years)	Setting
McConaughy et al. (1983)	Psychotherapy clients (53 males, 99 females)	32.5	Outpatient clinic
McConaughy et al. (1989)	Psychotherapy clients (155 males, 166 women)	33	Inpatient clinic
DiClemente & Hughes (1990)	Clients with alcohol use problems (146 males, 78 females)	33	Outpatient clinic
Carney & Kivlahan (1995)	Clients with substance abuse problems (486 males)	Not specified	Outpatient clinic
Cohen et al. (2005)	Incarcerated adolescents (131 males)	15.3	Prison
Lewis (2004)	Violent offenders (198 males)	30.9	Prison
Alexander & Morris (2008)	Domestic violence offenders (210 males)	35.7	Outpatient clinic

Table A3

T Scores and Corresponding Categories

T scores	Category
≤ 34	Well below average
35 – 39	Below average
40 – 44	Slightly below average
45 – 55	Average
56 – 60	Slightly above average
61 – 65	Above average
≥ 66	Well above average

**Appendix B: Comparisons of demographic characteristics and URICA-21 scores
between SMP completers and non-completers**

Table B1

Differences Between SMP Completers and Non-completers

Characteristics	SMP completers		SMP non-completers		<i>df</i>	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Age (years)	30.43	9.03	29.53	8.49	479	-.89	.38	.10
Seriousness of offence before SMP	4.23	1.24	4.11	1.25	479	-.80	.42	.10
Seriousness of reconviction offence	1.80	1.45	2.09	1.48	479	1.61	.11	.20
RoC*RoI	.51	.16	.53	.13	126	.95	.35	.14
Sentence length (days)	550.17	476.67	468.21	340.18	479	-1.5	.14	.22
Pre-SMP								
URICA-21								
P (0-20)	9.86	3.64	10.38	3.31	479	1.18	.24	.15
C (0-40)	29.88	5.74	28.90	5.97	479	-1.38	.17	.17
A (0-25)	19.96	3.34	19.59	3.51	479	-.91	.36	.11
M (0-20)	14.33	3.44	13.94	3.82	479	-.91	.36	.11

Note. RoC*RoI = risk of recidivism by risk of reincarceration scale scores; P = precontemplation; C = contemplation; A = action; M = maintenance.

Table B2

Ethnicity, Recidivism, Risk and Setting of SMP Completers and Non-completers

Characteristic	SMP completers		SMP non-completers		df	χ^2	p	Cramer's V
	n	%	n	%				
Ethnicity								
NZ Māori	195	49	43	54	4	3.14	.535	.08
NZ European	150	37	23	29				
Pacific Islanders	38	9	11	14				
Recidivism								
Yes	298	74	68	85	1	4.19	.041	.04
No	103	26	12	15				
RoC*RoI								
Low	43	11	4	5	2	2.52	.284	.07
Medium	332	83	70	88				
High	26	7	6	7				
Setting								
Community	147	37	41	51	1	5.96	.015	.02
Prison	254	63	39	49				

Note. RoC*RoI = risk of recidivism by risk of reincarceration scale scores.

Table B3

Demographic Characteristics of Study Participants and the New Zealand Male Offending Population (New Zealand Department of Corrections, 2013)

Characteristic	Study participants (<i>N</i> = 481)	New Zealand male offending population
Age		
17-19	9%	5%
20-24	26%	19%
25-29	21%	17%
30-34	15%	14%
35-39	12%	12%
40-49	14%	21%
50-59	3%	9%
60 over	0%	4%
Ethnicity		
New Zealand Māori	49%	51%
New Zealand European	36%	33%
Pacific Islanders	10%	12%

Appendix C: Short Motivational Programme agreement form

 <p>DEPARTMENT OF CORRECTIONS ARA POUTAMA AOTEAROA</p>	<p>Corrections Services</p> <p>Short Motivational Programme Agreement Form</p>
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AGREEMENT TO DO THE SHORT MOTIVATIONAL PROGRAMME

I agree to do the Short Motivational Programme.

The programme involves me meeting with a programme facilitator to help me think about why I offended and what I can do to stop offending.

The programme is for weeks and starts onand finishes on(dates)

Sessions are from to (times) on the following day:
Monday, Tuesday, Wednesday, Thursday, Friday (mark as appropriate)

I understand that:

- I have to go to all sessions and might have work to do outside session time.
- If I am not able to attend a session I will contact my Probation Officer or Corrections Officer and the Programme Facilitator prior to the session. I must attend a catch up session for each of the missed sessions.
- I can be re contracted to attend the programme for unacceptable behaviour or if I miss sessions.
- The Programme Facilitator has the right to dismiss me from the programme if I continue with unacceptable behaviour or miss sessions. I can also be dismissed from the programme if I am violent, affected by alcohol or drugs, or my attitude and behaviour undermine the sessions.
- I have the right to leave any session or the programme altogether after discussion with the programme facilitator. The consequences of leaving the programme have been explained to me.
- Sessions will be recorded for the purpose of Programme Facilitator supervision, performance management, training or monitoring the work of the programme.
- Reports about how I am doing in the programme will go on my file, and may be used in a report to the New Zealand Parole Board or other authorised Department of Corrections' report. I have the right to read, and agree or disagree before they are sent. I shall get a copy of the report.
- I have the right to access and ask for the correction of any information collected about me during the programme. If any change requested by me is not made, I have the right to request that my written statement about that information be attached to it.

- All information collected about me during the programme will be stored, accessed and used in accordance with the Department's obligations under the Privacy Act.
- To make sure the programme is working, research will be done. This research will not identify me.
- I will get a certificate if I complete the programme.

I understand that what is talked about is confidential except in the following circumstances:

- If I say or a staff member believes I am about to seriously harm myself or someone else (either emotionally or physically) the Programme Facilitator will take action (tell other people) immediately to prevent this.
- If I talk about current or planned offending the Programme Facilitator might have to pass the information on to authorities. This will usually be discussed with me first. If I talk about serious past offences I have not been convicted of I will be encouraged to report those offences to the appropriate authorities. If I don't report those offences, this information may be passed on to authorities but will be discussed with me first.

I agree to:

- Come to **all sessions** on time and take part in every session.
- Be open and honest with the programme facilitator.
- Turn up sober and drug free every time.
- Complete all homework.
- The sessions being recorded with me in it.....
- Take part in the evaluation of the programme (no personal details will identify me in the report).

If I decide to leave the programme I also agree to talk with the programme facilitator about why I am leaving before I leave.

OFFENDER TO COMPLETE

My signature below shows that I have read, understood and accept these conditions, or that I have had them explained to me, and that I accept them.

Offender..... Date.....

Programme Facilitator..... Date.....

Appendix D: SMP URICA Questionnaire (Community Offender Version)

Modified SMP URICA (Revised 2008)

Community Offender Version

Devereux & Steyn 2006

Devereux 2008

Each statement describes how a person might feel when they start to consider their offending behaviour. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make your choice in terms of how you feel **right now**, not what you have felt in the past or would like to feel.

There are FIVE possible responses to each of the items in the questionnaire:

1 = Strongly Disagree 2 = Disagree 3 = Undecided 4 = Agree 5 = Strongly Agree

1. As far as I'm concerned, I don't have any offending related problems that need changing.
2. I think I might be ready for some self-improvement.
3. I am doing something about the offending related problems that have been bothering me.
4. It might be worthwhile to work on my offending issues or behaviour.
5. My offending behaviour is not a problem. It doesn't make much sense for me to attend these sessions.
6. It worries me that I might slip back into offending patterns that I have already changed, so I am keen to seek help.
7. I am finally doing some work on my offending problems.
8. I've been thinking that I might want to change something about myself.
9. I have previously been successful in working on my offending problems but I'm not sure I can keep up the effort on my own.
10. At times my offending problems are difficult, but I'm working on it.

11. Doing something about my offending issues when I'm released in to the community will be pretty much a waste of time for me because my offending was not my fault.
12. I'm hoping that getting help while on this sentence will help me to better understand myself.
13. I guess I have faults, but there's nothing that I really need to change.
14. I am really working hard to change.
15. I have offending problems that I really think I should work on.
16. I'm not following through with things I had already changed as well as I had hoped, and I am going to get help when released to prevent a relapse of my offending behaviour.
17. Even though I'm not always successful in changing, I am at least working on my offending problems.
18. I thought once I had resolved my offending issues I would be free of them, but sometimes I still find myself struggling with them.
19. I wish I had more ideas on how to solve my offending problems.
20. I have started working on my offending problems but I would like help.
21. Maybe there are some community services available to me that will be able to help me.
22. I may need a boost to help me maintain the changes I've already made.
23. I may be part of my offending problems, but I don't really think I am.
24. I hope that someone in the community will have some good advice for me that I can put to good use.
25. Anyone can talk about changing; I'm actually doing something about it.

26. All this talk about addressing problems is boring. Why can't people just forget
about their problems?
27. When on this sentence, I'm going to get help to prevent myself from having a
relapse of my offending problems.
28. It is frustrating, but I feel I might be having a recurrence of offending problems
that I thought I had resolved.
29. I have worries but so do most people. Why spend time thinking about them?
30. I am actively working on my offending problems.
31. I would rather cope with my faults than try to change them.
32. After all I had done to try to change my offending behaviour, every now and
again I find myself slipping back into bad habits.

Appendix E: SMP URICA Questionnaire (Prison Inmate Version)

Modified SMP URICA (Revised 2008)

Prison Inmate Version

Devereux & Steyn 2006

Devereux 2008

Each statement describes how a person might feel when they start to consider their offending behaviour. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make your choice in terms of how you feel **right now**, not what you have felt in the past or would like to feel.

There are FIVE possible responses to each of the items in the questionnaire:

1 = Strongly Disagree 2 = Disagree 3 = Undecided 4 = Agree 5 = Strongly Agree

1. As far as I'm concerned, I don't have any offending related problems that need changing.
2. I think I might be ready for some self-improvement.
3. I am doing something about the offending related problems that have been bothering me.
4. It might be worthwhile to work on my offending issues or behaviour.
5. My offending behaviour is not a problem. It doesn't make much sense for me to attend these sessions.
6. It worries me that I might slip back into offending patterns that I have already changed, so I am keen to seek help.
7. I am finally doing some work on my offending problems.
8. I've been thinking that I might want to change something about myself.
9. I have previously been successful in working on my offending problems but I'm not sure I can keep up the effort on my own.
10. At times my offending problems are difficult, but I'm working on it.

11. Doing something about my offending issues when I'm released in to the community will be pretty much a waste of time for me because my offending was not my fault.
12. I'm hoping that getting help when I'm released from prison will help me to better understand myself.
13. I guess I have faults, but there's nothing that I really need to change.
14. I am really working hard to change.
15. I have offending problems that I really think I should work on.
16. I'm not following through with things I had already changed as well as I had hoped, and I am going to get help when released to prevent a relapse of my offending behaviour.
17. Even though I'm not always successful in changing, I am at least working on my offending problems.
18. I thought once I had resolved my offending issues I would be free of them, but sometimes I still find myself struggling with them.
19. I wish I had more ideas on how to solve my offending problems.
20. I have started working on my offending problems but I would like help.
21. Maybe there are some services in the community (when I am released from prison) that will be able to help me.
22. I may need a boost when I am released from prison to help me maintain the changes I've already made.
23. I may be part of my offending problems, but I don't really think I am.
24. I hope that someone in the community (when I am released from prison) will have some good advice for me that I can put to good use.
25. Anyone can talk about changing; I'm actually doing something about it.

26. All this talk about addressing problems is boring. Why can't people just forget
about their problems?
27. When I'm released from prison, I'm going to get help to prevent myself from
having a relapse of my offending problems.
28. It is frustrating, but I feel I might be having a recurrence of offending problems
that I thought I had resolved.
29. I have worries but so do most people. Why spend time thinking about them?
30. I am actively working on my offending problems.
31. I would rather cope with my faults than try to change them.
32. After all I had done to try to change my offending behaviour, every now and
again I find myself slipping back into bad habits.

Appendix F: Statement of contribution

DRC 16



MASSEY UNIVERSITY
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION TO DOCTORAL THESIS CONTAINING PUBLICATIONS

(To appear at the end of each thesis chapter/section/appendix submitted as an article/paper or collected as an appendix at the end of the thesis)

We, the candidate and the candidate's Principal Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of Candidate: Abigail Dawn YONG

Name/Title of Principal Supervisor: Dr Mei Wah WILLIAMS

Name of Published Research Output and full reference:

How do Offenders Move through the Stages of Change?

Yong, A., Williams, M. W., Provan, H., Clarke, D., & Sinclair, G. (2015). How do offenders move through the stages of change? *Psychology, Crime & Law*, 21(4), 375–397.

In which Chapter is the Published Work: Appendix

Please indicate either:

- The percentage of the Published Work that was contributed by the candidate: 80%
and / or
- Describe the contribution that the candidate has made to the Published Work:

The candidate has written up this article and conducted the statistical analyses in both studies within the article, with editorial input from the rest of the authors.

Abigail Yong
Digitally signed by Abigail Yong
Date: 2017.05.16 14:45:31
+1200'
Candidate's Signature

16 May 2017
Date

Mei Williams
Digitally signed by Mei Williams
Date: 2017.01.27 11:59:34
+1300'
Principal Supervisor's signature

27 Jan 2017
Date

Appendix G: SMP URICA-21 items

Stage	Item	Description
P	11	Doing something about my offending issues when I'm released in to the community will be pretty much a waste of time for me because my offending was not my fault.
	26	All this talk about addressing problems is boring. Why can't people just forget about their problems?
	29	I have worries but so do most people. Why spend time thinking about them?
	31	I would rather cope with my faults than try to change them.
C	2	I think I might be ready for some self-improvement.
	12	I'm hoping that getting help when I'm released from prison will help me to better understand myself.
	16	I'm not following through with things I had already changed as well as I had hoped, and I am going to get help when released to prevent a relapse of my offending behaviour.
	20	I have started working on my offending problems but I would like help.
	21	Maybe there are some services in the community (when I am released from prison) that will be able to help me.
	22	I may need a boost when I am released from prison to help me maintain the changes I've already made.
	24	I hope that someone in the community (when I am released from prison) will have some good advice for me that I can put to good use.
	27	When I'm released from prison, I'm going to get help to prevent myself from having a relapse of my offending problems.
A	3	I am doing something about the offending related problems that have been bothering me.
	7	I am finally doing some work on my offending problems.
	14	I am really working hard to change.
	25	Anyone can talk about changing; I'm actually doing something about it.
	30	I am actively working on my offending problems.
M	4	It might be worthwhile to work on my offending issues or behaviour.

- 6 It worries me that I might slip back into offending patterns that I have already changed, so I am keen to seek help.
 - 15 I have offending problems that I really think I should work on.
 - 18 I thought once I had resolved my offending issues I would be free of them, but sometimes I still find myself struggling with them.
-

Note. P = precontemplation; C = contemplation; A = action; M = maintenance.

Appendix H: Low risk notification



MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

22 April 2013

Abigail Yong
164 Cascades Road
Pakuranga
Auckland

Dear Abigail

Re: Measuring Motivational Change in Offenders Using the URICA

Thank you for your Low Risk Notification which was received on 8 April 2013.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Committees.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by one of the University's Human Ethics Committees.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, e-mail humanethics@massey.ac.nz".

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

John G O'Neill (Professor)
**Chair, Human Ethics Chairs' Committee and
Director (Research Ethics)**

cc Dr Mei Williams
School of Psychology
Albany

Dr Dave Clarke
School of Psychology
Albany

A/Prof Mandy Morgan, HoS
School of Psychology
PN 319

Massey University Human Ethics Committee
Accredited by the Health Research Council

Research Ethics Office

Appendix I: Research agreement with the Department of Corrections



Research Agreement Between

Parties

Her Majesty the Queen acting by and through the Chief Executive of the Department of Corrections (the Department)

And

Abigail Yong and Massey University, Albany Campus (jointly the Researcher), each of whom is jointly and severally liable with the other in terms of their obligations.

Background

- A. The Researcher has submitted to the Department an "Application to Undertake Research", set out as Schedule One (Application).
- B. The Department has accepted and approved the Application.
- C. This Agreement documents the terms and conditions upon which the Department allows the Researcher to conduct research within the Department's facilities and with prisoners, offenders managed in the community and / or Departmental clients and / or staff (collectively, participants).

Terms and conditions

The Department grants permission to the Researcher to undertake this research on the following terms and conditions:

- 1 This research is entitled 'Can the URICA measure stages of change in offender motivation?' and will be undertaken in accordance with this Agreement, as well as the methods and detail outlined in the Application, at all times.
- 2 The Researcher confirms that the research has been endorsed by a University Head of Department or supervisor, or manager of a reputable research-related organisation.
- 3 The Researcher confirms that the Researcher has approval from an accredited institutional ethics committee, or the proposal has been reviewed by a recognised human ethics body.
- 4 The Researcher will obtain informed consent (as that term is defined in the Application) from all participants, keep a record of that consent, and provide the Department with evidence of that consent if requested by the Department.
- 5 The Researcher will undertake the research liaising with Carolyn O'Fallon and Jill Bowman (research@corrections.govt.nz), of the Department of Corrections (Department's Representative) or their replacement person.
- 6 Only those individuals identified in the Application and named in this Agreement as the Researcher may undertake the research. If the Researcher wishes, at

Page 1

A handwritten signature in black ink, appearing to be 'Abigail Yong', written over the 'Page 1' text.



- any stage, for additional individuals to undertake research (or to substitute individuals) it must first obtain the Department's consent in writing and it acknowledges that those additional individuals will first need to clear appropriate security and additional checks before undertaking research.
- 7 During the course of the research, the Researcher will at all times respect the working environment in which the research is undertaken. This includes an appreciation of the operational and resource constraints that the Department works under, given the rapid increase in the number of offenders over recent years. The Researcher will meet all of the Department's security and other requirements relating to access to any institution and to participants.
 - 8 The Researcher will take all possible steps to protect the participants from discomfort, distress or embarrassment. Participants' welfare and dignity will take precedence over the requirements of the research at all times.
 - 9 Any information which could lead to participants' identification will not appear in any form (verbal or written information) in the Document, any publication, teaching or presentations. This clause 9 survives expiry or termination of the research project and this Agreement.
 - 10 The Researcher knows and understands that permission to undertake the research is conditional upon compliance with the requirements of the Privacy Act 1993. In particular the Researcher accepts their obligation under that act to ensure that:
 - the information gained will be used solely for purposes directly linked to the research project, and will not be published in a form that could reasonably be expected to identify any individual [Principles 10(f)(i), 10(f)(ii), 11(h)(i), and 11(h)(ii)]; and
 - no other person, other than a person assisting the Researcher with the analysis or research, will have access to participants' personal information. In particular, the Researcher will ensure that the information is protected by such security safeguards as is reasonable under the circumstances to take, against loss [Principle 5(a)(i)]; access, modification or disclosure [Principle 5(a)(ii)].
 - 11 The Researcher will not make any copy or remove any Departmental records consulted in the course of the research that identifies offenders or participants, without the written permission of the Department.
 - 12 Where information is disclosed to the Researcher that signifies actual and immediate risks to the safety and welfare of participants or other persons, these concerns shall be brought to the attention of the relevant Unit or Service Manager in the first instance, as well as the Department's Representative.
 - 13 Other than information being gathered for the research and other than information disclosed as per clause 9 above, the Researcher agrees to keep confidential all information about the Department and its operations about which the Researcher becomes aware. This clause 13 survives expiry or termination of the research project and this Agreement.



- 14 The Researcher must provide a copy of the final draft of the thesis paper, research report or similarly described document, the production of which represents the purpose of and summarises the research (collectively, Document) to the Department's Representative for review 4 weeks prior to submission, completion, and/or publication. The Researcher understands and agrees that:
- The Department may wish to make alterations to the content of the Document to correct factual inaccuracies and the researcher agrees to make any such alterations;
 - The Department may request that the Researcher remove confidential information, as per clause 9.
 - Any content changes would be fully discussed with and explained to the Researcher beforehand;
 - The Department may ask for the Document to carry a disclaimer stating that the Document does not represent the views of the Department and the Researcher agrees to comply with any request made by the Department in this regard.
- Once the Document has had alterations made to it and carries a disclaimer (if required) the Researcher will resubmit the altered Document for further review.
- 15 The process set out in clause 14 will be repeated as often as necessary until the Department's Representative advises the Researcher in writing that the Department is satisfied with the Document ("final agreed Document"). No further changes to the final agreed Document will be permitted without a repeat of the process in this clause 15 and clause 14.
- 16 The Researcher will not publish or otherwise disclose, orally or in writing, to any third party, or use in any way for any purpose, including educational or further research purposes, any information obtained through the Department during the term of this agreement, without the written approval of the Department. This clause 16 applies in respect of any interim reports or findings of the research that the Researcher intends to release or publish, prior to producing the Document, and it continues to apply following acceptance of the final agreed Document.
- 17 The Researcher must provide the Department with an electronic copy of the final agreed Document. If the final agreed Document is to be published in hard copy, on the request of the Department, the Researcher will, at its cost, provide it with three copies of the Document.
- 18 The Department will treat any breach by the Researcher of this Agreement very seriously. In the event of a breach, the Department may:
- terminate this Agreement immediately by written notice; or
 - give written notice of a breach and of a reasonable time that the breach must be remedied; and
 - terminate this Agreement if the breach is not remedied within that time; or
 - suspend the continuation of this Agreement and therefore the right of the Researcher to access Department premises, participants or other resources; and
 - in the event of any breach not consider any future applications by the Researcher to undertake research.



These remedies are listed as examples only and are entirely without prejudice to any other remedies the Department may have for breach, at law or otherwise.

Signed as an Agreement:

[Handwritten signature]

On behalf of the Researcher

Name: Margaret Young

Designation: Student, Massey University
Class 1 Bachelor of Clinical Psychology
Date: 26/9/13

[Handwritten signature]

On behalf of the Department

Name: Jo Field

Designation: General Manager,
Service Development
Date: 15/10/13

In the presence of

[Handwritten signature]
Witness

Name: Bianca Sampson

Occupation: MSc
Student - Massey University

Address: 2/45 Sainsbury Rd.
Mt Albert
AUCKLAND

In the presence of

[Handwritten signature]
Witness

Name: Ana Brodie

Occupation: Personal Assistant

Address: Private Box 1206
Wellington 6140

Appendix J: Development of the Massey University Seriousness of Offence Scale

Massey University
Clinical Psychology

CASE STUDY 2

The Development of the Massey University Seriousness of Offence Scale

Candidate: Abigail Yong
Clinical Psychology Programme, Massey University
Student ID: 12125267
Setting: Centre for Psychology
Massey University, Albany
Supervisor: Mei Wah Williams

This case was completed at the Centre for Psychology in 2015 and represents the work of the candidate.

Supervisor

Mei Wah Williams



Date: 28/5/15

Student

Abigail Yong



Date: 1/6/15

Abstract

The Massey University Seriousness of Offence Scale (MUSOS) was designed to provide a specific measure of offence seriousness. The scale is a six-point Likert scale whereby a rating of 1 represents very low severity and a rating of 6 represents very high severity. A preliminary analysis involving three raters and 104 general male offenders revealed excellent inter-rater reliability for the original conviction and reconviction seriousness scores. Although there is a need for further investigation on the psychometric properties of the MUSOS, this finding provides preliminary evidence for the reliability of this scale.

In the area of criminal justice, the perception of crime seriousness is an important area of investigation. Sellin and Wolfgang (1964) were the first to propose that crime rates should be accompanied by a measure of the seriousness of each offence (e.g., extent of harm to individual or property). They sought to develop a measure for perceived seriousness of crime that would represent society's perception of the gravity of an offence. In their study, the hallmark characteristic of each category was assumed to be comparable to the other categories and was ranked in order of its hypothesized defined seriousness. They looked at 141 offences and classified them into one of two classes. Offence categories were labelled as a Class I offence if there was physical injury, property loss or property damage, with physical injury constituting the most serious offence. Offence categories that did not fall under a Class I offence were classified as Class II offences in the following descending order of seriousness: intimidation to hurt an individual; threat of property loss; primary, secondary, tertiary and mutual victimization; and juvenile level offences where there was no victimization. Judges, policemen and students then rated the seriousness of each offence, and the researchers found that the public's perception of offence seriousness mapped well onto the seriousness categorization they had developed.

Sample and Bray (2003) adapted Sellin and Wolfgang's (1964) measure of offence seriousness in their study in which they sought to compare rates of reoffending between sex offenders and non-sexual offenders. They utilised Illinois arrest data from 1990 to 1997 and grouped the offences into 24 general offence categories that were similar to those found in the Uniform Crime Report (Federal Bureau of Investigation, 1996). These categories were broad by definition and accounted for differing levels of aggression. Following the allocation of offence charges to specific categories, these researchers categorised offenders on the basis of their most serious charge for their index offence in 1990. They built a hierarchy of offence that was similar to the scale developed by Sellin and Wolfgang (1964) which was developed

according to the severity of the overall crime category, and not always the severity of a specific offence.

In New Zealand, the Policy and Research Division of the Department of Justice developed an algorithm for calculating seriousness of offence scores (Spier, Luketina, & Kettles, 1991). These seriousness scores indicate how serious judges have deemed each offence in terms of the use of a custodial sentence over a specific time period (Spier et al., 1991). Scores are based on court sentencing data for all imprisonable offences and is updated every five years (Searle & Spier, 2006; Spier, 2001; Spier et al., 1991). According to Searle and Spier ,

The seriousness score assigned to each offence is the **average number of days of imprisonment imposed on every offender convicted of that offence between 2000 and 2004, where the average is taken over both imprisoned and non-imprisoned offenders [author's emphasis]**. Suppose, for example, that between 2000 and 2004 there were 100 cases of offenders convicted of a particular offence. Of these cases, 50 resulted in a custodial sentence, and the average length of the custodial sentences imposed on these offenders was 30 days. The seriousness score for this offence is $(30 \times 50/100)$, or 15. (Searle & Spier, 2006, p. 103)

This study sought to develop a crime seriousness scale based on Spier's seriousness scale (Spier, 2001) guided by the same categorization techniques employed by Sample and Bray (2003), and Sellin and Wolfgang's (1964). The scale will allow further research to be undertaken on the relationship between crime seriousness and other related variables. Additionally, it will allow researchers and clinicians to ascertain whether there is a change in the level of crime seriousness between the reconviction and original conviction. This provides a more sensitive assessment of recidivism as most researchers have commonly

assessed reconviction as a dichotomous variable (i.e., yes or no) (Lösel, 1995; Raynor & Vanstone, 1996).

Method

Participants

A subsample of general male offenders ($n = 104$) was randomly selected from a larger sample for inter-rater agreement using a random number generator. The ages of the offenders who were rated ranged from 19 to 58 years ($M = 28.57$, $SD = 8.08$). The large majority of offenders identified as being New Zealand Māori (48%), with New Zealand European (35%), Pacific Island descent (11%) and Asian descent (1%) being the next most common ethnic identities. The most common index offences comprised acts intended to cause injury (19%), unlawful entry with intent or burglary (17%), robbery, extortion and related offences (13%), illicit drug offences (7%), homicide and related offences (8%) and driving offences (22%).

Measures

Development of the Massey University Seriousness of Offence Scale

The Massey University Seriousness of Offence Scale (MUSOS) defines seriousness of offence according to Hall (1998), “The most significant factor in sentencing involves an assessment of the gravity of the offence. . . . the gravity of the particular crime. . . . and the particular set of acts or omissions proved against the offender in the particular case” (p. B/11). Examples include whether the offence was premeditated, whether violence was involved, the risk or extent of physical injury, and the use of a weapon. It aims to assess the degree of seriousness of a specific offence, and to provide a way to assess change in crime seriousness over time. The MUSOS is a six-point Likert scale whereby a rating of 1 corresponds to very low severity, and a rating of 6 corresponds to very high severity. The development of the MUSOS was guided by the levels of offence seriousness identified by

Spier (2001). Ranks of scales were selected based on the approximate turning points in the relationships between offence-related variables and the probability of each sentence type for a specific offence (Spier, 2001). For instance, offences with seriousness scores below 20 were more likely to receive a monetary fine than more serious offences, while offences with seriousness scores above 365 were more often associated with prison sentences than offences with scores below than 365. Spier (2001) assigned seriousness scores of 0 to 1 to offences that generally received fines, or a convicted and discharged status, and those assigned scores below 0 were non-imprisonable offences. A score of 1 on the MUSOS comprises both levels of seriousness (see Table J1 for a comparison of offence rankings on the seriousness of offence scale developed by Spier et al. (1991) and the MUSOS).

In the case where an offender has more than one offence, an offender is assigned the highest ranking corresponding to their most serious offence regardless of whether one is rating the crime seriousness of an original conviction or reconviction. A blank score is assigned when an offender does not reoffend. Sample and Bray (2003) argued that a hierarchy of crime seriousness should be constructed based on an offender's most serious charge to avoid under-representing more serious crimes such as sexual or violent offences.

Table J1

Levels of Offence Seriousness (Spier, 2001) and the Corresponding Offence Rankings on the Massey University Seriousness of Offence Scale

Spier's subgroupings	MUSOS	Offence examples
> 0 – 1	1	Disorderly behaviour Wilful damage Procure or possess drugs ^a Breach liquor ban
> 1 – 10	2	Driving while disqualified Driving under the influence ^b Procure or possess drugs Breach board release condition prison
> 10 – 50	3	Common assault Contravenes protection order Drove with excess breath alcohol third or subsequent Theft (under \$500)
> 50 – 100	4	Assault with intent to injure Assault with weapon Burglary (under \$500) Drove while disqualified third or subsequent Theft (\$500 - \$1,000)
> 100 – 500	5	Burglary (over \$500) Sell, supply or deal drugs ^c Theft (over \$1,000) Wounds with intent to injure With reckless disregard, wounds, maims, disfigures or causes grievous bodily harm
> 500	6	Aggravated robbery Grievous bodily harm Kidnapping Produce or supply methamphetamine

Note. ^aRefers to cannabis plant and seed. ^bRefers to cannabis oil, methamphetamine and amphetamine. ^cRefers to morphine and cannabis.

Data

Ethical approval for this study was obtained from the New Zealand Department of Corrections and the Massey University Human Ethics Committee as part of a larger study. The demographic data was retrieved from the New Zealand Department of Correction's database. The accuracy of the data was checked and verified by Corrections staff. All identifying details of participants were removed or recoded as necessary so as to ensure anonymity.

Analysis

Inter-rater reliability is the degree of consistency to which the same information is rated by two or more different raters. There are a few forms of intraclass correlation coefficients (ICCs) and the selection of an appropriate ICC needs to be guided by the aim and design of the reliability study (Shrout & Fleiss, 1979).

The initial step in selecting an appropriate ICC requires one to establish whether or not the sample was rated by randomly selected or a fixed set of raters. The study used a fixed set of three raters who were not randomly chosen from a larger population. The participants rated constituted a random subsample of a larger sample. Each rater assigned ratings to all the participants within the subsample. Instead of obtaining average ratings of the three raters, the study sought to determine how reliable it would be to only use one rater as well as the degree of agreement between the three raters indicating that the ICC for single measurements would be appropriate for this study (McGraw & Wong, 1996). Thus, the single score ICC for the two-way mixed ANOVA model was selected to represent the severity scores (McGraw & Wong, 1996).

The next step in selecting an appropriate ICC requires one to establish whether the calculation of the ICC is aimed at computing the extent to which the raters gave the same absolute values to the same targets, or the consistency between the ratings which refers to the

extent to which raters systematically varied when assigning ratings to the same targets (McGraw & Wong, 1996). As this study considered it important for raters to agree consistently on exact ratings, the absolute agreement of measurements alternative was selected.

Severity scores were rated by a trainee psychologist and two trained facilitators working with the Department of Corrections. Raters were trained and provided with guidelines on the use of the severity rating scale.

Results

The intraclass correlation coefficient (ICC) was used to evaluate inter-rater reliability. Cicchetti's (1994) categorisation system was used to judge ICCs. A correlation coefficient of below .40 is poor, .40 to .59 is fair, .59 to .74 is good and .75 to 1.0 is excellent. Excellent inter-rater reliability was observed across the three raters for the original offence severity scores (ICC = .90) and reconviction severity scores (ICC = .89).

Discussion

The main aim of this study was to develop a crime seriousness scale for the assessment of the level of crime seriousness. The inter-rater reliability of the MUSOS generated particularly strong findings with the intraclass correlation coefficients for the original conviction and reconviction severity scores falling in the excellent range. This result suggests that the MUSOS should be reliable across a range of offences.

Several advantages of the MUSOS for both clinicians and researchers are worth highlighting. It provides a standardised and straightforward way to assess crime seriousness. Sellin and Wolfgang (1964) argued that in order to obtain a more accurate representation of crime seriousness, there was a need to assess the nature of criminal acts (e.g., risk or extent of physical injury) rather than solely looking at the prevalence of these acts. The MUSOS assesses crime seriousness by classifying offenders according to the most serious level of

offence. This approach is favoured as it avoids the under-representation of more serious crimes in a seriousness score (Sample & Bray, 2003). These researchers contended that the frequency of a specific crime was less suitable in assessing seriousness as more serious but less frequent crimes may be overlooked (e.g., if burglary charges exceed violent offending charges, the more serious violent offences will be under-represented).

Apart from that, this measure of crime seriousness will allow further research to be undertaken on the interaction between crime seriousness and other related variables. There is evidence accruing for demographic, attitudinal and behavioural correlates of crime seriousness (Stylianou, 2003). Increased crime severity has been found to be related to the male gender, bullying and being physically cruel to people, and substance use severity (Kinlock, Battjes, & Gordon, 2004; Nurco, Kinlock, & Balter, 1993). Having a measurement tool that allows the associations between these variables and crime seriousness to be investigated can have important implications for treatment programs (Kinlock et al., 2004). For example, considering the relationship between crime seriousness and problem behaviours, individuals who abuse substances and have committed major criminal offences may require interventions that are qualitatively different from individuals who have abused substances but not engaged in criminal activity. There is also accumulating evidence that violent offenders may require more intensive intervention than moderate intensity outpatient treatment programmes (Kinlock et al., 2004; Lewis, 2004). Hence, an individual's seriousness of criminal history, in particular the seriousness of their offences, need to be considered in the treatment planning process.

The MUSOS also provides an alternative way of assessing recidivism. Recidivism is most commonly measured as a dichotomous variable (i.e., yes or no) (Raynor & Vanstone, 1996). Although some researchers have identified recidivism as an important outcome variable when assessing treatment effectiveness (e.g., Raynor & Vanstone, 1996), others have

contended that it is an arbitrary measure of offending behaviour (e.g., (P Gendreau & Ross, 1979). The dichotomous recidivism scale also makes it an insensitive measure of changes in seriousness of reoffending (Lösel, 1995). Hence, the MUSOS provides a more sensitive way of measuring recidivism whereby it allows change in crime seriousness to be calculated between a reconviction and original conviction. This in turn will allow researchers to more reliably evaluate the relationship between change in crime seriousness and other variables.

One limitation of the MUSOS is that it does not account for the frequency or duration of criminal activity, thus, precluding the investigation of the extent of involvement in criminal behaviour. However, researchers have argued that only looking at the frequency or duration of a crime can mask more serious but less frequent and/or less enduring criminal offences (Sample & Bray, 2003). The current study also did not provide comprehensive psychometric data on the MUSOS. Hence, future research needs to further investigate the reliability and validity of the MUSOS. Considering these limitations, study findings must be considered suggestive, providing preliminary support that may inform future, more definitive research on crime seriousness among the offending population and other related variables.

Conclusion

Drawing from previous empirical research (Sample & Bray, 2003; Sellin & Wolfgang, 1964; Spier, 2001), the Massey University Seriousness of Offence Scale (MUSOS) was developed as a measure of crime seriousness. The MUSOS demonstrated excellent inter-rater reliability across the seriousness scores for the original conviction and reconviction. This scale provides a more sensitive assessment of recidivism given that it can be used to compute change in level of crime seriousness.

Appendix K: Additional details for data screening

Table K1

Multicollinearity Assessment for URICA Subscale Scores at Pre-SMP and Post-SMP

Variable		Pre-SMP			Post-SMP		
Dependent	Independent	Tolerance	VIF	<i>r</i>	Tolerance	VIF	<i>r</i>
P	C	.52	1.92	0.14	.43	2.31	-.19
	A	.87	1.15	-.16	.83	1.21	-.28
	M	.58	1.74	-.12	.49	2.04	-.17
C	P	.97	1.04	—	.91	1.10	—
	A	.95	1.05	.36	.89	1.12	.40
	M	.96	1.04	.64	.94	1.06	.70
A	P	.98	1.02	—	.96	1.04	—
	C	.58	1.74	—	.49	2.04	—
	M	.58	1.73	.17	.50	2.02	.22
M	P	.97	1.03	—	.92	1.09	—
	C	.87	1.15	—	.83	1.20	—
	A	.86	1.16	—	.80	1.26	—

Note. P = precontemplation; C = contemplation; A = action; M = maintenance; VIF = variance inflation factor.

Appendix L: Characteristics of stage profiles at pre-SMP and post-SMP

Table L1

Means, Standard Deviations and One-Way Analyses of Variance for the Effects of Stage Profiles at Pre-SMP on Demographic, Risk and Outcome Variables (N = 481)

Characteristics	AM (n = 70)	NRA (n = 121)	PC (n = 34)	PP (n = 167)	P (n = 89)	F(4, 476) or $\chi^2(4)$	p	η^2
Age (years)								
M	32.20	28.80	30.94	30.79	29.60	1.97	.098	.016
SD	9.83	8.70	10.09	8.82	8.01			
RoC*RoI								
M	.52	.53	.46	.49	.55	3.75	.005	.031
SD	.15	.15	.15	.16	.14			
Sentence length (days)								
Mdn	454.50	364.00	363.50	402.00	456.00	16.91	.002	.04
Mean rank	274.11	220.36	180.57	239.07	269.74			
MUSOS T1								
M	4.10	4.19	4.15	4.19	4.40	0.72	.580	.006
SD	1.28	1.26	1.28	1.24	1.18			
MUSOS T2								
M	1.67	1.71	1.41	2.04	1.99	2.22	.066	.02
SD	1.63	1.39	1.42	1.46	1.34			

Note. Kruskal-Wallis test was performed for sentence length; one way ANOVAs were used for all other variables. RoC*RoI = risk of recidivism by risk of reincarceration scale scores; PC = precontemplation; NRA = Non-Reflective Action; AM = ambivalent; PP = preparticipation; P = participation; MUSOS = Massey University Seriousness of Offence Scale; T1 = pre-SMP; T2 = post-SMP.

Table L2

Differences in Stage Profiles at Pre-SMP across Demographic and Outcome Variables (N = 481)

Characteristics	AM (n = 70)		NRA (n = 121)		PC (n = 34)		PP (n = 167)		P (n = 89)		χ^2	p	V
	n	%	n	%	n	%	n	%	n	%			
Ethnicity													
NZ Māori	41	59	53	44	14	41	88	53	42	47	.25 ^a	.25	.10
NZ European	16	23	51	11	16	47	57	34	33	37			
Pacific Islanders	8	11	13	11	2	6	16	10	10	11			
Recidivism													
Yes	46	66	92	76	23	68	135	81	70	79	7.87 ^b	.10	.13
No	24	34	29	24	11	32	32	19	19	21			
SMP completion													
Yes	59	84	92	76	28	82	146	87	76	85	7.01 ^b	.14	.12
No	11	16	29	24	6	18	21	13	13	15			
Setting													
Community	27	39	54	45	22	65	68	41	17	19	26.51 ^b	<.001	.23
Prison	43	61	67	55	12	35	99	59	72	81			

Note. PC = precontemplation; NRA = Non-Reflective Action; AM = ambivalent; PP = preparticipation; P = participation; V = Cramer's V.

^adf = 16. ^bdf = 4.

Table L3

Means, Standard Deviations and One-Way Analyses of Variance for the Effects of Stage Profiles at Post-SMP on Demographic, Risk and Outcome Variables (n = 401)

Characteristics	AM (n = 82)	PC (n = 33)	PP (n = 176)	P (n = 110)	<i>F</i> (3, 397) or χ^2 (3)	<i>p</i>	η^2
Age (years)							
<i>M</i>	30.91	28.48	30.90	29.95	0.85	.466	.006
<i>SD</i>	9.78	9.38	8.85	8.61			
RoC*RoI							
<i>M</i>	.51	.49	.50	.53	1.12	.343	.008
<i>SD</i>	.15	.16	.16	.15			
Sentence length (days)							
<i>Mdn</i>	508.50	364.00	365.50	407.50	12.77	.005	.03
<i>Mean rank</i>	235.65	161.91	190.01	204.49			
MUSOS T1							
<i>M</i>	4.34	4.27	3.99	4.05	1.80	.147	.013
<i>SD</i>	1.29	1.13	1.21	1.21			
MUSOS T2							
<i>M</i>	1.40	1.70	1.84	2.07	3.52	.015	.026
<i>SD</i>	1.51	1.38	1.42	1.42			

Note. Kruskal-Wallis test was performed for sentence length; one way ANOVAs were used for all other variables. RoC*RoI = risk of recidivism by risk of reincarceration scale scores; PC = precontemplation; AM = ambivalent; PP = preparticipation; P = participation; MUSOS = Massey University Seriousness of Offence Scale; T1 = pre-SMP; T2 = post-SMP.

Table L4

Differences in Stage Profiles at Post-SMP across Demographic and Outcome Variables (n = 401)

Characteristic	AM (n = 82)		PC (n = 33)		PP (n = 176)		P (n = 110)		χ^2	p	Cramer's V
	n	%	n	%	n	%	n	%			
Ethnicity											
NZ Māori	41	50	15	46	91	52	48	44	9.47 ^a	.66	.09
NZ European Pacific Islanders	30	37	14	42	59	34	47	43			
	6	7	2	6	18	10	12	11			
Recidivism											
Yes	48	58	26	79	136	77	88	80	13.71 ^{b*}	.003	.19
No	34	42	7	21	40	23	22	20			
Setting											
Community	32	39	22	67	67	38	26	24	21.18 ^b	<.001	.23
Prison	50	61	11	33	109	62	84	76			

Note. PC = precontemplation; AM = ambivalent; PP = preparticipation; P = participation.

^adf = 12. ^bdf = 3.

Appendix M: Characteristics of stage movements

Table M1

Means, Standard Deviations and One-Way Analyses of Variance for the Effects of Stage Movements on Demographic, Risk and Outcome Variables (n = 401)

Characteristics	Progressed (n = 126)	Regressed (n = 41)	Stayed in PAS (n = 94)	Stayed in AOS (n = 140)	<i>F</i> (3, 397) or χ^2 (3)	<i>p</i>	η^2
Age (years)							
<i>M</i>	30.33	29.88	30.27	30.84	0.16	.921	.001
<i>SD</i>	9.34	9.08	9.65	8.29			
RoC*RoI							
<i>M</i>	.50	.51	.51	.52	0.29	.834	.002
<i>SD</i>	.16	.16	.15	.16			
Sentence length (days)							
<i>Mdn</i>	364.00	459.00	419.50	441.00	11.59	.009	.03
<i>Mean rank</i>	204.78	198.94	168.84	219.80			
Seriousness of offence before SMP							
<i>M</i>	3.88	4.37	4.26	4.12	2.53	.057	.02
<i>SD</i>	1.22	1.16	1.27	1.20			
Seriousness of reconviction offence							
<i>M</i>	1.85	1.76	1.44	2.01	3.11	.026	.02
<i>SD</i>	1.45	1.37	1.49	1.40			

Note. Kruskal-Wallis test was performed for sentence length; one way ANOVAs were used for all other variables. RoC*RoI = risk of recidivism by risk of reincarceration scale scores; PAS = pre-action stage; AOS = action-oriented stage.

Table M2

Differences in Stage Movements across Demographic and Outcome Variables (n = 401)

Characteristic	Progressed (n = 126)		Regressed (n = 41)		Stayed in PAS (n = 94)		Stayed in AOS (n = 140)		χ^2	p	Cramer's V
	n	%	n	%	n	%	n	%			
Ethnicity											
NZ Māori	58	46	23	56	44	47	70	50	5.77 ^a	.76	.07
NZ European	52	41	12	29	36	38	50	36			
Pacific Islanders	13	10	4	10	7	7	14	10			
Recidivism											
Yes	98	78	31	76	59	63	110	79	8.73 ^b	.03	.15
No	28	22	10	24	35	37	30	21			
Setting											
Community	46	37	12	29	46	49	43	31	9.20 ^b	.03	.15
Prison	80	63	29	71	48	51	97	69			

Note. PAS = pre-action stage; AOS = action-oriented stage.

^adf = 9. ^bdf = 3.

Appendix N: Additional details for logistic regression

Table N1

Intercorrelations for Ethnicity, Stage Profile and Stage Movement Variables

Variable	1	2	3	4	5	6	7	8	9
Ethnicity^a									
1. NZ Māori	—								
2. NZ European	—	—							
3. Pacific Islander	—	—	—						
4. Other	—	—	—	—					
T1 stage profiles^a									
5. AM	.08	-.11*	.02	.06	—				
6. NRA	-.07	.08	.01	-.03	-.23***	—			
7. PC	-.05	.06	-.04	.02	-.11*	-.15**	—		
8. PP	.05	-.03	-.02	-.03	-.31***	-.41***	-.21***	—	
9. P	-.02	.01	.02	.01	-.20***	-.26***	-.13**	-.37***	—
T2 stage profiles^b									
10. AM	.01	-.01	-.04	.04	.44***	.12*	-.09	-.24***	-.17**
11. PC	-.02	.03	-.04	.02	-.07	.01	.56***	-.15**	-.12*
12. PP	.05	-.07	.02	.01	-.18***	.08	-.12*	.27***	-.17**
13. P	-.06	.07	.03	-.05	-.15**	-.20***	-.13*	.01	.42***
Stage movement^b									
14. Progressed	-.04	.05	.02	-.07	.02	.36***	-.02	-.05	-.33***
15. Regressed	.05	-.06	.01	.01	-.14*	-.18***	-.09	.01	.38***
16. Stayed in PAS	-.02	.01	-.04	.08	.42***	.19***	.31***	-.42***	-.27***
17. Stayed in AOS	.02	-.03	.01	-.01	-.30***	-.40***	-.20***	.42***	.31***

Table N1 continued

Variable	10	11	12	13	14	15	16	17
T2 stage profiles ^b								
10. AM	—							
11. PC	-.15**	—						
12. PP	-.45***	-.27***	—					
13. P	-.31***	-.18***	-.54***	—				
Stage movement ^b								
14. Progressed	-.34***	-.20***	.12*	.31***	—			
15. Regressed	.16**	.05	.03	-.21***	-.23***	—		
16. Stayed in PAS	.68***	.43***	-.49***	-.34***	-.38***	-.19***	—	
17. Stayed in AOS	-.37***	-.22***	.30***	.14**	-.50***	-.25***	.41***	—

Note. RoC*RoI = risk of recidivism by risk of reincarceration scale scores; SMP = short motivational programme; MUSOS = Massey University Seriousness of Offence Scale; T1 = pre-SMP; T2 = post-SMP; AM = Ambivalent; NRA = Non-Reflective Action; PC = Precontemplation; PP = Preparation; P = Participation; PAS = pre-action stage; AOS = action-oriented stage.

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

^a $N = 481$. ^b $n = 401$.

Table N2

Control Variables for Effects of Pre-SMP Stage Profiles on Recidivism (N= 481)

Predictor	<i>B</i>	<i>SE</i>	Wald		95% CI	<i>OR</i>
			statistic	<i>p</i>		
Age	-.03	.01	4.10	.04	[.95, .99]	.97
MUSOS T1	-.18	.12	2.15	.14	[.66, 1.06]	.84
RoC*RoI	.49	.09	32.69	<.001	[1.38, 1.93]	1.63
Sentence length	-.03	.01	10.27	.001	[.97, .99]	.97
SMP completion	-.57	.36	2.54	.11	[.28, 1.14]	.57
Ethnicity						
NZ European	-.07	.27	.06	.81	[.56, 1.58]	.94
Pacific Islander	.19	.42	.22	.64	[.54, 2.74]	1.21
Other	-.79	.53	2.26	.13	[.16, 1.27]	.46
NZ Māori ^a	—	—	—	—	—	1.00

Note. CI = confidence interval for odds ratio (*OR*). RoC*RoI = risk of recidivism by risk of reincarceration scale scores; MUSOS = Massey University Seriousness of Offence Scale; T1 = pre-SMP.

^aReference sub-group.

Table N3

Control Variables for Effects of Post-SMP Stage Profiles on Recidivism (n = 401)

Predictor	<i>B</i>	<i>SE</i>	Wald		95% CI	<i>OR</i>
			statistic	<i>p</i>		
Age	-.02	.01	2.44	.12	[.95, 1.01]	.98
MUSOS T1	-.18	.13	1.92	.17	[.65, 1.08]	.84
RoC*RoI	.47	.09	27.56	<.001	[1.34, 1.91]	1.60
Sentence length	-.03	.01	8.90	.003	[.95, .99]	.97
Ethnicity						
NZ European	-.20	.28	.48	.49	[.47, 1.43]	.82
Pacific Islander	.19	.46	.17	.68	[.49, 3.00]	1.21
Other	-.97	.56	3.01	.08	[.13, 1.13]	.38
NZ Māori ^a	—	—	—	—	—	1.00

Note. CI = confidence interval for odds ratio (*OR*). RoC*RoI = risk of recidivism by risk of reincarceration scale scores; MUSOS = Massey University Seriousness of Offence Scale; T1 = pre-SMP.

^aReference sub-group.

Table N4

Control Variables for Effects of Stage Movement on Recidivism (n = 401)

Predictor	<i>B</i>	<i>SE</i>	Wald		95% CI	<i>OR</i>
			statistic	<i>p</i>		
Age	-.02	.01	2.85	.09	[.95, 1.00]	.98
MUSOS T1	-.19	.13	2.13	.14	[.64, 1.07]	.83
RoC*RoI	.48	.09	28.56	<.001	[1.35, 1.92]	1.61
Sentence length	-.03	.01	9.70	.002	[.95, .99]	.97
Ethnicity						
NZ European	-.16	.28	.31	.58	[.49, 1.49]	.85
Pacific Islander	.22	.46	.22	.64	[.50, 3.06]	1.24
Other	-.95	.57	2.77	.10	[.13, 1.18]	.40
NZ Māori ^a	—	—	—	—	—	1.00

Note. CI = confidence interval for odds ratio (*OR*). RoC*RoI = risk of recidivism by risk of reincarceration scale scores; MUSOS = Massey University Seriousness of Offence Scale; T1 = pre-SMP.

^aReference sub-group.