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**Providing Access to Socially Mediated Reinforcement in AOD Treatment:
Effects on Recovery-Oriented Behaviour in Community Alcohol and Other Drug
Treatment**

A thesis
submitted in partial fulfilment
of the requirements for the degree
of
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Abstract

Reinforcement-based interventions are effective in AOD treatment, but many rely on resource-intensive procedures or abstinence-based contingencies. This study examined whether increasing access to clinician-delivered socially mediated reinforcement (SMR) between counselling sessions was associated with behaviour consistent with recovery within a community AOD service. A non-concurrent multiple-baseline-across-participants design was used with five taiohi ages 18 to 23 years receiving community AOD counselling in Aotearoa NZ. Participants received one personalised, noncontingent supportive message each week during the intervention phase. Recovery goal engagement was the primary outcome, with session attendance and ADOM scores examined as secondary measures. Visual data analysis did not demonstrate a functional relationship between SMR and the outcome measures. However, some participants showed increases in recovery progress, goal engagement, and treatment attendance that were maintained across treatment. Participant disengagement and missing data limited the interpretation of results. Findings support further investigation of SMR within community AOD settings.

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This thesis is dedicated to those experiencing substance-related harm, to the people who love and support them, and to those working alongside them in recovery. May this work contribute, in some small way, to improved understanding, compassion, and hope. I am with you.

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Providing Access to Socially Mediated Reinforcement in AOD Treatment: Effects on Recovery-Oriented Behaviour in Community Alcohol and Other Drug Treatment.

At its most severe, substance dependence can affect nearly every domain of a person's life; psychological, relational, emotional, vocational, and physical, often with enduring consequences. While many individuals engage in recreational substance use without significant harm, others develop patterns of use that become persistent, disruptive, and difficult to modify. Substance Use Disorder (SUD) is the diagnostic term used within the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2022) to describe persistent psychoactive substance use associated with clinically significant impairment or distress. SUDs are conceptualised along a continuum of severity and are diagnosed when at least two symptoms are present within a 12-month period. These symptoms include impaired control over substance use, social impairment, risky use, and pharmacological indicators such as tolerance and withdrawal (American Psychiatric Association, 2022; McNeely et al., 2024). The SUD classification encompasses a range of substance-specific disorders, including Alcohol Use Disorder, Cannabis Use Disorder, Opioid Use Disorder, Stimulant Use Disorder, Hallucinogen Use Disorder, Sedative Use Disorder, and Tobacco Use Disorder (American Psychiatric Association, 2022). Many individuals also engage in polysubstance use, defined as the use of more than one substance within a relatively short period of time (Mefodeva et al., 2022; What Is Polysubstance Use Disorder?, 2024). While globally, Alcohol Use Disorder accounts for the greatest burden of SUDs, followed by Cannabis Use Disorder and Opioid Use Disorder (Danpanichkul et al., 2025). SUDs collectively represent a significant global public health concern and contribute substantially to preventable disability and mortality worldwide.

Terminology; Hazardous Substance Use and Substance Dependence

Although SUD is the formal diagnostic classification used within the DSM (2022),

community alcohol and other drug (AOD) services frequently work with individuals across a broader continuum of substance-related harm, including those who engage in hazardous substance use but may not meet the diagnostic criteria for a SUD. Hazardous substance use refers broadly to patterns of substance use associated with an increased risk of adverse physical, psychological, or social outcomes. Within NZ health and policy literature, a range of terms are used to describe substance use associated with harm, including hazardous substance use, problematic substance use, and harmful substance use (Mental Health and Problematic Substance Use | Ministry of Health NZ, 2024; Drug Use in Aotearoa 2023/24, 2025). Although these terms are not always used interchangeably, they generally describe substance use associated with adverse consequences that may not meet the criteria for substance dependence. Hazardous substance use may therefore be understood as an earlier point along a continuum of substance-related harm, where substance use is beginning to interfere with important areas of life but has not yet become a persistent or dominant pattern of behaviour. Another term, substance dependence is used to describe more persistent and severe patterns of substance use characterised by continued use despite substance-related problems, difficulty controlling use, and increasing reliance on substances (APA Dictionary of Psychology, 2023). Other terms commonly encountered within the literature include addiction, substance abuse, and substance misuse. For the purposes of this thesis, substance-related harm is used as the overarching term encompassing both hazardous substance use and substance dependence.

The Aotearoa New Zealand Context

Alcohol remains the most widely used substance nationally, with 3.29 million people aged 15 years and over reporting alcohol use in 2023/24, and 21% of drinkers meeting criteria for hazardous drinking, defined as patterns of alcohol consumption associated with increased risk of adverse alcohol-related outcomes (MacKillop et al., 2022). In Aotearoa New

Zealand (NZ), lower-risk drinking guidance recommends limiting alcohol consumption to no more than two standard drinks per day and 10 per week for women, and no more than three standard drinks per day and 15 per week for men (Drinking Responsibly, 2025). Cannabis remains the most used illicit substance, with 15.6% of people aged 15 years and over reporting past-year use and approximately 225,000 people reporting at least weekly use (Drug Use in Aotearoa 2023/24, 2025). Internationally, young adults experience disproportionately high rates of substance use disorders and associated substance-related harms compared with other adult age groups (Lu et al., 2023). Similar patterns are evident in NZ (Sullivan et al., 2025). Polysubstance use among taiohi (young people or young adults) has also been associated with increased psychological distress, substance dependence, and poorer long-term outcomes (Mefodeva et al., 2022).

Importantly, substance-related harm is not evenly distributed across the population. Māori report substantially higher rates of weekly cannabis use, while individuals managing disabilities and those living in areas of socioeconomic deprivation are more likely to report frequent cannabis and amphetamine use (Drug Use in Aotearoa 2023/24, 2025; Wikaire & Doherty, 2023). Pacific communities also experience inequitable substance-related harm, particularly regarding alcohol, methamphetamine and synthetic cannabinoid use among younger Pacific populations (Nosa et al., 2022). These disparities reflect broader structural inequities, including poorer access to services, persistent mental health inequities, and barriers affecting Māori and Pacific communities (Community Mental Health Care in Aotearoa New Zealand, 2022).

Substance-related harm also carries substantial social and economic cost. NZ's Drug Harm Index estimated illicit substance-related harm at approximately \$1.941 billion in 2023 (Action Plan to Prevent and Reduce Substance Harm 2026 - 2029, 2026), while alcohol-related harm alone has been estimated to cost billions annually across health, justice,

productivity and social domains (Costs of Alcohol Harms in New Zealand, 2024). In response, NZ primarily approaches substance use through harm minimisation and stepped-care models,(primary and secondary supports). Harm minimisation (also referred to as harm reduction) seeks to reduce the health, social, psychological, and environmental harms associated with substance use, recognising that people engage in AOD treatment at different stages of change, ranging from precontemplation through to maintenance, and may not identify abstinence as an immediate goal (Single, 1995; Raihan & Cogburn, 2026). Consequently, intervention is generally guided by the level of harm, functional impact, and clinical need associated with substance use rather than requiring a formal psychiatric diagnosis. Standardised measures such as the Alcohol and Drug Outcome Measure (ADOM) are commonly used to assess patterns of use and associated harm, supporting earlier intervention before substance use becomes more severe or entrenched (ADOM Guide for Addiction Practitioners | Data and Outcomes, 2022).

A Behaviour Analytic Perspective on Substance Use

Skinner (1937) proposed that operant behaviour is influenced by the consequences it produces. Substance use is no exception. Early experimental work by Pickens and Thompson (1968), later extended by Miller, Brodkorb and Branch (2001), demonstrated that animals repeatedly engage in lever-pressing behaviour to obtain substances such as cocaine, even when substantial response effort is required. Together, these findings illustrate that substance use is sensitive to the same reinforcement processes that govern other forms of operant behaviour.

From this perspective, substance use can be understood as operant behaviour that is shaped and maintained by its environmental consequences rather than reflecting personal deficiency, moral failure, or enduring personality traits (Miguel et al., 2015). Describing specific patterns of substance use, behavioural allocation and reinforcement therefore provide

greater explanatory value than relying on broad labels that may obscure the environmental, biological, social, and behavioural variables contributing to substance-related harm.

Behaviourally then, substance use, including its more severe forms of hazardous substance use and substance dependence, is not viewed as irrational or without function. Rather, it can be understood as behaviour shaped and maintained through an individual's reinforcement history.

In behavioural science, reinforcement refers to consequences that increase the future likelihood of a behaviour occurring again under similar conditions (Cooper et al., 2020). When responding is followed by reinforcement, the probability of that responding increases under similar antecedent conditions; when reinforcement is discontinued or punishment is introduced, responding decreases over time. This functional relationship is commonly described through the three-term contingency: antecedent (A), behaviour (B), and consequence (C), or similarly within operant conditioning as antecedent stimulus (SD), response (R), and consequence (Sr) (Cooper et al., 2020). A reinforcement history therefore refers to the repeated pattern of consequences that have shaped and maintained behaviour over time.

In the context of substance-related harm, substance use may be maintained through both positive reinforcement, such as the immediate pharmacological or socially reinforcing effects of a substance, and negative reinforcement, where substance use results in the reduction, avoidance, or temporary escape from aversive environmental conditions (Miguel et al., 2015; Volkow et al., 2016). Substance use often develops and persists in contexts where alternative sources of reinforcement are limited, inconsistent, or inaccessible and where the immediate reinforcing effects of use outweigh delayed or inconsistent consequences (Silverman et al., 2012; Meyers et al., 2011). For example, the immediate effects of alcohol or cannabis may temporarily reduce exposure to aversive social situations, physiological

discomfort, withdrawal symptoms, or environmental stressors, while maladaptive outcomes such as relationship breakdowns, deteriorating health, financial instability, or educational disengagement occur later and less consistently.

A foundational aspect of this process is that substances produce pharmacological effects that function as unconditioned reinforcers; that is, their reinforcing properties do not require prior learning. The effects of substances often immediately and reliably strengthen the relationship between environmental contexts and substance-related responding. Over time, repeated pairings establish stimulus control, where behaviours occur more frequently in the presence of cues associated with reinforcement. Environmental contexts such as locations, peer groups, time of day, interpersonal conflict, social isolation, or physiological withdrawal states may then come to function as discriminative stimuli, signalling the availability of reinforcement and increasing the likelihood of substance use occurring (Bouton, 2014; Shahan & Sweeney, 2011).

Dense and repeated reinforcement can strengthen substance-related behaviour such that it persists despite delayed or adverse consequences. Consequently, behaviour change may be difficult to sustain when environmental contexts and reinforcement contingencies associated with substance use remain largely unchanged. Previously reinforced behaviour may re-emerge when individuals encounter contexts associated with earlier patterns of reinforcement, even after periods of successful behaviour change (Bouton, 2014). Extinction refers to the reduction of behaviour when reinforcement is no longer available. However, extinction does not erase reinforcement history, and recovery-oriented behaviours that contact less reinforcement over time may weaken, contributing to relapse when substance use continues to provide more immediate or reliable reinforcement (Shahan & Sweeney, 2011).

While the present thesis focuses on a behavioural conceptualisation of substance use, it is important to acknowledge that repeated substance use is also associated with

neurobiological changes in brain systems involved in reward, learning, and behavioural control (Volkow et al., 2016). These changes contribute to the persistence of substance use over time and are highly relevant when considering the reinforcing effects of substances. However, a detailed discussion of these neurobiological processes is beyond the scope of the present thesis.

The reinforcement histories that influence substance use do not develop in isolation. Rather, they are shaped across development and within broader social and whānau (family) contexts. Exposure to substance use within family, peer, and community environments can influence the acquisition of substance-related behaviour through processes of modelling, differential reinforcement, and repeated contact with substance-related contingencies (Monahan et al., 2014; Hawkins et al., 1992). Within these environments, substance use may be reinforced through social interactions and broader community norms, increasing the likelihood that similar behavioural patterns are acquired and maintained over time. Rangatahi (young people) are therefore embedded within whānau and community systems that influence access to reinforcement and exposure to substance use.

Taken together, when substance use is understood as a behaviour shaped by its reinforcement history and neurobiological adaptation, rather than simply as a freely chosen action, blame tends to decrease and support for treatment increases (Kelly et al., 2015). Furthermore, understanding the behaviour analytic conceptualisation of substance use provides a foundation for examining more nuanced behavioural processes within treatment settings. The following sections will explore an applied behaviour analysis (ABA) approach to AOD treatment.

Motivating Operations

The value of reinforcement changes depending on context. Motivating Operations (MOs) are environmental events or conditions that alter the value of a reinforcer and

influence the likelihood of behaviours that have previously produced that consequence (Laraway et al., 2003). MOs are commonly categorised as either Establishing Operations (EOs), which increase the value of a reinforcer and make behaviour that has previously produced that reinforcer more likely to occur, or Abolishing Operations (AOs), which decrease the value of a reinforcer and reduce the likelihood of that behaviour. Although the broader term MO is more commonly used in contemporary behaviour analysis, distinguishing between EOs and AOs is useful for understanding the factors that increase or decrease the reinforcing value of substances and substance-related behaviours.

Many factors associated with substance use can be conceptualised as EOs. Conditions such as stress, social exclusion, academic pressure, withdrawal symptoms, or unstable environments may function as EOs when substance use has previously produced reinforcing outcomes. Under these circumstances, the reinforcing value of substances increases, making substance-seeking and substance-use behaviours more likely to occur. Repeated substance use may temporarily alleviate withdrawal-related discomfort and stress associated with addiction (Koob & Le Moal, 2008). Behaviourally, such effects may strengthen substance-use behaviour when reductions in aversive conditions have reliably followed use.

Adolescence may further amplify these processes. Young people are particularly sensitive to socially mediated consequences, making peer attention, social interaction, and participation in valued peer activities especially reinforcing (Monahan et al., 2014; Gullo & Dawe, 2008). When substance use is associated with these consequences, the presence of peers may function as a discriminative stimulus signalling that reinforcement is available, increasing the likelihood of substance use in those contexts. Harm minimisation approaches align with this behavioural interpretation by targeting the environmental conditions that influence substance use. By increasing access to supportive relationships, reducing immediate risk, and reinforcing small, achievable changes, harm reduction may reduce the relative value

of substance use and support continued engagement with services (Oranga Hinengaro System and Service Framework | Ministry of Health NZ, 2023).

In contrast, AOs help explain the conditions under which substance use may become less likely. When young people have access to consistent support, meaningful activities, and stable sources of reinforcement, the relative value of substances may decrease (Silverman et al., 2016). As alternative sources of reinforcement become more available, behaviour may gradually shift away from engaging in substance use over time. EOs and AOs therefore have important treatment implications because they influence the reinforcing value of substances, interact with stimulus control processes, and highlight opportunities to strengthen alternative sources of reinforcement that support behaviour change. Behaviour analytic principles have therefore informed the development of a range of reinforcement-based interventions designed to increase engagement in behaviours that compete with substance use.

Contingency Management

Among reinforcement-based interventions, Contingency Management (CM) is one of the most extensively researched and empirically supported approaches. CM is used as a primary method of treatment in the United States and is increasing in use in NZ. Originally developed from operant learning principles, CM involves the systematic delivery of reinforcement contingent upon demonstration of a target behaviour, such as treatment attendance, medication adherence, or, most commonly, biologically verified abstinence (Higgins et al., 1994; Rohsenow, 2008). Behaviourally, CM alters reinforcement contingencies by increasing the likelihood that treatment-consistent behaviours contact reinforcement while substance-related behaviours become relatively less reinforcing over time. In NZ, CM has been identified as one of the most effective interventions for Amphetamine-Type Stimulant (ATS) use disorders, particularly when combined with Cognitive Behavioural Therapy (Matua Raki, 2013). More recently, CM principles have

attracted interest within Māori health research. For example, in 2024, the Health Research Council of New Zealand funded a three-year on-going project to develop and evaluate a Kaupapa Māori behavioural health intervention for harmful substance use based on CM principles (Brittain & Bennett, 2024).

The effectiveness of CM has been demonstrated across a wide range of treatment settings and populations. A recent meta-analysis by Bolívar et al. (2021) involving more than 10,000 participants receiving treatment for opioid use disorder found CM produced significant improvements in treatment attendance, medication adherence and abstinence outcomes. Similar findings have been reported across a range of substance use populations, for example, Petry et al. (2007) evaluated a prize-based CM intervention within community AOD treatment programmes, where participants earned opportunities to win prizes contingent on demonstrating treatment-consistent behaviours, including abstinence and attendance. Compared with standard treatment alone, participants receiving CM remained engaged in treatment for longer and achieved significantly better abstinence outcomes. CM has also been adapted for use in novel treatment settings. For example, Bach et al. (2020) described the implementation of a CM programme within an acute inpatient medical setting for stimulant use disorder, demonstrating how reinforcement-based interventions can be integrated into broader healthcare services to support treatment engagement.

Despite its effectiveness, CM is not without limitations. Practical barriers are among the most commonly cited challenges to implementation. Many CM programmes require financial incentives, frequent drug testing, structured monitoring procedures and substantial staffing resources, all of which increase implementation costs (Petry et al., 2017). In publicly funded treatment settings, these requirements may limit scalability and accessibility. Additionally, many CM interventions are designed around abstinence-based contingencies, which may not align with harm minimisation approaches or the goals of all service users.

A further limitation is that treatment effects often decrease once reinforcement contingencies are removed, consistent with the process of extinction (Shahan & Sweeney, 2011). Although CM is highly effective in promoting treatment engagement and abstinence while reinforcement is available, maintaining these effects over time remains challenging. Toegel et al. (2024) argued that CM may be better conceptualised as a long-term maintenance intervention, noting that treatment gains frequently diminish following withdrawal of reinforcement. This raises important questions regarding how reinforcement can be delivered in ways that are sustainable, scalable and capable of supporting long-term behaviour change beyond structured CM programmes.

Although CM is the most extensively researched reinforcement-based intervention for substance-related harm, it is not the only approach that applies behavioural principles within AOD treatment. One of the earliest and most influential approaches is the Community Reinforcement Approach (CRA), which seeks to restructure environmental contingencies so that abstinence contacts greater reinforcement than substance use. CRA targets multiple areas of functioning, including employment, recreation, social relationships, and family involvement, and has demonstrated effectiveness in reducing substance use while improving broader psychosocial functioning (Meyers et al., 2011).

Several related interventions have since extended these principles. The Adolescent Community Reinforcement Approach (A-CRA) adapts CRA for young people through developmentally appropriate interventions and greater involvement of caregivers and support networks (Godley et al., 2014). Community Reinforcement and Family Training (CRAFT) applies reinforcement principles through family members and significant others, increasing reinforcement for treatment engagement while reducing reinforcement for substance use behaviours (Kirby et al., 2017). Reinforcement-Based Treatment (RBT) similarly integrates functional assessment, goal setting, skills training, and reinforcement procedures within a

structured treatment programme and has been associated with improvements in treatment retention, reductions in substance use, and increased engagement in alternative non-substance-related activities (Tuten, 2012).

Attendance and Goal Engagement

Within AOD treatment, attendance and goal engagement represent two observable behaviours commonly associated with treatment participation and recovery-oriented behaviour. Recovery goal engagement refers to behaviours consistent with self-identified treatment goals, such as completing agreed tasks, monitoring or reducing substance use, attending education or work, engaging in alternative activities to substance use, or reporting progress towards defined targets. Behaviourally, recovery goals may function as verbal stimuli that influence future responding by specifying contingencies for behaviour (O'Hora & Maglieri, 2006; Ramnerö & Törneke, 2015). For example, a goal such as "*I will only smoke cannabis after 5 pm*" may alter the likelihood of behaviour consistent with that rule. Behaviour-analytic research has demonstrated that goal-setting procedures can improve performance and increase engagement in target behaviours. For example, self-set goals and public posting procedures have been associated with improvements in skill execution and performance among collegiate football players and female soccer players (Brobst & Ward, 2002). More broadly, clearly specified goals have been associated with greater behavioural adherence, persistence, and task completion (Cohrs et al., 2016).

When goal-consistent behaviours repeatedly contact reinforcement, such as clinician acknowledgement, social support, or measurable progress, they become more likely to occur in the future. As engagement with treatment increases, individuals may emit a greater number of goal-consistent behaviours and contact alternative sources of reinforcement. As behavioural effort shifts towards these reinforced activities, the proportion of time allocated to substance-seeking or substance-related behaviour may decrease. Consistent with

behavioural economic accounts of substance use, increasing access to alternative sources of reinforcement has been shown to shift behavioural allocation and reduce maladaptive responding through differential reinforcement processes (Higgins et al., 1994; Shahan & Sweeney, 2011).

Attendance refers to the occurrence of a scheduled treatment contact, such as attending an in-person, online, or telephone counselling session. Like goal engagement, attendance can be conceptualised as an operant response because its future likelihood is influenced by its history of reinforcement. When session attendance is followed by reinforcement, the future probability of attendance under similar antecedent conditions increases. For example, if attending a session produces clinician-delivered reinforcement contingent on client verbal behaviour, those socially mediated consequences may function as conditioned reinforcers and strengthen the attendance response. Research consistently shows that individuals are more likely to continue attending treatment when sessions are experienced as supportive and collaborative (Meier et al., 2005; Flückiger et al., 2018).

In contrast, when attendance produces minimal or inconsistent reinforcement, requires high response effort (*e.g., arranging transport, missing work or school, extended waiting periods*), or is followed by aversive consequences, the probability of future attendance may decrease (Wilder et al., 2021; Alling & Poling, 1995). Attrition in substance dependence treatment has long been recognised as a significant challenge. An early review by Stark (1992) reported that approximately half of adults disengage within the first month of treatment, with between 20% and 80% leaving within three months. Recent findings from NZ similarly demonstrate difficulties maintaining treatment retention, with substantial proportions of participants not reaching the three-month benchmark in therapeutic community settings (Ashdown et al., 2023). These challenges have prompted growing interest in strategies that can increase access to reinforcement and support engagement

between treatment contacts.

Both goal engagement and attendance are important because they increase opportunities for individuals to engage with therapeutic support, practise new skills, contact alternative sources of reinforcement, and work towards self-identified recovery goals. One factor consistently associated with treatment engagement is the therapeutic alliance, explored in the present study as clinician-delivered SMR. The therapeutic alliance is commonly defined by three components: agreement on treatment goals, agreement on treatment processes, and the quality of the relationship between the clinician and client (Meier et al., 2005). From this perspective, collaboratively developed recovery goals serve not only as a behavioural intervention but also as an important component of the therapeutic relationship itself. Furthermore, therapeutic interactions may function as forms of reinforcement, with clinician attention, validation, and ongoing engagement potentially influencing behaviour and treatment participation (Melton et al., 2023).

The Role of Social Reinforcement and Noncontingent Reinforcement

A particularly important form of reinforcement within human behaviour is socially mediated reinforcement (SMR), in which reinforcement is delivered through the actions of another person rather than occurring directly as a consequence of the behaviour itself (Cooper et al., 2020). Socially mediated reinforcers may include attention, praise, encouragement, recognition, and other forms of social interaction that influence future behaviour. Given the inherently social nature of human behaviour, socially mediated consequences play an important role in the acquisition, maintenance, and modification of behaviour across a range of settings. Despite this, a recent review suggests that social reinforcers are used less frequently than tangible or non-social reinforcers within ABA research (Morris & Bridges, 2024).

A broader understanding of reinforcement processes also includes noncontingent

reinforcement (NCR). NCR involves the delivery of reinforcement according to a time-based schedule independent of a specific target response (Cooper et al., 2020). Unlike contingent reinforcement procedures, reinforcement is delivered regardless of whether a particular behaviour occurs. By increasing the overall availability and predictability of reinforcement within the environment, NCR may reduce behaviours that have historically produced access to similar reinforcers (Vollmer et al., 1993; Phillips et al., 2017). One of the earliest demonstrations of this effect was provided by Vollmer et al. (1993), who found that regular access to noncontingent attention reduced rates of attention-maintained problem behaviour, despite attention not being delivered contingent on appropriate responding. More recently, Phillips et al. (2017) reported that NCR was effective across a range of applications involving socially maintained problem behaviour, highlighting its continued relevance as a behavioural intervention.

Together, these findings demonstrate that behaviour may be influenced not only by response-reinforcer contingencies, but also by changes in the overall availability, density, and predictability of reinforcement. Understanding these processes provides an important foundation for examining how SMR may influence behaviours associated with treatment participation and recovery.

Existing Behavioural Interventions and Applications

More recently, researchers have begun exploring whether digital technologies can extend access to reinforcement beyond traditional treatment environments. These interventions have demonstrated effectiveness across a range of health-related behaviours, including chronic disease management, smoking cessation, and substance use. For example, Watterson et al. (2018) reported improvements in diabetes self-management among low-income patients who received a text-message intervention designed to support ongoing health-monitoring behaviours, including prompting monitoring of glucose levels. Similarly,

Spohr et al. (2015) found that individuals receiving SMS-based smoking cessation support were approximately 35% more likely to quit smoking than those in control conditions.

Reviews by Suffoletto (2016, 2024) similarly concluded that text-message interventions can produce meaningful, although often modest, changes in health-related behaviours, including substance use, while offering a low-cost and accessible method of delivering support within natural environments.

Within the substance use field, digital interventions have increasingly been used to provide support, monitoring, and reinforcement between treatment contacts. A systematic review and meta-analysis of 34 randomised controlled trials found that remote interventions, including telephone support, web-based programmes, text messaging, telehealth, and digital therapeutic platforms like the use of apps were associated with lower relapse rates and fewer days of substance use when delivered alongside standard treatment (Kwan et al., 2025). Most interventions supplemented existing face-to-face services rather than replacing them, suggesting that ongoing support delivered between sessions may enhance treatment outcomes. Similarly, Ives et al. (2024) evaluated an app-based social incentive system that provided digital rewards and supportive feedback contingent on engagement with recovery activities and found the approach to be feasible and acceptable for both participants and clinicians. Palacios et al. (2025) evaluated a digital recovery support platform used alongside outpatient treatment for opioid use disorder. The platform provided opportunities for self-monitoring, clinician contact, and engagement with recovery-related activities between treatment sessions. Participants could complete goal check-ins, track recovery-related behaviours, access psychoeducational resources, and communicate with treatment providers through a direct messaging system. Participants who actively engaged with the platform demonstrated higher rates of treatment retention, continuity of care, and medication adherence than those who did not engage.

Collectively, this literature suggests that increasing access to reinforcement beyond traditional treatment sessions may support treatment engagement, retention, and reductions in substance-related harm. Importantly, while the term SMR is seldom used within this literature, many interventions incorporate components such as clinician contact, supportive feedback, accountability, peer interaction, and social incentives that may be conceptualised behaviourally as forms of SMR.

This interpretation is consistent with broader behavioural research demonstrating that social consequences can influence behaviour. For example Christensen et al. (2004) demonstrated that peer-mediated support and positive social reinforcement contributed to improvement in socially appropriate behaviour among at risk students. Smith (2021) argued that social interaction can function as a powerful source of reinforcement. Given the strong association between social relationships and substance use behaviour, SMR may represent an important mechanism through which treatment engagement and recovery-oriented behaviours can be supported. These findings support consideration of SMR as a potentially important influence on recovery-oriented behaviour.

Together, this literature demonstrates a growing application of behavioural principles to substance-related harm and increasing interest in extending support beyond traditional treatment sessions. However, relatively little research has directly examined whether low-intensity forms of clinician-delivered SMR can influence recovery-oriented behaviours within routine AOD treatment. Existing research has largely focused on abstinence outcomes, treatment retention, or multi-component interventions, leaving questions about the behavioural effects of simpler forms of SMR delivered between treatment contacts.

The Present Study

The present study investigated whether increasing access to clinician-delivered SMR contributed to engagement with recovery-oriented behaviours within a community AOD

service. The study was developed in response to evidence that goal monitoring and supportive feedback delivered under SMR contingencies can increase engagement across a range of behaviours, alongside growing evidence that digital technologies can extend access to reinforcement beyond traditional treatment settings (Ives et al., 2024; Suffoletto, 2024). Rather than focusing on abstinence as the primary outcome, this study examined engagement with recovery goals as the primary dependent variable. Session attendance and clinical outcome measures were examined as secondary dependent variables and measures of treatment outcomes. The intervention involved structured supportive contact delivered through SMS and Recovery Path application messages between counselling sessions. Messages were provided once weekly, independently of goal completion, abstinence, or session attendance, allowing examination of whether noncontingent SMR would increase or sustain engagement with recovery goals. It was hypothesised that increasing access to SMR would strengthen engagement with recovery-oriented behaviours, including recovery goal engagement and session attendance, increase opportunities to contact alternative sources of reinforcement within the natural environment, and contribute to reductions in substance-related harm over time.

Method

Participants

Participants included five taiohi aged between 18 and 23 years who were newly referred to a community-based AOD outpatient service in Aotearoa NZ. All participants were considered clinically appropriate for harm reduction-oriented outpatient treatment in accordance with the service's intake and assessment criteria. Potential participants were identified through the service's routine referral process. Referrals originated from a range of sources, including Te Whatu Ora community mental health services, general practitioners (GPs), other community agencies and self-referrals.

Inclusion criteria were: (a) aged 18 years or older, (b) not court-mandated to attend AOD counselling, (c) not previously referred to the organisation or awaiting care by the clinician prior to ethical approval, (d) access to a smartphone and reliable internet/data and willingness to install and use the Recovery Path application, (e) ability to attend regular sessions to establish a 3-5 session baseline, and (f) presentation of substance use concerns appropriate for outpatient care (e.g., indicators identified through routine clinical assessment measures such as the ADOM). Exclusion criteria included: (a) court-mandated or probation referred clients, (b) acute or imminent risk requiring secondary-level mental health care, (c) inability to provide informed consent, (d) lack of smartphone access, (e) current regular methamphetamine or opioid use at a level where a low-intensity reinforcement-based intervention is considered clinically inappropriate. Participant characteristics are shown in Table 1.

Table 1

Descriptive Statistics

Participant	Age	Gender	Ethnicity	Primary Substance Concern
P01	19	Female	Māori	Cannabis
P02	23	Female	NZ European	Cannabis, Alcohol
P03	23	Male	Māori	Benzodiazepines, Cannabis
P04	18	Female	Māori	Alcohol, MDMA
P05	21	Female	Māori	Cannabis

Materials

Recovery Path Mobile Application

The Recovery Path mobile application was used as a structured goal-setting and communication platform. During initial sessions, participants installed the application on their smartphone with clinician support. Weekly recovery goals were collaboratively developed during counselling sessions and entered into the application in observable and

measurable terms. Examples of common recovery goals and their operational definitions are presented in Table 2.

Table 2

Examples of Recovery Goals and Operational Definitions

Goal	Example of Client Goals
Alcohol use	For the next week I am not going to consume more the 4 standard drinks per night. First drink at 5:00pm and last at 9:00pm.
Cannabis use	During weekdays (Mon-Fri) I will delay smoking cannabis until after 4:00pm.
Social connection	This week I will not spend time with (Friend A) and instead I will arrange a time to see (Friend B), I like who I am when I am with Friend B.
Sleep routine	For two weeks I am committing to going to bed before 10:00pm each week day (Mon-Fri). I will watch Gilmore Girls to fall asleep.
Physical activity	This week my goal is to go to the gym, Tuesday, Thursday and Saturday. I will set out my gym clothes the night before and plan my work out before.
Employment	This week I will use the CV I made in session to apply for two jobs on Trade me Jobs.

The application included a goal check-in function that allowed participants to record engagement with their weekly goals at any time throughout the week. No limit was placed on the number of goal check-ins participants could complete. During each check-in, participants selected one of five response options: *“I haven’t thought about it yet,” “I have thought about it,” “I have a plan and will put it into action today,” “I am on track,”* or *“Other”* (see Table 3). Participants could also add optional notes describing barriers, progress, or other reflections related to their goals.

Table 3*Example Goal Check-In Displayed in the Recovery Path Clinician Application*

Application Feature	Description
Recovery Goal	Reduce my use
Goal Description	Delay first cannabis use until after 4:00 pm each day
Response Option 1	I haven't thought about it yet
Response Option 2	I have thought about it
Response Option 3	I have a plan and will put it into action today
Response Option 4	I am on track!
Response Option 5	Other

Note. Goal check-ins could be completed multiple times throughout the week. Demonstration data are shown for illustrative purposes only and do not represent data from study participants.

An example of goal check-in records displayed within the Recovery Path application are presented in Table 4. Each completed check-in generated a notification within the clinician version of the application. The application also delivered automated daily reminders both morning and night (existing low level positive reinforcement), encouraging participants to engage with their recovery goals.

Table 4*Example of Goal Check-In Records Displayed Within the Recovery Path Application*

Date	Time	Recovery Goal	Response Selected	Participant Note
Today	10:44am	Reduce my Use	I am on track!	
Sunday 24 May	3:47pm	Reduce my Use	I am on track!	
Wednesday 25 February	12:49pm	Reduce my Use	I haven't thought about it yet	
Wednesday 11 February	11:36am	Reduce my Use	I haven't thought about it yet	
Tuesday 03 February	12:10pm	Reduce my Use	I haven't thought about it yet	
Tuesday 03 February	10:22am	Reduce my Use	I have thought about it	"I'm thinking this time doesn't work"

Note. Demonstration data are shown for illustrative purposes only and do not represent data from study participants. Participants could complete multiple goal check-ins for the same recovery goal and optionally provide written comments regarding progress, barriers, or reflections.

Alcohol and Drug Outcome Measure

The Alcohol and Drug Outcome Measure (ADOM) is a standardised outcome measure routinely used within community AOD services in Aotearoa NZ to assess substance use and psychosocial wellbeing over time (ADOM Collection Form | Data and Outcomes, 2013). A copy of the ADOM questionnaire, including the self-report recovery items, is provided in Appendix C. The measure assesses a range of domains relevant to treatment outcomes, including substance use, physical health, mental health, relationships, employment and daily activities, housing stability, criminal activity, injecting risk and recovery progress. Participants rated their overall recovery progress on a 10-point scale, where 1 indicated low progress and 10 indicated high progress. Participants also rated their satisfaction with progress towards their recovery goals on a five-point scale ranging from not at all satisfied to extremely satisfied.

Measures

The independent variable consisted of the introduction of SMR, delivered on a noncontingent basis between counselling sessions. This consisted of one personalised supportive message sent weekly by the clinician via text message or the Recovery Path application. Message content was developed collaboratively with each participant and was tailored to their self-identified recovery goals, strengths, and areas of focus. Messages were brief, supportive, and individualised, often acknowledging participant effort, reflecting on recovery goals, or providing encouragement. For example, messages included statements such as, *“I’m proud of the effort you’re putting into your goals this week. Is there anything I can do to support you? Keep it up!”* or *“I see you’ve been reducing each day! You’re amazing, I knew you could do it! See you on Monday at 10am”*. Messages were delivered independently of goal completion, app engagement, or session attendance.

The primary dependent variable was recovery goal engagement, measured as the total

number of participant-initiated goal check-ins recorded within the Recovery Path application each week. Goal check-ins measured how often participants interacted with their recovery goals within the application. Participants could check in multiple times throughout the week by selecting options related to their goal progress and adding optional notes. No limit was placed on the number of goal check-ins participants could complete. Participant check-in data could be accessed through the clinician version of the application and manually recorded by the researcher.

Additional dependent variables included session attendance and ADOM scores. Session attendance was recorded for each scheduled counselling session and categorised as attended, cancelled, or did not attend (DNA). Cancellations reflected active communication with the clinician prior to the session, whereas DNAs reflected missed appointments without prior notice. ADOM scores and participant-rated improvement scores were collected as broader indicators of clinically relevant change over time.

Weekly Recovery Goals

Weekly recovery goals were collaboratively developed during counselling sessions and defined in observable and measurable terms. Goals focused on reducing substance-related harm, increasing engagement in recovery-oriented behaviours, and building alternative behavioural repertoires. Examples of goals included delaying substance use, reducing frequency or quantity of use, increasing engagement in structured activities, improving sleep routines, or increasing social connection. An example of these goals can be seen in above in table 2.

Design

A single subject, multiple-baseline-across-participants design was used. Each participant served as their own control, allowing examination of whether changes in engagement behaviours occurred following introduction of the intervention. The intervention

was introduced in a staggered manner across participants following establishment of baseline stability, as determined through visual inspection of patterns in weekly goal check-in and attendance data over time.

Procedure

Potential participants were initially identified through the service's routine referral process. Due to the dual clinician-researcher role, the treating clinician was not involved in recruitment or consent procedures and was unaware of a client's participation status until consent had been obtained. Only participants who provided written informed consent were made aware of the treating clinician. Following receipt of a referral, the service administrator screened referrals against the inclusion and exclusion criteria before forwarding eligible referrals to the clinical lead. The clinical lead contacted eligible clients by telephone, provided information about the study, and emphasised that participation was entirely voluntary, would not affect access to treatment, and would not alter treatment as usual. Interested clients were then emailed a Participant Information Sheet and Consent Form (Appendices A and B). Clients who returned a signed consent form were subsequently contacted by the researcher to schedule their first appointment.

Throughout the study, participants attended routine outpatient AOD counselling sessions lasting approximately 45-60 minutes. Counselling was delivered within a harm minimisation framework and focused on reducing substance-related harm, developing coping and self-management skills, addressing barriers to change, increasing engagement in recovery-oriented behaviours and supporting progress towards participant-identified goals. Abstinence was not required unless identified by the participant as a desired treatment outcome. Recovery goals were reviewed and updated collaboratively each week and entered into the Recovery Path application in observable and measurable terms. For the purposes of this study, *recovery goals* were defined as participant-identified behaviours, activities, or

changes intended to reduce substance-related harm, increase engagement in valued behaviours, or improve functioning across areas of daily life. Recovery was viewed as an individual and self-defined process, with progress measured by movement towards personally meaningful goals rather than any single treatment outcome.

After obtaining informed consent, baseline data collection began at the participant's first attended counselling session. During this session, a comprehensive assessment was completed, the ADOM was administered and the Recovery Path application was installed with clinician support. Weekly recovery goals were collaboratively developed and entered into the application. During baseline, participants received AOD counselling that included weekly goal setting on Recovery Path app and automated daily application reminders. The clinician also had access to the participants' goal activity through the linked clinician version of the application. Data collected during baseline included goal check-in frequency across the week (7-day period), session attendance, ADOM scores, participant self-ratings of recovery progress and participant ratings of satisfaction with progress towards recovery goals. No personalised supportive clinician messages were delivered during baseline.

Baseline continued for a minimum of three weeks and required at least three attended sessions. Baseline length varied across participants and was extended where necessary if multiple sessions were missed. Baseline was not extended in response to low rates of goal check-ins, as goal engagement represented the primary dependent variable of interest. Consequently, both low and high levels of engagement were considered meaningful indicators of participant behaviour. The purpose of the baseline phase was to establish each participant's typical pattern of goal engagement prior to the introduction of the intervention rather than to achieve a minimum level of responding.

Following baseline, the intervention was introduced in a staggered manner across participants while all other aspects of treatment remained unchanged. During the intervention

phase, participants received one personalised supportive message per week from the clinician via text message or Recovery Path messaging. Messages were typically delivered mid-week and focused on encouragement and support. For example, a participant working towards delaying cannabis use may have received a message such as, *“I just wanted to let you know how proud I am of the effort you’ve been putting into your goals this week. Delaying your first smoke of the day is not easy. See you next week!”* Automated daily application reminders continued throughout the intervention phase as part of standard treatment.

All supportive messages were delivered noncontingent on participant performance, including goal completion, application engagement, or session attendance, and were sent on the same day each week. Data collection procedures remained unchanged during the intervention phase. Weekly goal check-in frequency, session attendance, ADOM scores, participant self-ratings of recovery progress, and satisfaction with recovery goal progress continued to be collected. The only procedural change between baseline and intervention phases was the addition of the weekly personalised supportive message.

Weekly goal check-in frequencies were manually recorded by the researcher in Microsoft Excel. Session attendance and ADOM data were recorded through routine clinical documentation processes and extracted for analysis at the conclusion of treatment. The baseline phase continued for three consecutive weeks. Following baseline, participants entered the intervention phase, which remained in effect for the duration of their engagement with the service and continued until treatment completion, withdrawal from the study, or discharge from the service.

Ethical Considerations

Ethical approval was obtained from the University of Waikato Human Research Ethics Committee HREC(Health)2025#108. All participant data were de-identified and securely stored on university-approved systems under supervisor oversight.

Results

Table 5 presents descriptive participation data. Total time engaged with the service ranged from 7 to 16 weeks, with intervention phases ranging from 3 to 12 weeks. Participants attended between 4 and 15 counselling sessions across treatment. P01 attended all scheduled sessions and recorded no cancellations or DNAs. The remaining participants experienced at least one cancellation or missed appointment during treatment, with cancellations ranging from 0 to 2 and DNAs ranging from 0 to 3 across participants. The number of ADOM assessments completed ranged from two to four per participant, reflecting differences in treatment duration and service engagement (ADOM scores were collected every 4 weeks). Treatment outcomes varied across participants, with two participants discharged from the service, two participants disengaging prior to planned discharge, and one participant remaining actively engaged in treatment at the completion of data collection.

Table 5*Summary of Participation Treatment Data*

Participant	Total Week in Service	Total Session Attended	Week in Intervention	Cancellations	DNA	ADOM Collected	Treatment Status
P01	16	15	12	0	0	4	Discharged
P02	7	4	3	2	1	2	Disengaged
P03	14	8	7	2	3	4	Discharged
P04	13	10	9	2	1	3	Disengaged
P05	9	5	5	2	0	3	Active

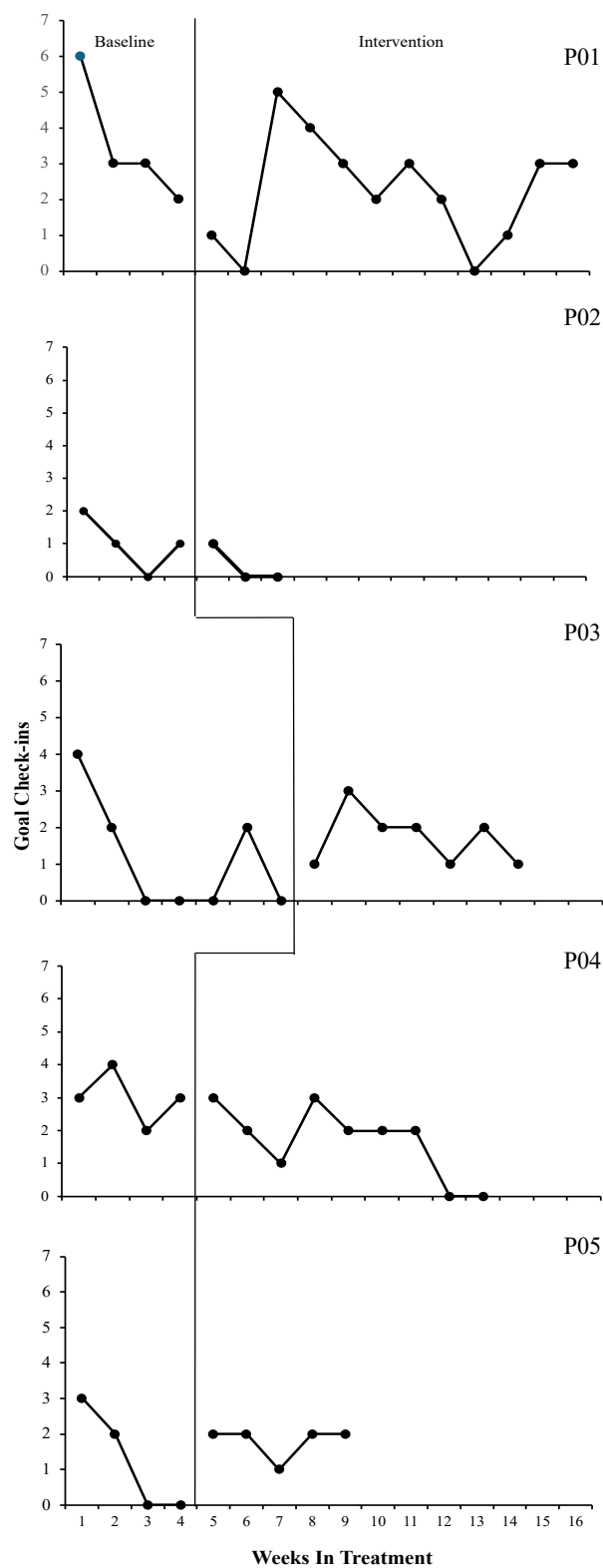
Notes. Total weeks in service refers to the number of weeks participants remained engaged with the AOD service from assessment to discharge, disengagement, or completion of data collection. Weeks in intervention refers to the number of weeks participants received SMR. DNA = Did Not Attend. ADOM = Alcohol and Drug Outcome Measure. Disengaged indicates participants did not complete treatment and ceased attending prior to their planned final session. Discharged indicates participants completed treatment and were formally closed from the service. Active indicates participants remained engaged with the service at the completion of data collection.

Recovery Goal Outcomes

Recovery goal engagement data is presented for all participants in Figure 1. Baseline levels of goal engagement varied across participants, although all participants demonstrated low to moderate rates of goal check-ins prior to introduction of the intervention (SMR). Patterns following introduction of the intervention differed across participants. An initial increase in goal engagement was observed for P01, P03, and P05, but little change was observed for P02. For P04, goal engagement was largely stable throughout the intervention phase before declining during the final weeks of treatment. For most participants, goal engagement did not change immediately following introduction of the intervention, with observed changes emerging gradually across this phase.

Session Attendance Outcomes

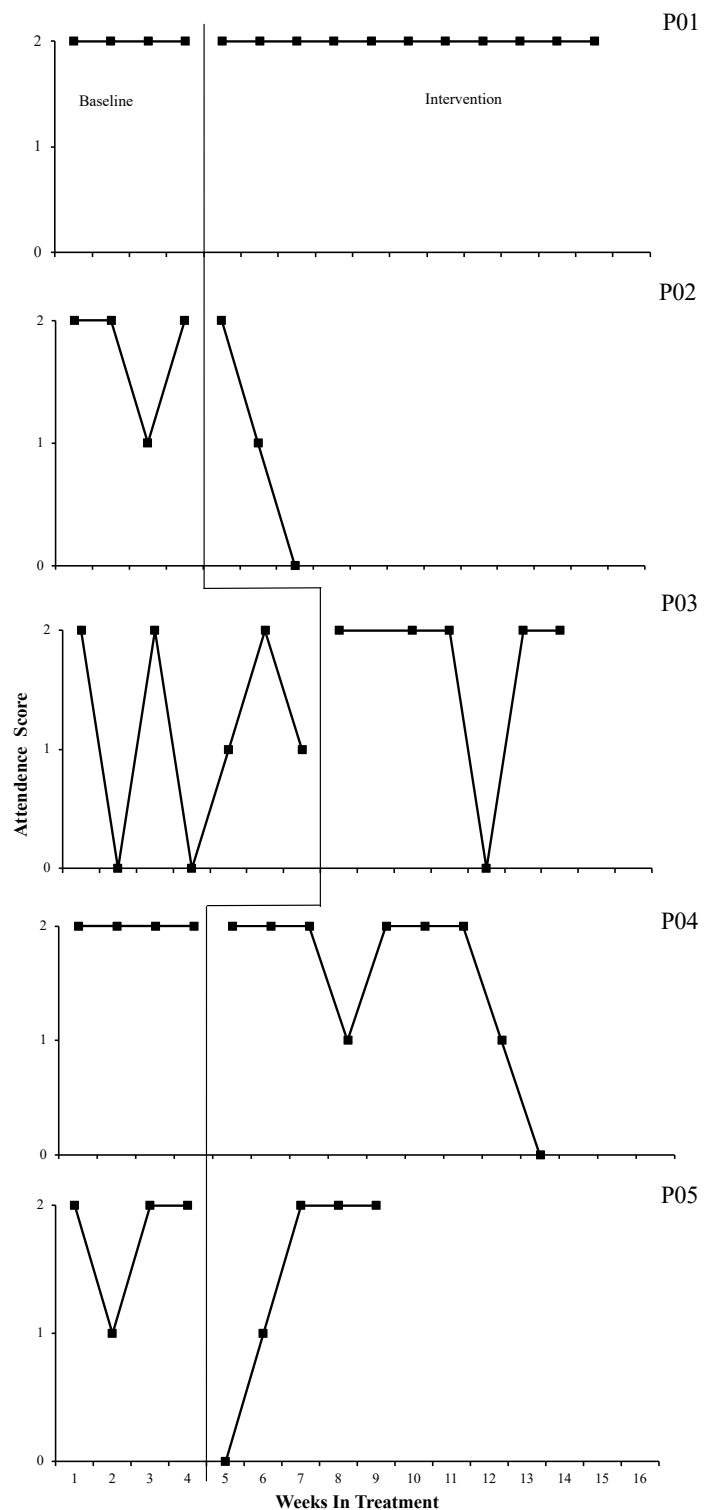
Session attendance data for all participants is presented in Figure 2. Baseline attendance was highly stable for P01 and P04. Attendance was more variable for the remaining participants. Participants 02 and 04 had a decrease in attendance for one session in weeks 5 and 8 respectively. P03's attendance was variable due to DNAs on weeks 2, 4 and 6 and two cancellations on weeks 5 and 7. Attendance scores during the intervention phase also varied among participants. P01 demonstrated stable attendance across the whole study period, attending all scheduled sessions. P02 only attended one session in the intervention phase. P03 and P04 showed generally consistent attendance, while P05 increased their attendance in the last 3 weeks of the intervention phase

Figure 1*Weekly Recovery Goal Engagement Across Participants*

Note. Goal engagement was measured as the number of Recovery Path Application goal check-ins recorded each treatment week (7 day period)

Figure 2

Weekly Session Attendance Across Participants



Note. Attendance status was coded as 0 = Did Not Attend Session, 1 = Cancelled/

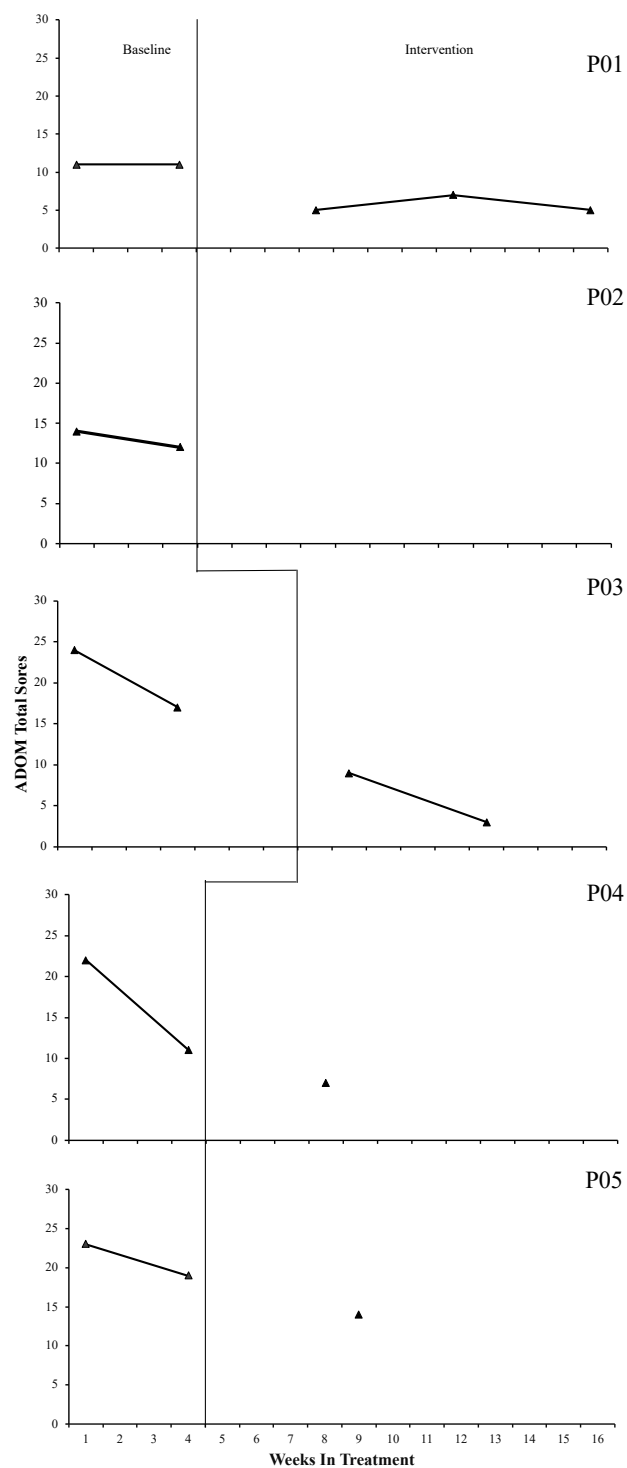
Rescheduled Session, 2 = Attended Session

ADOM Total Scores Outcomes

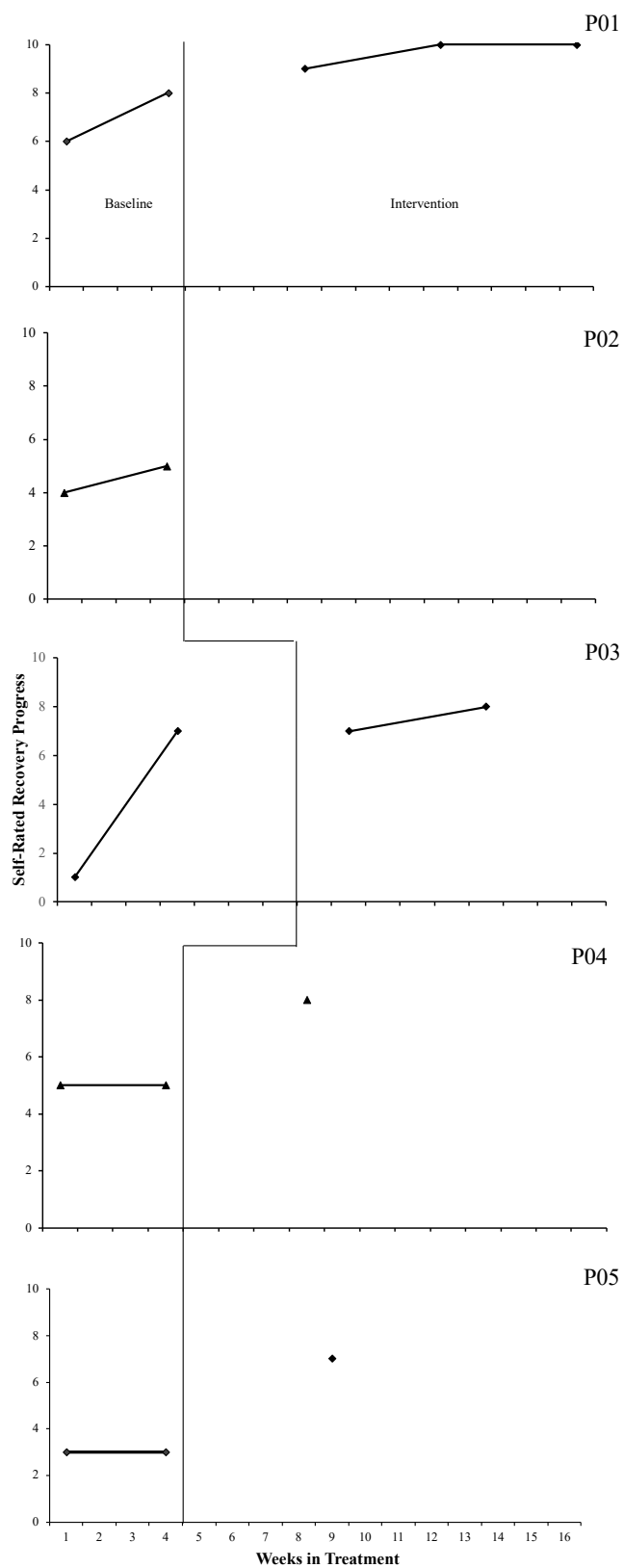
ADOM total scores for all participants are presented in Figure 3. Baseline ADOM scores ranged from 11 to 24 and generally decreased over time. By the final available assessment, scores ranged from 5 to 14. Intervention-phase ADOM scores were lower than baseline scores for all participants with available data. P02 disengaged from treatment in Week 7 before a third ADOM assessment could be collected in Week 8. As ADOM assessments were completed every four weeks, only one intervention-phase ADOM score was obtained for P04 and P05. P04 disengaged from treatment in Week 13 prior to a subsequent assessment, while P05 remained engaged in treatment after data collection concluded in Week 9.

ADOM Self-Rated Recovery Outcomes

ADOM self-rated recovery progress data is presented in Figure 4, with higher scores indicating greater perceived recovery progress. Baseline ratings varied across participants, ranging from 1 to 8. Self-rated recovery progress scores for all participants are shown in Figure 4. During the baseline phase, participants P01, P02, and P03 reported increasing perceptions of recovery progress. During the intervention phase, P01 reached the maximum score of 10 and maintained this rating for the remainder of the study. P03 demonstrated a continued upward trend in recovery ratings across Weeks 9 to 13. P02 disengaged from the study prior to completing the intervention phase. Participant P04 disengaged during the final week of treatment and was unable to provide a final ADOM score, while P05 remained engaged in treatment at the conclusion of data collection. Consequently, P04 and P05 each contributed only one intervention-phase data point (Week 8 for P04 and Week 9 for P05). Recovery progress data were therefore unavailable beyond these time points.

Figure 3*ADOM Total Scores Across Participants*

Note. ADOM domains are rated from 0 (no concern) to 5 (severe concern), with a maximum possible total score of 80. Lower total scores indicate fewer reported concerns and reduced substance-related harm across domains.

Figure 4*ADOM Self-Rated Recovery Progress Scores Across Participants*

Note. Recovery ratings ranged from 1 (low recovery progress) to 10 (high recovery progress).

Discussion

The present study examined whether increasing access to clinician-delivered SMR between counselling sessions influenced engagement with recovery-oriented behaviours within a community AOD service. Consistent with a harm minimisation framework, abstinence was not the primary outcome of interest. Instead, the study examined engagement with weekly recovery goals, session attendance, ADOM scores, and ADOM self-rated recovery progress as indicators of treatment engagement and reductions in substance-related harm. While a functional relationship between SMR and the measured outcomes was not demonstrated, the introduction of SMR was associated with improvements in one or more outcome measures for most participants. Although the magnitude and consistency of change varied across individuals, improvements were observed across goal engagement, attendance, ADOM scores, and self-rated recovery progress. Importantly, these changes occurred without the use of financial incentives, abstinence-based contingencies, biological verification procedures, or other resource-intensive reinforcement systems commonly associated with CM interventions (Petry et al., 2017; Rohsenow, 2008).

Goal Engagement

Goal engagement was generally maintained throughout the intervention phase for most participants. However, there was no clear change in goal engagement following the introduction of SMR, demonstrating a lack of functional relationship between SMR and goal engagement. Changes in engagement may have been influenced by factors outside the intervention. For example, P04's engagement patterns changed following the commencement of employment, which demonstrates how recovery-oriented goal engagement can be influenced by competing environmental contingencies that are difficult to control within community-based AOD treatment. Nevertheless, while not an increase, most participants continued to engage with app-based recovery goals throughout treatment.

The lack of improved goal engagement following the introduction of SMR differs from previous text-based and digital intervention research, which has generally reported measurable changes in engagement behaviours following the introduction of support delivered between treatment contacts. For example, Watterson et al. (2018) reported increased engagement with regular blood glucose monitoring following supportive text-message prompts. Similarly, Spohr et al. (2015) found that participants receiving SMS-based support were more likely to engage in smoking cessation behaviours and achieve abstinence than those in control conditions. Reviews by Suffoletto (2016, 2024) concluded that text-message interventions supported engagement with behaviours associated with reducing substance use and improving health outcomes. Research examining more intensive digital interventions has reported similar findings. For example, Palacios et al. (2025) found that greater engagement with a digital recovery platform was associated with improved treatment retention, continuity of care, and medication adherence among individuals receiving treatment for opioid use disorder.

Compared with the present study, these differences may reflect both the lower intensity of the intervention used in the current study and the nature of the behaviours being targeted, which often required sustained responding across multiple environments and competing contingencies. Many behaviours examined in previous research (e.g., Watterson et al., 2018; Spohr et al., 2015) involved relatively specific and consistently defined responses, such as engaging in blood glucose monitoring, taking medication, or responding to prompts. This is not to suggest that these behaviours are unaffected by competing environmental contingencies; indeed, behaviours such as diabetes self-management may also occur within complex individual and environmental circumstances. However, these interventions typically targeted a single behaviour across the duration of treatment. In contrast, the recovery goals examined in the present study often involved broader behavioural repertoires occurring

across multiple settings and contexts that varied across participants and over time. Goals such as reducing substance use, making a new friend, obtaining employment, attending support groups, or engaging with health services are influenced by a range of environmental variables, many of which were not measured within the present study. Consequently, changes in goal engagement may be less likely to demonstrate an immediate or consistent response to a relatively low-intensity SMR intervention. This is particularly plausible given the multifactorial nature of substance-related harm, where substance use may serve different functions for individuals and environmental discriminative stimuli signal the availability of substance-related reinforcement (Bouton, 2014; Shahan & Sweeney, 2011). Many recovery-oriented behaviours may not yet have established similar reinforcement histories. The variability observed across participants may therefore reflect competing environmental influences operating outside treatment rather than the effects of SMR alone.

Further support for this assertion can be seen in the persistent nature of substance use itself. Substances produce powerful and immediate pharmacological effects that function as potent reinforcers, often exceeding the reinforcing value of many naturally occurring alternatives (Volkow et al., 2016). As a result, substance use may persist despite substantial adverse consequences that would typically be expected to reduce the likelihood of the behaviour occurring. Experimental research has demonstrated that some individuals continue drug-seeking behaviour despite punishment contingencies and despite the availability of alternative sources of reinforcement (Pelloux et al., 2015). Similarly, Durand et al. (2022) found that cocaine self-administration persisted despite increasing levels of punishment before eventually decreasing. Together, these findings suggest that goal engagement behaviours often compete with highly established patterns of reinforcement that may be relatively insensitive to punishment and resistant to change.

Comparison with reinforcement-based research presents a similar challenge. CM

interventions have consistently demonstrated improvements in goals such as abstinence, substance use reduction, and treatment engagement through explicit reinforcement contingencies (Bolívar et al., 2021; Petry et al., 2017). However, these studies have rarely examined engagement with participant-defined recovery goals. Unlike abstinence or attendance outcomes, recovery goals often involve multiple behaviours occurring across different environments and contingencies, making them inherently more difficult to measure and influence through a single intervention, particularly low levels of reinforcement like SMR. Many goals within the present study targeted behaviours associated with increased access to alternative sources of reinforcement. From a behavioural perspective, sustained engagement in these activities may indicate continued allocation of time and effort toward behaviours that contact reinforcement outside of substance use. These behaviours may produce reinforcing consequences such as increased social interaction, participation in health-promoting activities, and engagement in daily routines, such as employment.

This interpretation is consistent with reinforcement-based accounts of recovery, which emphasise increasing access to alternative sources of reinforcement as a mechanism for reducing substance-related harm (Meyers et al., 2011; Silverman et al., 2012). Given the complexity of the behaviours being targeted and the environmental variables influencing them, goal engagement may represent a useful behavioural indicator of recovery-oriented activity and warrants further investigation within reinforcement-based approaches to AOD treatment.

Session Attendance

Similar to goal engagement, the present study did not demonstrate a clear functional relationship between SMR and attendance. However, several participants maintained engagement with treatment over extended periods despite barriers that would commonly be expected to disrupt attendance. This finding is noteworthy given the high rates of treatment

attrition reported within AOD services. Attrition has long been recognised as a significant challenge within substance use treatment, with many individuals disengaging within the first weeks of care (Stark, 1992). More recent findings from Aotearoa NZ similarly demonstrate difficulties maintaining retention across treatment settings (Ashdown et al., 2023). In this context, the more meaningful pattern may not be perfect attendance, but rather continued return to treatment despite the barriers and competing demands commonly experienced by people accessing AOD services.

Comparison with previous research suggests both similarities and important differences. Digital interventions delivered between treatment sessions have frequently been associated with improvements in treatment retention. For example, Palacios et al. (2025) reported greater treatment continuity and retention among participants actively engaging with a digital recovery platform, while Kwan et al. (2025) reported that remote interventions, including text messaging, telehealth, and digital therapeutic platforms, were associated with lower relapse rates and fewer days of substance use when delivered alongside standard treatment. Similar to the present findings, these studies suggest that support delivered outside formal treatment sessions may contribute to ongoing attendance. However, many of these interventions involved simple between-session support, incorporating features such as self-monitoring, clinician communication, psychoeducation, and recovery tracking. Consequently, direct comparison with the relatively low-intensity SMR procedure used in the present study is difficult.

Unlike the present study, however, CM interventions typically involve explicit contingencies and denser schedules of reinforcement, making treatment attendance itself a target of reinforcement. One explanation for the absence of a clear functional relationship may be the nature of attendance behaviour itself. Attending treatment requires considerable response effort, including time, transport, finances, organisation, and coordination of

competing commitments. Behavioural research has consistently demonstrated that increases in response effort are associated with decreases in responding (Alling & Poling, 1995; Wilder et al., 2021). Attendance is therefore influenced not only by the reinforcing value of treatment, but also by the effort required to access it. Therefore, the factors involved in accessing treatment may all influence attendance. While these variables were not directly measured in the present study, several participants did report attendance issues. From a behavioural perspective, many of these factors may function as MO's altering both the value of treatment and the likelihood of attendance occurring. Consequently, attendance cannot be understood independently of the broader environmental context in which treatment takes place. This may help explain why attendance patterns did not show a clear response to the introduction of SMR despite several participants maintaining contact with treatment over time. From a behavioural perspective, treatment attendance can also be conceptualised as a behavioural chain, in which a series of responses must occur before attendance is achieved (Fisher et al., 2011). Attending a session may involve a behavioural chain such as remembering the appointment, arranging transport, coordinating competing commitments, travelling to the service, and arriving at the scheduled time. These behaviours may disrupt any link in this chain, thereby reducing the probability of attendance. Consequently, attendance is influenced by multiple environmental variables operating outside treatment, which may have obscured any effects of SMR.

ADOM Total Scores and Self-Rated Recovery Progress

ADOM Total Scores

ADOM total scores provide an indication of the extent to which substance use is affecting important areas of a person's life, with higher scores reflecting greater substance-related harm. Across participants, ADOM total scores generally decreased over time, suggesting reductions in substance-related harm throughout treatment. However, these

improvements began during baseline and continued gradually across treatment, making it difficult to attribute any changes to the introduction of SMR. Interpretation is also limited by the relatively small number of ADOM assessments available, as data was collected every four weeks and were further affected by attendance, attrition, and treatment duration. Regardless, the gradual reduction in scores observed across participants is consistent with what might be expected during effective AOD treatment. Improvements in functioning often emerge progressively as individuals begin addressing difficulties across multiple areas of life. Variation in scores may also reflect participant-specific factors. For example, P05 initially reported elevated scores alongside chronic physical and mental health concerns, while P03 and P04 presented with more complex patterns of polysubstance use. These factors likely contributed to differences in both baseline scores and trajectories of change. Direct comparison of these findings with previous research is also limited, as the ADOM has not been widely used as an outcome measure in studies such as digital or text based interventions. Consequently, it is difficult to determine whether the patterns of change observed in the present study are consistent with those reported elsewhere.

Self-Rated Recovery Progress

Self-rated recovery progress provided a different perspective by capturing participants' own perceptions of how recovery was progressing. Overall, self-rated recovery scores generally increased across treatment, suggesting participants perceived themselves as moving forward in recovery. Taken together, the ADOM findings suggest that participants generally experienced both reduced substance-related harm and increased perceptions of recovery progress throughout treatment. Although these changes cannot be linked directly to SMR, they are consistent with harm minimisation approaches that view reduced harm, improved functioning, and enhanced quality of life as meaningful treatment outcomes alongside, or independent of, abstinence (Single, 1995; Mental Health and Problematic

Substance Use | Ministry of Health NZ, 2024).

Strengths and Limitations

A key strength of the present study was its focus on recovery-oriented behaviours rather than abstinence alone. Reinforcement-based interventions in AOD treatment, particularly CM approaches, have most commonly evaluated outcomes such as abstinence, substance use reduction, and treatment retention (Bolívar et al., 2021; Petry et al., 2017). By examining goal engagement, treatment attendance, substance-related harm (ADOM), and self-rated recovery progress, the present study explored a broader range of outcomes that may be more closely aligned with routine AOD treatment and harm minimisation-oriented practice, and therefore more reflective of the goals and outcomes commonly targeted within community-based services in Aotearoa New Zealand.

A second strength was the application of behavioural principles to an area in which behaviour analysis remains relatively underrepresented beyond its application within CM. Substance-related harm involves a broad range of observable behaviours influenced by reinforcement history, MOs, response effort, stimulus control, and access to alternative sources of reinforcement. As such, behaviour analysis offers a useful framework for understanding many of the variables involved in the development, maintenance, and reduction of substance-related harm (James & Tunney, 2017). The present study contributes to a growing body of research exploring how behavioural principles may be applied within routine AOD treatment settings.

Several limitations should also be acknowledged. Most notably, no clear functional relationship was demonstrated between SMR and any of the measured outcomes. While participants generally remained engaged with treatment and recovery goals, and broader indicators of recovery improved over time, these changes began during baseline and may have reflected the effects of counselling, naturally occurring recovery processes, or other

environmental influences. Consequently, it is not possible to determine the extent to which SMR contributed to the observed outcomes.

A second limitation relates to the experimental design. Although alternative single-case designs, such as reversal designs, may have provided stronger evidence of a functional relationship, withdrawing a potentially beneficial intervention from individuals receiving treatment for substance-related harm was not considered ethically appropriate. As a result, the design prioritised clinical feasibility and participant wellbeing over experimental control. Similarly, while the inclusion of a maintenance phase may have provided valuable information regarding the durability of treatment effects, this was not feasible for several participants who had disengaged from services prior to study completion, reflecting the practical challenges of conducting research within community AOD treatment settings.

A further limitation relates to the maintenance of behaviour change after treatment ends, which remains a significant challenge within AOD services. When reinforcement is withdrawn, recovery-oriented behaviours may decrease through extinction, while previously reinforced substance-use behaviours may re-emerge (Everitt & Robbins, 2016; Shahan & Sweeney, 2011). Future research should therefore examine whether SMR contributes to the longer-term maintenance of behaviour change and how individuals can be supported to access sources of reinforcement that remain available beyond treatment (Silverman et al., 2012). Greater emphasis may also be placed on self-management approaches that support individuals to monitor their own behaviour, arrange reinforcing environments, and maintain recovery-oriented responding in the absence of ongoing treatment contact (Benzo, 2024; Cooper et al., 2020).

Another limitation relates to treatment complexity and measurement. Participants received SMR alongside ongoing AOD counselling and were exposed to a range of social, environmental, and treatment-related influences throughout the study. Consequently, it was

difficult to determine whether observed changes reflected the effects of SMR, the broader effects of counselling, or the interaction between the two. In addition, engagement with recovery goals was measured indirectly through participant interaction with the application rather than through direct observation of behaviour. While application check-ins provided a practical indicator of engagement, indirect measures do not allow direct verification that the behaviour of interest actually occurred and may therefore fail to fully capture meaningful behaviour change occurring outside the recording system (Johnston, 2024). Furthermore, the present study did not directly measure therapeutic interactions or other forms of SMR that may have occurred through clinician contact (Melton et al., 2023). Future research would benefit from the inclusion of a treatment-as-usual comparison group, more direct measures of therapeutic contact and alliance, and clearer measurement of recovery-oriented behaviours occurring between treatment sessions.

Finally, replication across additional participants, clinicians, and service settings is required to determine the reliability, generality, and potential utility of SMR within AOD treatment. The dual clinician-researcher role also represents a limitation, as intervention delivery, data collection, and interpretation were undertaken by a single individual. Although this was a pragmatic approach within the context of a Master's thesis, future research involving multiple clinicians would allow examination of whether similar outcomes are observed across different therapeutic relationships and treatment contexts.

Implications

Any implications should be interpreted within the limitations of the present study. While a functional relationship was not demonstrated between SMR and the observed outcomes, the findings highlight several areas for future research and clinical practice.

Much of the behavioural literature examining substance use has focused on CM, which has strong empirical support for improving treatment engagement and reducing

substance use (Bolívar et al., 2021; Rohsenow, 2008; Petry et al., 2017). However, CM represents only one way of arranging reinforcement. The present study raises the possibility that reinforcement-based approaches may exist along a broader continuum, ranging from highly structured contingency systems to lower-intensity forms of reinforcement.

A key distinction is that SMR draws upon socially mediated reinforcement delivered through clinician contact. Social interactions may function as sources of reinforcement through attention, approval, encouragement, and continued engagement, all of which have the potential to influence future behaviour (Melton et al., 2023) .

The findings also have relevance for harm minimisation-oriented treatment. Across the study, participants generally remained engaged with recovery goals, treatment, and broader indicators of recovery despite the absence of a clear intervention effect. From a behavioural perspective, activities such as attending treatment, engaging with support services, increasing social connection, developing routines, and participating pro social activities may represent smaller behavioural steps toward reduced substance-related harm and improved functioning. Greater attention to these behaviours may help improve understanding of how recovery develops over time.

A further implication, and an important area for future research, concerns maintenance and relapse prevention. In alignment with the dimensions of ABA, behaviour change achieved during treatment must ultimately persist beyond the treatment environment (Baer et al., 1968). When reinforcement is no longer available, recovery-oriented behaviours may decrease through extinction, while previously reinforced substance-use behaviours may re-emerge. Behavioural accounts of addiction emphasise that associative learning processes, including habit formation and stimulus control, play an important role in the persistence and recurrence of substance use (Everitt & Robbins, 2016; James & Tunney, 2017). This highlights the importance of understanding how individuals access naturally occurring

sources of reinforcement that remain available after treatment ends. Future research may benefit from examining whether lower-intensity reinforcement strategies can help establish behaviours that continue to contact reinforcement outside formal treatment. Greater emphasis may also be placed on self-management approaches that support individuals to monitor their own behaviour, arrange reinforcing environments, and maintain recovery-oriented responding in the absence of ongoing treatment contact (Benzo, 2024; Cooper et al., 2020).

Conclusion

Substance-related harm remains one of the more complex challenges facing treatment services, affecting multiple areas of a person's life. Although the present findings did not establish a functional relationship between SMR and the observed outcomes, they highlight the importance of examining the smaller behavioural changes that often occur within harm minimisation-oriented treatment. Recovery may not always be reflected in abstinence alone, but in continued engagement with treatment, support, meaningful activities, and alternative sources of reinforcement. Consistent with the behavioural principle of parsimony, exploring whether relatively simple interventions can influence behaviour remains an important step before introducing more complex explanations or treatment approaches. Given the well-established role of reinforcement processes in substance use, an important question for future research is not only whether reinforcement-based interventions are effective, but how much reinforcement, and under what conditions, is required to produce meaningful and sustained behavioural change. Ultimately, this study leaves many of the same questions that existed at the outset. However, it suggests that behaviour analysis may have a broader contribution to make within AOD treatment than is currently reflected in the literature and highlights the need for continued research examining how recovery-oriented behaviours are established, maintained, and sustained within the complexity of everyday life.

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Appendix A

Participant Information Sheet



Project title: *The Effects of Social reinforcement on Recovery Goal Engagement in Alcohol and Other Drug Treatment.*

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Kia Ora!

You are invited to take part in a research study being conducted as part of a Master of Applied Psychology thesis at the University of Waikato. This study is being run in collaboration with Get Smart Tauranga, where you are about to receive counselling support. Participation is entirely voluntary and will not affect your access to counselling or any other services offered by Get Smart.

What is the purpose of this research?

The purpose of this research is to explore what kinds of support can help people stay connected to their recovery goals during alcohol and drug counselling. As part of this study, participants will engage in their usual counselling and goal-setting process, with a small additional element built into standard care using the Recovery Path app and the addition of a weekly text message. This study aims to better understand how support around goal engagement may relate to wellbeing, motivation, and attendance in AOD (Alcohol and Other Drug) treatment.

Who is conducting this research?

This research project has been approved by the Human Research Ethics Committee (Health) at the University of Waikato as HREC(Health)2025#108. Any questions or concerns about the ethical conduct of this research may be sent to the Secretary of the Committee, email humanethics@waikato.ac.nz, postal address: Human Research Ethics Committee (Health), University of Waikato, Te Whare Wananga o Waikato, Private Bag 3105, Hamilton 3240).

Dual Roles

Your clinician is also the researcher in this study, which means they will be supporting your AOD counselling and also collecting data related to the research. As part of the team at Get

Smart, April O'Hanlon is both the Clinical Lead and the researcher's clinical supervisor. She helps oversee the early stages of the study, such as eligibility and consent, to ensure everything is ethical, and you feel well supported. These roles are known as a dual roles (Working on both teams, research team and Get Smart Staff) . While it's possible that this may create a feeling of pressure to take part, we want to reassure you that there is absolutely no obligation, participation is entirely your choice, and you are warmly invited, not expected, to be involved.

Risks and benefits

We do not anticipate risks beyond those normally associated with counselling. Some people may feel discomfort reflecting on their progress, past or substance use. Your clinician will monitor your wellbeing and provide support if needed.

Privacy and confidentiality

- Your name will not be used in any report or publication.
- All data will be de-identified. Meaning your name and any identifying characteristics about you will not be reported on.
- Data will be stored securely (password-protected, dual authenticated) and kept for at least five years.
- Results may be published in a master's thesis, academic journals, or presentations.

Voluntary participation and withdrawal

- Participation is completely voluntary and will not affect your access to support at Get Smart.
- Taking part in this study is completely voluntary. It will not affect your access to counselling or any other support you receive from Get Smart.
- The only difference from usual treatment is that, if you take part, you will be asked to engage in the use of an app called Recovery Path as part of your care with us, and will be sent a supportive text messages via the Recovery Path app/ or typical SMS.
- You may withdraw from the study at any time without giving a reason (information on how to withdraw is on the consent form).
- If you withdraw, all of your study data will be removed unless you request otherwise.
- Withdrawing will not affect your counselling or any other support you receive from Get Smart.

Please ask any questions **before** you decide whether to give or decline consent. This information sheet is to help you understand what participation would involve. If you are considering taking part, you may also wish to discuss the study with a family member or friend to decide whether it's the right fit for you.

Ngā Mihi,
Morgan MacLean

Appendix B

Participant Consent Form



CONSENT FORM

Project title: *The Effects of Social reinforcement on Recovery Goal Engagement in Alcohol and Other Drug Treatment.*

Researcher: Morgan MacLean
(School of Psychology, University of Waikato)
Email: Morgan@getsmarttga.org.nz

Supervisor: Dr Tania Blackmore
(School of Psychology, University of Waikato)
Email: Tania.blackmore@waikato.ac.nz

Service partner: Get Smart Tauranga

By signing this consent form, I _____ consent to the below:

1. I have read and understood the **Participant Information Sheet** and had the chance to ask questions.
2. I understand participation is **voluntary**, will **not affect** my access to care at Get Smart, and I can **withdraw at any time** without giving a reason.
3. I confirm I am **18+** and **not court-mandated** to attend Get Smart.
4. I understand that some staff involved in this study have dual roles (for example, my clinician is also a part of the research team, and the Clinical Lead may support both research and service processes).
5. I understand what participation involves: I will receive a **brief supportive message regularly** via the **Recovery Path** app or **Typical SMS** alongside my usual counselling (no extra session time required).
6. I consent to the study collecting **de-identified** information from my usual care: **Recovery Path goal engagement, session attendance** and ADOM scores.
7. I understand my data will be de-identified and stored securely at the University of Waikato, and only the **principal researcher and thesis supervisor** can access identifiable information. Results will not identify me.
8. If I **withdraw**, my study data will be **removed where feasible**. I may choose to **keep receiving the supportive messages without any data being recorded**.
9. I agree that I may be **contacted** about my participation if needed.

Optional:

I would like to **receive a copy of the findings** when the study finishes.

☐ Yes ☐ No

IF YES:

Email: _____

Postal Address: _____

By signing below, I confirm that I have read and understood the Participant Information Sheet and above consent declaration and voluntarily give my informed consent to take part as described above:

Participant name: _____

Signature: _____ **Date:** ____ / ____ / ____

Name of person taking consent: _____

Signature: _____ **Date:** ____ / ____ / ____

Appendix C

Alcohol and Drug Outcome Measure (ADOM)

Alcohol and Drug Outcome Measure (ADOM)

Client Name: _____ NHI: _____ DOB: _____
 Gender: ☐ Male ☐ Female ☐ Another gender Ethnicity : _____ Team: _____
 Referral Date: _____ Referral Source: _____ ☐ Mandated ☐ Voluntary

Reason for collection: **Treatment Start:** ☐ New ☐ Other AOD Service ☐ Assessment only (up to 2 contacts)
Treatment review: ☐ 6 weeks ☐ 12 weeks
Treatment End: ☐ Routine ☐ DNA ☐ Other AOD Service ☐ Other

Date of Collection: _____ Collected by: _____ Number of days covered: _____ (7-28)
 Focus of care: ☐ Engagement/Assessment ☐ Active Treatment ☐ Continuing care CEP: ☐ Yes ☐ No

Section 1: Alcohol and other drug use

In the past four weeks how many days did you use/drink:	Days used 0-28	Notes	Main substance of concern
1. Alcohol			
2. How many standard drinks did you consume on a typical drinking day?		Refer to ALAC conversion chart (over page)	
3. Cannabis			
4. Amphetamine-type Stimulants		e.g. Methamphetamine, speed, Ritalin	
5. Opioids		e.g. poppies, poppy seed, morphine, Nurofen plus, codeine	
6. Sedatives/Tranquillisers		e.g. Diazepam (Valium), Temazepam, Benzos	
7. Any other drugs? Specify what drugs (maximum of 3 'other drugs')		e.g. Ecstasy, hallucinogens, solvents, GHB, party pills etc	
1.		If 'other drugs' contains substances covered above, return to that question and recode	
2.		If vaping is involved, record vaping in Question 7. Note the estimated average nicotine cigarette equivalent in Question 8	
3.			
8. How many cigarettes have you smoked per day, on average ?		50gm tobacco = 100 cigarettes	
9. Main substance of concern. For Questions 1 to 8 above, please identify up to three main substances of concern by writing a 1, 2 or 3 in the right hand column to identify priority.			
10. On how many days have you injected drugs?		If none, enter 0 and go to question 12.	
11. Have you shared any injecting equipment? ☐ Yes ☐ No		See over to clarify 'shared'.	

Section 2: Lifestyle and wellbeing

In the past four weeks :	Not at all	Less than weekly	Once or twice a week	Three or four times a week	Daily or almost daily
12. How often has your general physical health caused problems in your daily life?					
13. How often has your general mental health caused problems in your daily life?					
14. How often has your alcohol or drug use led to problems or arguments with friends or family members?					
15. How often has your alcohol or drug use caused problems with your work or other activities in any of the following: social, recreational, looking after children or other family members, study or other personal activities?					
16. How often have you engaged in any of the following: paid work, voluntary work, study, looking after children or other caregiving activities?					
17. Have you had difficulties with housing or finding somewhere stable to live?					
18. How often have you been involved in any criminal or illegal activity such as driving a motor vehicle under the influence of alcohol or drugs, assault, shoplifting, supplying an illicit substance to another person? (do not include using illegal drugs)					

Section 3: Recovery

19. Overall, how close are you to where you want to be in your recovery? Tick the number that best fits where you are now. (10 is the best possible)

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

20. How satisfied are you with your progress towards achieving your recovery goals?

☐ Not at all ☐ Slightly ☐ Moderately ☐ Considerably ☐ Extremely

ADOM Practitioner Prompt Sheet

About the ADOM

ADOM was developed for use in community-based outpatient addiction services, including community-based 'after care' programmes, where outcomes (change) can be measured over a period of time.

Addiction practitioners are required to complete ADOM training with a recognised ADOM trainer, and be familiar with the guidance contained in the ADOM Guide for Addiction Practitioners before collecting ADOM with tangata whai ora.

Introducing the ADOM to service users

To introduce ADOM, provide the handout *ADOM information for service users/tangata whai ora* and go through with them. Cover all points in the sheet and check for other questions and concerns.

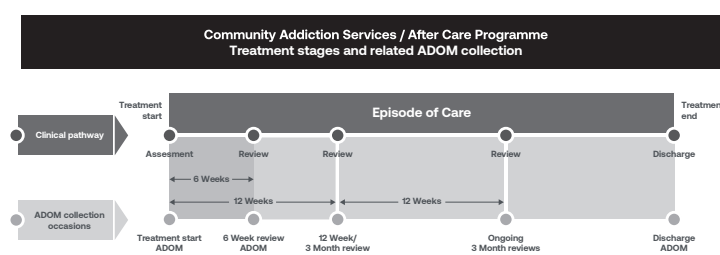
Ensure you cover confidentiality including use of information (local privacy protocols and that information is encoded when shared with MOH and researchers).

Where information is to be shared with other service providers it is good practice to ensure tangata whai ora consent is gained. It is important that sharing information occurs according to local and national protocols and legislation.

Why we are using ADOM

Data from each ADOM collection provides information about change to the status of the tangata whai ora in relation to their substance use and psychosocial wellbeing. This helps in care planning and seeing what's happening as well as making looking back for changes easy. It also helps services to evaluate how well they are providing treatment.

When is ADOM collected?



How to complete the ADOM (for the complete Information Collection Protocol read the *ADOM Guide for Addiction Practitioners*)

- To be completed in person in a collaborative manner between tangata whai ora and practitioner.
- Frame the interview – use the calendar page to clarify the last 28 days and record important events during this period that the tangata whai ora recalls – this will help as you go through the form. Start at the top of the form and work through it.
- Number of days covered:** The tangata whai ora must have been in the community for 7 or more consecutive days immediately prior to an ADOM collection. Do not complete an ADOM until this is the case.
- Timeline –** work back through each week – and record number of days as you go – then add for total.
- Introduce each question, and if needed explain the intent of the question – give the tangata whai ora time to think about it.
- Where Nil use – enter 0. It is important that '0' scores are not mistaken for missing/unanswered data.
- If the question cannot be answered, the item should be identified as NA 'Not answered'. This should be avoided as much as possible.
- Q11. Sharing means** using someone else's equipment which has already been used, or someone using yours, regardless of whether you were both present at the time or not – this includes partners/couples. Equipment includes needles, syringes, water, spoons, filters.

Section 2 – Lifestyle and wellbeing

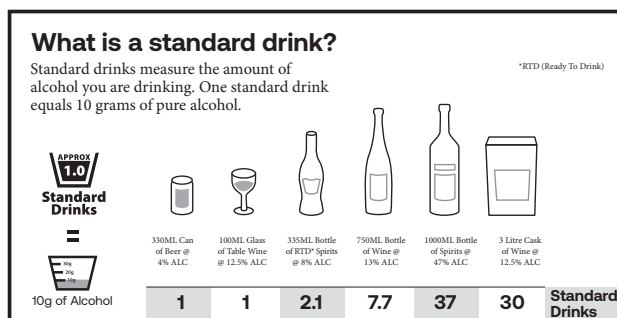
- Before completing Section 2, highlight confidentiality and how the questions only record frequency, not the activity.
- Rating Scale –** if NO – tick 'Not at all'. If YES – support the tangata whai ora to look at the calendar and calculate frequency by week – then determine the best rating and 'tick'.

Section 3 – Recovery

- Identify the response that best describes the current feeling of the tangata whai ora about their recovery progress.

Section 1 – Alcohol and other drug use

- The questions do not apply to prescribed medications; however, any misuse of prescription medication should be included, for example, taking more than prescribed; injecting of medications not intended to be injected.
- Use the ALAC conversion table (right) for alcohol



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Appendix D

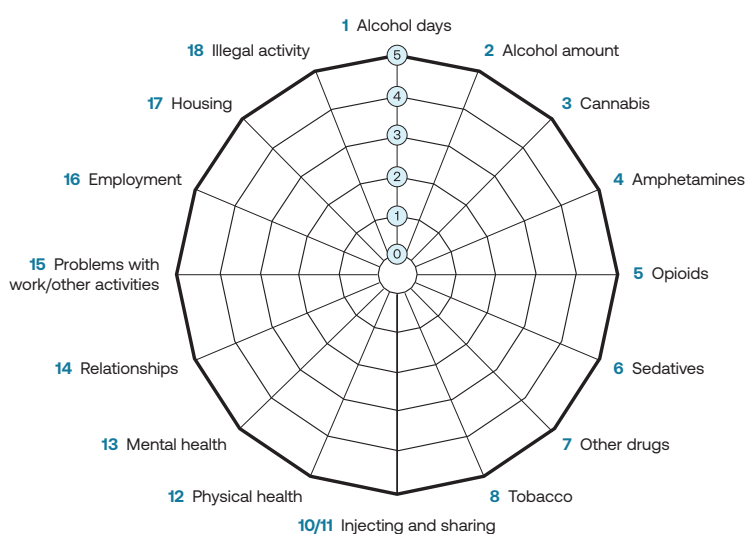
ADOM Feedback Wheel

ADOM feedback wheel

This form can be used for up to three ADOM collections.
Record the date below and use a **different colour pen** each collection to show changes.



Date _____ Date _____ Date _____



Main substance of concern

Q.9 Substance _____ Substance _____ Substance _____

Recovery progress

Q.19 Overall, how close are you to where you want to be in your recovery (Where 10 = best possible)

1	2	3	4	5	6	7	8	9	10

Q.20 How satisfied are you with your progress towards achieving your recovery goals?

Not at all	Slightly	Moderately	Considerably	Extremely

Plan/goals

ADOM feedback wheel – interpretation and completion guide

ADOM questions	0	1	2	3	4	5
Q1 alcohol	0	1-4	5-15	16-25	26+	Not answered
Q2 standard drinks	0	1-4	5-10	11-15	16+	
Q3 cannabis	0	1-4	5-15	16-25	26+	
Q4-7 other drugs e.g. amph/opioids	0	1	2-8	9-15	16+	
Q8 cigarettes	0	1-10	11-20	21-30	31+	
Q10 days injecting / Q11 *sharing	0	1 / Safe	2-28 / Safe	1-9 / *Unsafe	10+ / *Unsafe	
Q12, 13, 14, 15, 17 and 18	Not at all	Less than weekly	Once or twice a week	3 or 4 times a week	Daily or almost daily	
Q16	Daily or almost daily	3 or 4 times a week	Once or twice a week	Less than weekly	Not at all	

Appendix E

Recovery Path Goal Check-In Interface

RR Home

Team

Care Team Connect

Messages from your Care Team

Share Documents

Beacon People

Motivate

Reasons to Recover

Your Milestones

Your Affirmation Collection

Rewards

Resolve Any Ambivalence

Words that describe you

Focus

Learning Modules

Skills

Goals

Meditations

Prepare

Places to Avoid

My Triggers and Cues

Relapse Warnings

Goals Check-In

How are you progressing toward your goals?

Reduce my use

My goal this week is to reduce my use, by extending the time before I start smoking. I will not smoke until after 4pm.

☐ I haven't thought about it yet

☐ I have thought about it

☐ I have a plan and will put it into action today

☐ I am on track!

☐ Other

Attach note or thoughts

Done

Appendix F

Recovery Path Goal Check-In History Interface

Practice's Logs		Grid View
Today		
10:44 AM	Goals Check-In	Reduce my use I am on track!
Sunday 24 May 5 days ago		
3:47 PM	Goals Check-In	Reduce my use I am on track!
Wednesday 25 February 3 months ago		
12:49 PM	Goals Check-In	Reduce my use I haven't thought about it yet
Wednesday 11 February 3 months ago		
11:36 AM	Goals Check-In	Reduce my use I have thought about it
Tuesday 03 February 3 months ago		
12:10 PM	Goals Check-In	Reduce my use I haven't thought about it yet
10:22 AM	Goals Check-In	Reduce my use I have thought about it Note: I'm thinking this time doesn't work for me
Tuesday 26 August 9 months ago		

Logs Check-ins Cravings Declines Triggers Thoughts Checklists

Appendix G

Recovery Path Application Link

<https://www.recoverypath.com/>