

Therapeutic Community Retention Trends and Factors Associated with 3-Month Retention in Aotearoa New Zealand

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It is important to understand predictors of retention in rehabilitation for people with histories of addiction, co-existing mental health issues and criminal offending. This research examined whether admission status, ethnicity, age, substance use and forensic history were associated with length of stay in a therapeutic community in Dunedin. Retrospective data was gathered from clinical files for 240 tāngata whaiora who entered treatment in 2011–2020. The median stay was 111.5 days (mean 182.62, SD 178.23); 80% were retained for at least a month; 56% for 3 months; 38% for 6 months and 26% for 9 months. Having a mandate to undertake treatment was the only significant predictor of retention. Those with mandates were significantly more likely to complete at least 3-months treatment than those without a mandate. These findings demonstrate that mandated treatment may increase retention when few other factors predict retention in therapeutic communities

Keywords: *Criminal offending, substance abuse, drugs and alcohol, addiction, therapeutic community, indigenous health, indigenous peoples, Māori health*

INTRODUCTION

One of the most consistent findings in therapeutic community research is that retention in treatment is associated with positive treatment outcomes for tāngata whaiora (people seeking wellness) with histories of addictions, co-existing mental health issues and criminal offending. There is a wealth of research indicating that the longer one stays in treatment, the better the chances of recovery. But what influences tāngata whaiora to stay in treatment for longer? This article addresses this question by: 1) reviewing international literature in the area of retention in therapeutic communities; 2) investigating what factors may be associated with retention in therapeutic communities in Aotearoa New Zealand and 3) examining trends in retention over a treatment period of 9 months (270 days).

What is a Therapeutic Community?

Therapeutic communities for the treatment of drug addiction were developed in mid-twentieth century and established in England, Western Europe and the United States (Glaser, 1981). Each therapeutic community differs in its treatment goals and how it operates (Glaser, 1981). Some therapeutic communities have a short duration of treatment (e.g., 3 months) and others are longer in durations (e.g., 3 years) (Gowing et al., 2002). Therapeutic communities can be outpatient or residential and some residential therapeutic communities are prison-based (Gowing et al., 2002). Therapeutic communities provide different services to different people including adolescents, women and children, people with a history of criminal offending, psychiatric illnesses, drug addiction

and co-existent disorders (Broekaert et al., 2006; Melnick & De Leon, 1999).

The common feature shared by therapeutic communities is that therapy is group-based and involves collaboration between staff and clients who are active participants in their own therapy as well as other clients' therapy (Ashdown et al., 2019; Glaser, 1981; Gowing et al., 2002). The main goal of the therapeutic community is to promote a healthier, drug-free lifestyle and identify areas of behaviour for change (De Leon, 1995). Tāngata whaiora learn about psychological, social, and emotional factors that can lead to drug use or criminal offending by listening to feedback from fellow tāngata whaiora and staff (De Leon, 1995). Therapeutic communities tend to be staffed by both professionally trained specialists as well as people with lived experience and graduates of a therapeutic community programmes who have made significant lifestyle changes to overcome addiction (De Leon, 1995). Most therapeutic communities structure their programmes around three ordinal stages of treatment: 1) induction / early treatment; 2) primary treatment; and 3) re-entry to society (National Institute on Drug Abuse, 2003).

Over the years, the therapeutic community model has been modified to include a variety of additional services such as medical and mental health services, family therapy, education and vocational training (Ashdown et al., 2019; De Leon, 1995). Many therapeutic communities have evolved to be culturally relevant to meet the needs of various ethnic and cultural groups of tāngata whaiora. In Aotearoa New Zealand, some therapeutic communities and other addiction services incorporate cultural

interventions, employ indigenous facilitators, apply traditional indigenous practices and accommodate the use of indigenous language in treatment to improve outcomes for the indigenous Māori population (Ashdown et al., 2019). Likewise, there is an increasing awareness and effort to tailor treatment and therapeutic programmes to meet the distinct needs of immigrant communities to Aotearoa New Zealand, particularly those from Pacific Island nations.

International Research

One of the most consistent findings in therapeutic community literature is that longer duration of treatment is associated with better outcomes (Hubbard et al., 2003). Therefore, retention is an important factor in recovery success (Greenfield et al., 2004; Hubbard et al., 2003; Messina et al., 2000). Some studies have found that those who complete at least 3 months in treatment demonstrate improved treatment outcomes in comparison to those who leave treatment early. Greenfield et al. (2004) reviewed three studies that examined post-treatment abstinence from drugs and alcohol in follow-up interviews with women 6-12 months after discharge from treatment. They found that 68% to 71% of women in the three studies who completed 6 months or more in treatment reported that they were abstinent from drugs and alcohol. Furthermore, those who stayed at least 3 months in treatment and achieved their treatment goals demonstrated similar abstinence rates to those who stayed 6 months. Abstinence rates were substantially lower for those who did not complete treatment (51–52% reported abstinence). Notably, the majority (71%) of women in the three treatment programmes required at least 6 months to complete treatment.

Despite the extensive evidence base demonstrating that retention is associated with improved outcomes, retaining tāngata whaiora in a therapeutic community can be difficult. Stark (1992) noted that half of adults leave drug and alcohol treatment programmes within the first month and between 20–80% leave within 3 months. Attrition rates can be higher in some addiction services than in others. Simpson et al. (1997) found that long-term addiction treatment programmes had higher attrition rates than short-term addiction treatment programmes. Condelli et al. (2000) investigated treatment refusal and attrition in adults randomly assigned to a long-term therapeutic community treatment or a short-term chemical dependency programme. Treatment refusal and attrition were combined as a single outcome which was measured 25 days after admission. Treatment refusal/attrition was significantly higher for participants assigned to the long-term therapeutic community treatment than participants in the short-term chemical dependency programme. Condelli et al. (2000) suggested that higher refusal/attrition rates in the therapeutic community condition could be because the proposed duration of treatment was longer than in the chemical dependency condition. The prospect of long-term residential treatment may be less desirable than short-term residential treatment and this could be why attrition rates were higher in the longer-term therapeutic community condition. Condelli et al. (2000) proposed that treatment refusal and attrition rates could be reduced by structuring programmes in

stages so that residents can mark their progress throughout the treatment process.

Research on Therapeutic Communities in Aotearoa New Zealand

In Aotearoa New Zealand, there is limited research on therapeutic communities and residential addiction treatment services. Research specifically investigating retention in treatment is even more limited. Based on a search of the literature, we identified three peer-reviewed and published studies that focused on retention in treatment in a therapeutic community within Aotearoa New Zealand (Mulder et al., 2009; Schroder et al., 2009; Newton-Howes & Stanley, 2015). Another two evaluation reports that have not been published in peer-reviewed journals were also identified (Adamson et al., 2010; King et al., 2019).

Mulder et al. (2009) examined 3-month retention rates and the characteristics of tāngata whaiora who remained for the 3 months in a residential therapeutic community in Christchurch. The researchers conducted structured interviews and administered validated questionnaire measures to 200 consecutive admissions and followed them for 3 months. They found that 57% (107 out of 187) of the cohort remained in treatment for at least 3 months. Those who stayed in treatment for at least 3-months demonstrated higher baseline mental health scores, less lifetime stimulant dependence, higher current hypnotic / sedative dependence, and higher lifetime depression. Mulder et al. (2009) concluded that few factors reliably predict retention and attrition and therefore the process of screening and assessing prospective tāngata whaiora for therapeutic community treatment should be non-discriminatory.

Schroder et al. (2009) examined retention rates from 8 different youth-specific alcohol and drug services in Aotearoa New Zealand during the years of 2003 and 2004. The 8 services ranged from residential, outpatient and day programmes. Some services incorporated kaupapa Māori and Pasifika approaches while others applied Western approaches. Data was collected from 79 qualitative interviews and 184 randomly selected clinical files. The youth participants were aged between 13 – 20. Most participants were male (62%) and identified with three main ethnic groups: New Zealand European / Pākehā (51%), Māori (37%), and Pasifika (8.2%). Schroder et al. (2009) found that the 42 participants from residential youth-specific services stayed in treatment for an average of 2.7 months and 17% of them left treatment within the first month. The study did not find any associations between fixed characteristics such as age, sex, ethnicity, substance use and mental health diagnoses and retention. Participants who reported less internal motivation and more external pressure to engage in treatment were more likely to leave treatment early (defined as within the first month of treatment). Moreover, those who left early were less likely to have reported abstinence from substance-use as a treatment goal and reported lower expectations of the impact of treatment on their lives and substance-use behaviours compared with those who stayed for more than a month. Schroder et al. (2009) proposed that fixed characteristics are not reliable predictors of retention in treatment and that dynamic characteristics such as

motivation, expectations about treatment outcomes, feeling involved throughout the treatment process and positive experiences with treatment staff are reliable factors in predicting retention in youth-specific treatment programmes in Aotearoa New Zealand.

The most recent study examining factors associated with retention in therapeutic communities in Aotearoa New Zealand that we identified was conducted by Newton-Howes and Stanley (2015). They examined factors associated with treatment completion in an 8-week residential programme in Napier called Spring Hill. They reported that 62.2% of tāngata whaiora completed the 8-week programme and there were no differences in completion rates between men and women. The most common drug of misuse was alcohol (51.9%) followed by methamphetamine (16.4%) and cannabis (14.2%) but there was no association between pre-entry drug use and programme completion. Those who identified as Māori were more likely to complete the 8-week programme as were those who had conflict with family or housing problems. Newton-Howes and Stanley (2015) concluded that pre-entry drug-use does not affect engagement in nor completion of an abstinence-based residential treatment programme. Furthermore, they suggested that those who are homeless or identify as Māori are more likely to complete the 8-week programme.

From our searches of the literature, we identified two further articles that reported descriptive data on retention rates in Aotearoa New Zealand (Adamson et al., 2010; King et al., 2019). The two reports described retention trends but did not investigate factors associated with retention. The first report was an evaluation conducted by King et al. (2019) who reviewed Higher Ground, a short-term residential therapeutic community (up to 18-weeks in duration) in Auckland. For the years between 2012 and 2018, they found that the average length of stay was 80 days with 51% of residents retained for 90 days. It took 126 days on average to complete the programme but only 32% graduated the programme. The second report was conducted by Adamson et al. (2010) who examined archival data from Moana House, a residential therapeutic community for men in Dunedin as part of a service evaluation report. Retention trends for the years of 2008 and 2009 were examined. In 2008, 77% of tāngata whaiora stayed at least 30 days and 45% stayed for 90 days or more. In 2009, the retention rates were higher with 89% staying at least 30 days and 67% staying for 90 days or more. Adamson et al. (2010) proposed that whānau involvement in treatment and the significant Māori cultural components embedded in the therapeutic community were possible explanations for the relatively high retention rates observed in the evaluation. These explanations are supported by international research proposing that retention can be strengthened by the involvement of whānau in treatment and facilitating cultural practice for indigenous tāngata whaiora (Broekaert et al., 2006; Fisher et al., 1996). These explanations were further elaborated on in a qualitative study exploring the experiences of tāngata whaiora in the same therapeutic community evaluated by Adamson et al. (2010). In the research by Ashdown et al. (2019), seven Māori male tāngata whaiora were interviewed about their experiences in the therapeutic community. Participants

reported that healing family relationships and reconnecting with their Māori culture were important aspects of their experience in the therapeutic community.

The Present Study

The research reviewed above demonstrates that retention in treatment is associated with efficacy of the therapeutic community treatment and post-treatment outcomes. Despite this, many therapeutic communities throughout the world report that it is a constant challenge to retain tāngata whaiora for longer periods of time. Changes in drug use behaviours over recent years and increases in the availability of more harmful drugs in Aotearoa New Zealand, particularly methamphetamine, means that services and policy makers need to adapt to the continuously changing presentations and needs of tāngata whaiora. Recent data from the Moana House annual report suggests that the substance-use patterns of those seeking residential drug and alcohol services in Aotearoa New Zealand have changed. In 2010, 13% of Moana House referrals were methamphetamine related and for the most recent year 2019 – 2020, 81% of referrals were methamphetamine related (Moana House Annual Report, 2020). Internationally there is a wealth of data on the types of people who access therapeutic community treatment programmes, retention trends and factors associated within retention. Domestically, in Aotearoa New Zealand there remains a lack of quantitative data on the types of people who access residential therapeutic community programmes. The studies identified in this literature review that examined domestic retention trends and factors associated with retention in Aotearoa New Zealand were conducted 5-10 years ago and only reported on short-term (8-week or 3-month) retention trends (Adamson et al., 2010; Mulder et al., 2009; Schroder et al., 2009). The previous studies are limited in that they do not provide detailed information on characteristics of tāngata whaiora nor any data on long-term retention trends (i.e., more than 3 months). Given that there is large international evidence-base demonstrating the association between retention and improved post-treatment outcomes and lack of up-to-date data on retention in residential therapeutic communities in Aotearoa New Zealand, the present study developed the following aims and addresses the subsequent research questions.

Research Aims and Hypotheses

- To provide further information about the characteristics of people attending therapeutic communities in Aotearoa New Zealand.
- To provide insight into retention trends in therapeutic communities in Aotearoa New Zealand over a 9-month treatment period and examine what factors are associated with retention for 3 months or longer in therapeutic communities in Aotearoa New Zealand.

Based on past research it was predicted that that 1-month, 3-month, and 9-month retention trends would be similar to those previously reported in Aotearoa New Zealand and that the number of days tāngata whaiora remain in treatment would be associated with the fixed characteristics of age, ethnicity, number of convictions, substance-use, and admission status (mandated or not).

METHOD

The Programme

Moana House is a residential therapeutic community located in Dunedin that was established in 1983 as an alternative to any further imprisonment for men with histories of addiction and criminal offending (Adamson et al., 2010). The residential programme is aimed to be 9 months long with 3 months of after care. However, the length of time spent in residential or after care services is flexible and tailored to meet the needs of the individual. Some stay longer while others leave earlier. It should be noted that if an individual leaves early, this does not mean they did not complete their programme as treatment plans are individualized. For example, some stay for a short time to undertake an assisted detox while others decide to transition to other services closer to where they live. The residential and after care services are only for men but there is also a continuing care service which offers outpatient services to both men and women. In this study we only gathered data from men participating in the residential programme.

The Moana House residential programme is based on four stages of treatment which are Whakaohoho (awakening / assessment); Stage I: Āhuatanga (the 'shape' of recovery); Stage II: Mōhiotanga (understanding); and Stage III: Mana Motuhake (autonomy and self-determination) (Adamson et al., 2010). The framework of practice referred to as 'Te Heke Tikanga' was developed in consultation with a wide range of stakeholders at a local marae and is underpinned by three core values: tika (honesty, truthfulness, integrity), pono (good faith and belief in the goodness of others, and aroha (love and compassion). Heke Tikanga incorporates tikanga into the everyday running of the programme and clinical practice (although Moana House does not identify as a Kaupapa Māori service despite the strong influence of Māori cultural practices embedded in the programme). An example of how tikanga is incorporated into the programme is that every visitor to the House is welcomed in the process of mihi whakatau, which is a traditional Māori speech process for welcoming and greeting visitors. The Heke Tikanga framework provides a structure in which staff, tāngata whaiora and whānau can collaborate to improve overall health and wellbeing.

Design

This study utilized a retrospective case-control design. Descriptive analyses are presented on retention trends over a 9-month (270-day) treatment period. Inferential analyses are presented on the associations between fixed client characteristics (age, ethnicity, number of convictions, substance-use, admission status) and the length of stay in treatment.

This research is significant to Māori as the majority of the sample in this study identified as Māori. Therefore, it was fundamental that the design of this study incorporated Kaupapa Māori Research principles. A Kaupapa Māori approach requires research to be conducted by Māori researchers, with Māori participants and for the benefit of Māori people (Smith, 2021). The primary author and one co-author in this study are Māori psychology researchers and have an awareness and understanding of Māori cultural values, knowledge, beliefs and Māori language

thus allowing the research to be interpreted from a Māori worldview (Smith, 2021). Although qualitative research methods align more strongly with Kaupapa Māori research methods, it is important to highlight that the two Māori researchers were uniquely positioned to interpret and consider the implications of the findings from a Māori perspective.

Audit Sample

The sample consisted of 240 resident clinical files from the archives of the Moana House therapeutic community in Dunedin, Aotearoa New Zealand. Data were collected from Moana House archives dating from 2011–2020. Information was collected on age, ethnicity (and iwi for Māori), forensic history (number of criminal convictions), admission status (whether or not treatment was mandated), type of substance-use disorder and length of stay. An additional 13 clinical files were accessed but excluded from the study as the length of stay data was missing. Approval for the study was provided as a service audit by the Downie Stewart Foundation who oversee Moana House.

Criterion Variable

Length of Stay: Length of stay was calculated in days from the date of admission to the date of discharge. Where figures are expressed in months, these are calculated as 30-day periods as opposed to calendar months for each individual's specific period of residence to provide better equivalence. We chose to make comparisons between those who stayed less than and more than 90 days because 90 days treatment has been suggested as a minimum treatment period to benefit from therapeutic community treatment. Another study of retention in therapeutic communities in Aotearoa New Zealand also examined factors associated with 90 days retention and we chose to examine factors associated with 90 days retention so that comparisons can be made with research in a local context (Mulder et al., 2009).

Predictor Variables

Ethnicity: Ethnicity and iwi were determined by self-reported primary identification with one of three ethnic groups (NZ European / Pākehā, NZ Māori, Pasifika).

Forensic History: The number of convictions was obtained from both self-reports and official records. Forensic history was recorded as the total number of convictions at the time of admission and divided into two groups: more than or less than 20 convictions. We chose to categorize forensic history into more than or less than 20 convictions so that comparisons could be made between the findings of this study and another local study that investigated whether having more or less than 20 convictions was associated with 90-day retention in treatment in Aotearoa New Zealand (Mulder et al., 2009).

Admission Status (mandated vs no mandate): Legal status at the time of admission was obtained from official documents held on file. The types of legal status recorded were bail, parole, partial residential restrictions, community-based sentence, intensive supervision. Legal status was divided into two groups: mandated (bail, parole, partial residential restrictions, community-based sentence, intensive supervision) and no mandate. Those

with mandates had specific legal conditions to undertake residential drug and alcohol treatment.

Substance-use: Type of substance-use disorder was obtained from comprehensive assessments using the American Psychiatric Association (2013) diagnostic criteria as a screening tool for substance-use disorder.

Statistical Analysis

Retention rates across the 9-month period from the date of admission were calculated as the percentage of people remaining in treatment at each 30-day time point across 270 days. Comparisons between those who stayed less than 90 days and those who stayed 90 or more days were conducted using χ^2 tests for categorical variables. Means are reported for normally distributed variables and medians are also reported for skewed variables. Logistic regression analysis was planned to determine the independent association of variables that showed significant association ($p < .05$) with 3-month retention. Because some clinical files were only partially complete, the number of missing cases ranged from 0 (for length of stay and age) to 32 (for number of convictions). Missing data analysis revealed no associations between missing data status and the criterion variable of length of stay.

RESULTS

Characteristics of tāngata whaiora

The age range of tāngata whaiora was 18 – 56, with a median of 32 (mean 33.06, SD = 8.82). Ethnicity data was recorded for 238 of the 240 tāngata whaiora and the majority of tāngata whaiora were Māori (71.8%), with 28.2% non-Māori. Data on the number of convictions were available for 208 of the 240 tāngata whaiora. The range was 3 – 251 convictions with a median of 48.5 and considerable positive skew (mean 60.52, SD 49.91). The majority of tāngata whaiora had 20 or more convictions (78.8%). Data on the admission status were available for 231 of the 240 tāngata whaiora, and the majority had some form of mandate to undertake treatment (82.3%). Data on substance-use disorder were available for 214 of the 240 tāngata whaiora. All 214 met the diagnostic criteria for a substance-use disorder. Most had used more than one

substance (93.9%), with 26.6% using two substances, 32.2% using three, and 35.1% using four or more.

Descriptive data on length of stay

Data on length of stay were available for 240 tāngata whaiora. The range was 1 – 803 days (2.20 years) and the median was 111.5 days, with positive skewness (mean 182.62, SD 178.23). Figure 1 displays the percentage of tāngata whaiora who were retained in treatment at each 1-month (30-day) block over the anticipated 9-month treatment period. This analysis revealed that 80% were retained for at least a month; 56% were retained for at least 3 months; 38% were retained for 6 months; and 26% were retained for 9-months. The period with the lowest rate of retention was the first 30 days where 20% of arrivals did not complete the first month of treatment. Across the 9-months, retention sharply declined for the first 3 months after which retention declined relatively more steadily (see Figure 1).

Comparison of length of stay with individual characteristics

Admission status: There was a significant association between admission status and 90-day retention, with those who stayed for 90 days or more being significantly more likely to have a mandate to undertake treatment (see Table 1). Tāngata whaiora with no mandate stayed an average of 98.63 days and those who were mandated stayed an average of 204.71 days. This means that those who were mandated to undertake treatment stayed 106.07 days more on average than those with no mandate, and this association is statistically significant (see Table 1).

Forensic history: There was no significant association between forensic history and 90-day retention rates. Those who had 20 convictions or more demonstrated similar 90-day retention rates to those with less than 20 convictions (see Table 1).

Ethnicity: There were no significant associations between ethnicity and 90-day retention rates. The tāngata

Figure 1. The percentage of tāngata whaiora (n = 240) who remained in treatment at each 1-month (30-day) timepoint over 9 months between 2011 – 2020

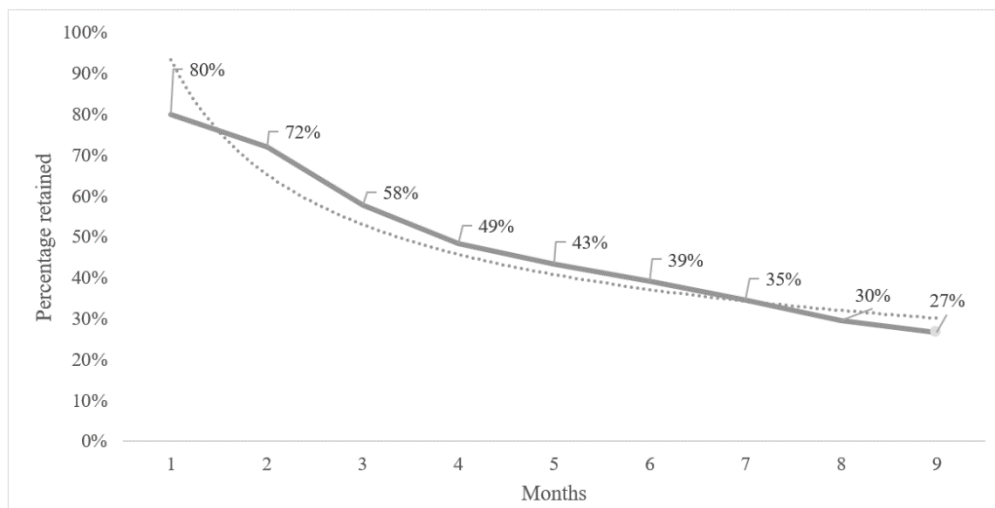


Table 1. Percentage of tāngata whaiora who stayed less than or more than 90 days in treatment as a function of admission, forensic history, ethnicity, age and polysubstance use

Independent variables	N	Less than 90 days	90 days or more	$\chi^2(1)$	P
<i>Admission status</i>					
Mandated	190	69% (n = 67)	92% (n = 123)	19.89	<.001
No mandate	41	31% (n = 30)	8% (n = 11)		
<i>Forensic history</i>					
< 20 convictions	44	21% (n = 18)	21% (n = 26)	<0.001	.995
20 or more	164	79% (n = 67)	79% (n = 97)		
<i>Ethnicity</i>					
Māori	168	76% (n = 78)	68% (n = 93)	1.89	.170
Non-Māori	67	24% (n = 24)	32% (n = 43)		
<i>Age</i>					
25 and under	48	16% (n = 71)	23% (n = 31)	1.88	.390
26 – 50	183	81% (n = 83)	73% (n = 100)		
51+	9	3% (n = 3)	4% (n = 6)		
<i>Polysubstance Use</i>					
Yes	201	93% (n = 81)	95% (n = 120)	.17	.677
No	13	7% (n = 6)	5% (n = 7)		

Table 2. Percentage of residents (n = 214) who stayed less than or more than 3months in treatment as a function of substance-use disorder diagnoses

		<90 days	90 days or more	$\chi^2(1)$	P
Alcohol:	Yes	84% (n = 73)	87% (n = 183)	.31	.581
	No	16% (n = 14)	13% (n = 31)		
Opioids:	Yes	31% (n = 27)	31% (n = 40)	.01	.943
	No	69% (n = 60)	69% (n = 87)		
Caffeine:	Yes	3% (n = 3)	7% (n = 9)	1.29	.256
	No	97% (n = 84)	93% (n = 118)		
Stimulants:	Yes	71% (n = 62)	69% (n = 87)	.19	.666
	No	29% (n = 25)	31% (n = 40)		
Cannabis:	Yes	82% (n = 71)	86% (n = 109)	.69	.407
	No	18% (n = 16)	14% (n = 18)		
Nicotine:	Yes	39% (n = 34)	46% (n = 58)	.92	.339
	No	61% (n = 53)	54% (n = 69)		
Inhalants:	Yes	7% (n = 6)	6% (n = 8)	.03	.862
	No	93% (n = 81)	94% (n = 119)		
Hallucinogens:	Yes	15% (n = 13)	18% (n = 23)	.37	.543
	No	85% (n = 74)	82% (n = 104)		
Benzodiazepines:	Yes	14% (n = 12)	11% (n = 14)	.37	.542
	No	86% (n = 75)	89% (n = 113)		
Sedatives:	Yes	5% (n = 4)	9% (n = 11)	1.31	.253
	No	95% (n = 83)	91% (n = 116)		

whaiora who were Māori demonstrated similar 90-day retention rates to non-Māori (see Table 1).

Age: There were no significant age differences between those who completed 90 days or more treatment and those who completed less than 90 days. Those who stayed 90 days or more were a similar age, on average, to those who stayed less than 90 days (see Table 1).

Substance use: There were no significant differences in the number of substance-use disorders between those who completed 90 days or more treatment and those who completed less than 90 days. Those who stayed 90 days or more presented with, on average, the same number of substance-use disorders (around three substance use disorders) as those who stayed less than 90 days (see

Table 3. Prediction of average length of stay as a function of admission status (mandated vs no mandate)

	Coefficients	SE	t	P	Lower 95%	Upper 95%
Intercept	98.63	27.42	3.32	<.001	44.61	152.66
Mandated	106.07	30.23	3.83	<.001	46.51	165.64

Table 1). Furthermore, there were no significant associations between type of substance-use disorder and 90-day retention rates (i.e., those who presented with a history of stimulant use showed similar retention rates to those who did not have a history of stimulant use) (see Table 2).

Logistic regression predicting length of stay

Because admission status (mandated vs no mandate) was the only variable associated with 90-day retention in the above bivariate analyses, the logistic of relevant variables confirmed the association between admission status and length of stay (Table 3) as no other variables predicted retention.

DISCUSSION

This research has three main findings that provide novel insight into retention in therapeutic communities within the context of Aotearoa New Zealand. Firstly, the study provides novel insight into long-term retention trends within the context of Aotearoa New Zealand. Across a 9-month period, 80% of admissions were retained for 1 month, 56% for 3 months, 38% 6 months and 26% for 9 months. The sharpest decline in retention was from admission until 3 months, after which retention steadily declined. Secondly, the results show that being mandated to undertake treatment was significantly associated with retention of 3 months or more in treatment. This is the first study in Aotearoa New Zealand to find that mandated treatment is associated with increased retention in drug and alcohol treatment programmes. Thirdly, age, ethnicity, substance-use history and forensic history did not predict 3-month retention, which indicates that these characteristics may not be predictive of who will do well in therapeutic community treatment programmes.

Within Aotearoa New Zealand there are few studies available to compare retention trends with those reported in this study. Shroder et al. (2009) reported that 17% of admissions of youth attending residential and day programmes left within the first month. Newton-Howes and Stanley (2015) reported that 62% of tāngata whaiora completed an 8-week residential therapeutic community programme at Spring Hill in Napier. Similarly, Mulder et al. (2009) reported that 57% remained in treatment for 3 months or more at Odyssey House residential therapeutic community in Christchurch. And King et al. (2019) reported an average length of stay over a 6-year period of 80 days, with 51% retained for 90 days at Higher Ground residential therapeutic community in Auckland. Adamson et al. (2010) reported varying retention data gathered from the same population as the present study at the Moana House therapeutic community for the years prior to the present data collection period. For the year 2008,

Adamson and colleagues reported that 77% stayed at least 1 month and 45% stayed for 3 months or more while in 2009 the retention rates were higher with 89% staying at least 1 month and 67% staying for 3 months or more.

In comparison with local retention data available, the retention rates observed in the present study are similar to those reported throughout therapeutic communities in different regions of Aotearoa New Zealand, but it should be noted that there is very little data available for comparison. Although comparisons in retention trends between treatment programmes are difficult due to the high variability in therapeutic community programmes, tāngata whaiora characteristics and methodological constraints, the widespread reporting in the international literature of challenges in retaining tāngata whaiora over the long-term appears to be a feature shared by therapeutic communities in Aotearoa New Zealand.

This study found novel findings within the context of Aotearoa New Zealand in that tāngata whaiora who were mandated to undertake treatment were significantly more likely to complete 3 months of treatment than those without a mandate. Moreover, those who were mandated tended to stay 106 days longer on average than those who were not mandated. This association was not found in the other major local study that examined the association between mandated treatment (and other variables) and 3-month retention in a therapeutic community in Christchurch, Aotearoa New Zealand (Mulder et al. 2009). The results are, however, consistent with international literature on 3-month retention predictors. Hiller et al. (1998) examined retention rates across 18 residential treatment programmes in the US and found that those who reported moderate to high legal pressure to undertake treatment were significantly more likely to complete 3 months or more treatment than those with low legal pressure.

Prior research indicates that tāngata whaiora who have been mandated to undertake treatment experience lower motivation than those who are not mandated (Harford et al., 1976). The issue of motivation is important as higher internal motivation has been shown to be associated with long-term behavioural change (Deci & Ryan, 1985). More recent research, however, demonstrates that although tāngata whaiora who undertake mandated treatment report lower motivation levels than those who undertake treatment without having a mandate, those with mandates are just as, or more likely to complete treatment than those without (Coviello et al., 2013; Brecht et al., 1993; Farabee et al., 1998; Hiller et al., 1998; Kelly et al., 2005; Martin et al., 2003). Moreover, Kelly et al. (2005) reported that although motivation was lower for those with mandates, they showed similar levels of therapeutic change as those

who were not mandated both during treatment and 5-years afterwards.

Although there is increasing evidence to suggest that mandated treatment is associated with increased retention in therapeutic communities, the finding should be treated with caution as it does not provide evidence of a direct causal relationship that mandated treatment results in improved post-treatment outcomes. As highlighted by Schroder et al (2009), while time in treatment is a strong predictor of improved treatment outcomes, it may not be a sufficient predictor alone and is unlikely to be the sole reason for more successful outcomes.

There was no significant association between ethnicity and overall length of stay. The association between ethnicity and retention in Aotearoa New Zealand is mixed. The results of the present study support those of Mulder et al. (2009) who found that Māori were just as likely to complete 3 months treatment as non-Māori. Likewise, Shroder et al. (2009) reported that Māori, Pasifika, European and amalgamated other ethnic groups did not differ in retention in drug and alcohol treatment programmes for youth. Newton-Howes and Stanley (2015) found that Māori were significantly more likely to complete an 8-week residential treatment programme than non-Māori and whilst this might be considered surprising given persistent criminal justice inequities for Māori, the authors stated that the reason for this result was unclear.

Internationally, some studies have found that indigenous and minority populations tend to stay less time in treatment. Li et al. (2013) reported that indigenous aboriginal people from Canada were significantly less likely to complete an inpatient detox treatment programme than non-aboriginal people while De Leon et al. (1993) reported that Latino men were significantly less likely to complete 30 days and 1 year's treatment in the US than African and White Americans. Melnick et al. (1997), however, found no differences in 45-day retention rates for White Americans, African Americans, and Latinos. The results of the present study support other local research that suggests that there is no association between ethnicity and retention in treatment within the context of Aotearoa New Zealand. These results are particularly encouraging given the substantial proportion of Māori who access residential therapeutic community treatment services in Aotearoa New Zealand.

There was no significant association between the number of convictions tāngata whaiora reported at entry and 3-month retention. Tāngata whaiora who had an extensive criminal history (20 or more convictions) were just as likely to be retained for 3 months or more as those who had a less extensive criminal history. These results are consistent with other local reports in Aotearoa New Zealand by Mulder et al. (2009) who did not find any association between forensic history and 3-month retention. The implications of this finding are important in that it indicates that one's criminal history should not prevent them from being able to access treatment. As the results indicate, tāngata whaiora with extensive histories of criminal recidivism demonstrate the same retention rates as those with less extensive histories.

The international evidence base to support this claim is mixed. Evans et al. (2009) investigated factors associated with treatment completion in 30 programmes

throughout California. They found that those who left early had more extensive criminal histories than those who completed treatment. Likewise, Huebner and Cobbina (2007) reported that those with extensive criminal histories were more likely to leave treatment early. Lang and Belenko (2000) also reported that those who completed community-based residential treatment programmes as an alternative to prison had less drug-related convictions than those who left early.

There were no significant differences in 3-month retention rates for the three age groups (25 or younger, 26-50 or 51 or older). These results support other local findings in Aotearoa New Zealand that reported no association between age and 3-month retention (Mulder et al., 2009). Some international studies, however, have reported that age may predict retention and programme completion. Harley et al. (2018) found that those less than 25 years of age and those over 50 were significantly less likely to complete a therapeutic community programme based in Australia. They reported that the age category that was most likely to complete treatment was those aged 26 – 50 with the peak age associated with treatment completion being 38. Similarly, Malivert et al. (2012) reported that older people were more likely to leave treatment early in a meta-analysis of 12 studies examining the effectiveness of therapeutic communities. However, López-Goñi et al. (2008) reported that younger people were more likely to leave treatment early and those older than 44 were more likely to complete treatment. A recent study by Andersson et al. (2018) also reported that those under 25 were significantly more likely to leave early. While Keen et al. (2001) reported no association between age and retention. The evidence is mixed on whether age is associated with retention but in the context of Aotearoa New Zealand there is no evidence to suggest that an individual's age can predict the likelihood that they remain in treatment for 3 months or more. The implication is that adult tāngata whaiora should have equal access to treatment and age should not be a determining factor in suitability for therapeutic community treatment in Aotearoa New Zealand.

There was no significant association between substance-use and 3-month retention. Those who presented with polysubstance use at entry demonstrated similar 3-month retention rates as those who only presented with a disorder diagnosis for one substance. Furthermore, there was no significant difference in 3-month retention rates between the different types of substance-use presentations. For example, those who presented with a history of stimulant use (e.g., methamphetamine) were just as likely to be retained for 3 months as those who did not. These results differ to those of Mulder et al. (2009) who reported that sedative use was associated 3-month retention and stimulant use was associated with leaving early in another therapeutic community in Aotearoa New Zealand.

Internationally, the evidence-base for the association between substance use factors (e.g., type of substance use and polysubstance use) and retention is mixed. Some studies reported that opioid use was associated with leaving treatment early (Evans et al., 2009; Zanis et al., 2009) while others have reported that stimulant use was associated with leaving early (Brown, 2010; Mulder et al.,

2009; Joe et al., 1999). Andersson et al. (2018) reported that leaving treatment early was associated with intravenous drug use or having alcohol as the primary substance of concern. Some studies have reported no associations between polysubstance use and retention (Keen et al., 2001) while others have found associations between polysubstance use and increased risk of leaving treatment early (Andersson et al., 2018). It is difficult to draw any firm conclusions on the association between type of substance-use and polysubstance use on retention in therapeutic communities given the wide range of findings in the literature. The results of the present study, however, are promising in that the modified therapeutic community model specific to this study appears to be effective in retaining tāngata whaiora regardless of what type of substance-use disorder they present with or whether they present with polysubstance use.

The findings of this study suggest that there are few factors that predict retention in therapeutic communities in Aotearoa New Zealand. However, there may be some practitioners, service providers and policy makers within the health sector who are biased towards believing that certain factors mean that some tāngata whaiora will not do well in treatment (personal communication, Moana House Programme Director, October 5th, 2021). Some service providers may decline referrals because they view them as unmotivated due to the fact that they have been mandated by the court or a parole board to undertake treatment. Indeed, previous research with tāngata whaiora at the Moana House therapeutic community indicated that some tāngata whaiora initially enter treatment as a “get out of jail card”, however, this does not mean that one is unmotivated. Ashdown et al. (2019) suggested that although some participants may be extrinsically motivated before entering treatment (e.g., motivated by external factors such as getting out of prison), with time in treatment and progression towards programme goals, this motivation changes to more intrinsic motivations (e.g., to improve one’s wellbeing for themselves and their whānau).

Historically, Māori communities, indigenous peoples and ethnic minorities internationally have been marginalized by society and state health systems, resulting in inequities in health and wellbeing outcomes (Ashdown et al., 2018). However, given that there was no association between ethnicity and length of stay in treatment in this study, the modified therapeutic community could be an equitable treatment service option for tāngata whaiora. This could be due to the imbedded cultural and whānau-based interventions in the Moana House programme (Ashdown et al., 2019).

Practitioners, addiction service providers and policy makers should consider the importance of culture when designing and delivering services. Furthermore, addiction services should be accessible to all tāngata whaiora, regardless of whether they have been mandated to undertake treatment. Service specifications and contracts for organizations that provide addictions services should be designed in a way that reduces barriers to access.

Limitations

The present study had several limitations relating to research design and generalisability of findings. Firstly,

the study examined data from men only and therefore the study does not provide us with any retention information relating to women and their dependents (babies and young children), non-binary people, or youth attending residential therapeutic community treatment programmes in Aotearoa New Zealand. Secondly, data was only collected from one residential therapeutic community (Moana House) and therefore the observed findings may be limited to this specific treatment programme. Comparisons with research involving other therapeutic communities are difficult due to inherent differences in programme delivery, tāngata whaiora characteristics and research design. Thirdly, given that this was a retrospective study that involved data from archives, some data were missing. Missing data reduced the statistical power of the study and consequently the findings may not be a reliable representation of the population. Furthermore, only a limited number of variables (admission status, age, forensic history, substance-use) were available to be abstracted and analyzed in relation to their association with retention and therefore the research does not provide information on how other factors (e.g., mental health, support, motivation, severity of substance use etc.) could be related to retention. Finally, the study does not provide any information about factors associated with long-term retention (e.g., 6, 9 and 12 months) nor post-treatment outcomes. Although the results suggest that having a mandate to undertake residential therapeutic community treatment is associated with increased retention, this does predict that mandated treatment will result in long-term improvements in health and wellbeing post-treatment.

Future research

There is a concerning lack of research in therapeutic community programmes in Aotearoa New Zealand. To date, only two other peer-reviewed research articles have been published that have examined factors associated with retention in therapeutic communities (Mulder et al., 2009; Newton-Howes & Stanley, 2015). A number of programme evaluations have reported on retention data in Aotearoa New Zealand but relevant findings have not been published in peer-reviewed journals. This raises the question: How effective are therapeutic communities at producing long-term improvements in health and wellbeing in Aotearoa New Zealand? A nation-wide, comprehensive study that collects data from various therapeutic communities throughout Aotearoa New Zealand (including services for woman and their children) focusing on long-term retention trends, factors associated with long-term retention, and post-treatment outcomes could reduce the current knowledge gap by providing valuable data on the efficacy of therapeutic community programmes in Aotearoa New Zealand.

Conclusion

The present audit study highlights the considerable lack of research available in relation to therapeutic communities in Aotearoa New Zealand. The findings bridge this knowledge gap by providing novel insight into long-term retention trends and factors association with 3-month retention in treatment. After analyzing associations between length of stay in treatment and five variables (admission status, ethnicity, forensic history, age and

substance-use), admission status was the only variable significantly associated with 3-month retention. Those who were mandated to undertake treatment were significantly more likely to remain in treatment for 3 months or more than those who were not mandated. This finding should be considered with caution as the study does not provide any evidence of a direct causal relationship between mandated treatment and long-term

improvements in health and wellbeing post treatment. The findings support an unbiased approach to admission into treatment as few factors appear to be able to predict who will do well in therapeutic communities in Aotearoa New Zealand. In other words, regardless of one's past, all people seeking therapeutic community support should continue to have equal access to a range of well-resourced therapeutic services to improve their health and wellbeing.

References

- Adamson, S., Deering, D., Hinerangi, M., Huriwai, T., & Noller, G. (2010). *An evaluation of the Moana House Residential Therapeutic Community*. Wellington: Alcohol Advisory Council of New Zealand.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Andersson, H. W., Steinsbekk, A., Walderhaug, E., Otterholt, E., & Nordfjærn, T. (2018). Predictors of dropout from inpatient substance use treatment: A prospective cohort study. *Substance Abuse: Research and Treatment, 12*(1), 1–10. <https://doi.org/10.1177/1178221818760551>
- Ashdown, J., Pidduck, P., Neha, T. N., Schaughency, E., Dixon, B., Aitken, C. E., & Treharne, G. J. (2018). The ethics of allowing participants to be named in critical research with indigenous peoples in colonised settings: Examples from health research with Māori. In C. I. Macleod, J. Marx, P. Mnyaka, & G. J. Treharne (Eds.), *The Palgrave handbook of ethics in critical research* (pp. 273–289). London: Palgrave-MacMillan. https://doi.org/10.1007/978-3-319-74721-7_18
- Ashdown, J. D., Treharne, G. J., Neha, T., Dixon, B., & Aitken, C. (2019). Māori men's experiences of rehabilitation in the Moana House Therapeutic Community in Aotearoa/New Zealand: A qualitative enquiry. *International Journal of Offender Therapy and Comparative Criminology, 63*(5), 734–751. <https://doi.org/10.1177/0306624X18808675>
- Brecht, M. L., Anglin, M. D., & Wang, J. C. (1993). Treatment effectiveness for legally coerced versus voluntary methadone maintenance clients. *American Journal of Drug and Alcohol Abuse, 19*(1), 89–106. <https://doi.org/10.3109/00952999309002668>
- Broekaert, E., Vandeveld, S., Soyez, V., Yates, R., & Slater, A. (2006). The third generation of therapeutic communities: the early development of the TC for addictions in Europe. *European Addiction Research, 12*(1), 1–11. <https://doi.org/10.1159/000088577>
- Brown, R. (2010). Associations with substance abuse treatment completion among drug court participants. *Substance Use & Misuse, 45*(12), 1874–1891. <https://doi.org/10.3109/10826081003682099>
- Condelli, W., Koch, M., & Fletcher, B. (2000). Treatment refusal/attrition among adults randomly assigned to programs at a drug treatment campus - The New Jersey Substance Abuse Treatment Campus, Seacaucus, NJ. *Journal of Substance Abuse Treatment, 18*(4), 395–407. [https://doi.org/10.1016/S0740-5472\(99\)00086-0](https://doi.org/10.1016/S0740-5472(99)00086-0)
- Coviello, D. M., Zanis, D. A., Wesnoski, S. A., Palman, N., Gur, A., Lynch, K. G., & McKay, J. R. (2013). Does mandating offenders to treatment improve completion rates? *Journal of Substance Abuse Treatment, 44*(4), 417–425. <https://doi.org/10.1016/j.jsat.2012.10.003>
- De Leon, G. (1995). Therapeutic communities for addictions: A theoretical framework. *International Journal of the Addictions, 30*(12), 1603–1645. <https://doi.org/10.3109/10826089509104418>
- De Leon, G., Melnick, G., Schoket, D., & Jainchill, N. (1993). Is the therapeutic community culturally relevant? Findings on race/ethnic differences in retention in treatment. *Journal of Psychoactive Drugs, 25*(1), 77–86. <https://doi.org/10.1080/02791072.1993.10472594>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press. <https://doi.org/10.1007/978-1-4899-2271-7>
- Evans, E., Li, L., & Hser, Y. I. (2009). Client and program factors associated with dropout from court mandated drug treatment. *Evaluation and Program Planning, 32*(3), 204–212. <https://doi.org/10.1016/j.evalprogplan.2008.12.003>
- Farabee, D., Prendergast, M., & Anglin, M. D. (1998). The effectiveness of coerced treatment for drug-abusing offenders. *Federal Probation, 62*(1), 3–10.
- Fisher, D. G., Lankford, B. A., & Galea, R. P. (1996). Therapeutic community retention among Alaska natives: Akeela House. *Journal of Substance Abuse Treatment, 13*(3), 265–271. [https://doi.org/10.1016/S0740-5472\(96\)00060-8](https://doi.org/10.1016/S0740-5472(96)00060-8)
- Glaser, F. B. (1981). The origins of the drug-free therapeutic community. *British Journal of Addiction, 76*(1), 13–25. <https://doi.org/10.1111/j.1360-0443.1981.tb00205.x>
- Gowing, L., Cooke, R., Biven, A., & Watts, D. (2002). *Towards better practice in therapeutic communities*. Australasian Therapeutic Communities Association.
- Greenfield, L., Burgdorf, K., Chen, X., Porowski, A., Roberts, T., & Herrell, J. (2004). Effectiveness of long-term residential substance abuse treatment for women: findings from three national studies. *American Journal of Drug and Alcohol Abuse, 30*(3), 537–550. <https://doi.org/10.1081/ada-200032290>
- Harford, R. J., Ungerer, J. C., & Kinsella, J. K. (1976). Effects of legal pressure on prognosis for treatment of drug dependence. *American Journal of Psychiatry, 133*(12), 1399–1404. <https://doi.org/10.1176/ajp.133.12.1399>
- Harley, M., Pit, S. W., Rees, T., & Thomas, S. (2018). Completion rates and psychosocial intervention effectiveness in an Australian substance use therapeutic community. *Substance Abuse Treatment, Prevention, and Policy, 13*(1), 33. <https://doi.org/10.1186/s13011-018-0170-5>
- Hiller, M. L., Knight, K., Broome, K. M., & Simpson, D. D. (1998). Legal pressure and treatment retention in a national sample of long-term residential programs. *Criminal Justice and Behavior, 25*(4), 463–481. <https://doi.org/10.1177/0093854898025004004>
- Hubbard, R. L., Craddock, S. G., Anderson, J. (2003). Overview of 5-year followup outcomes in the drug abuse treatment outcome studies (DATOS). *Journal of Substance Abuse Treatment, 25*(3), 125–134. [https://doi.org/10.1016/S0740-5472\(03\)00130-2](https://doi.org/10.1016/S0740-5472(03)00130-2)

- Huebner, B. M., & Cobbina, J. (2007). The effect of drug use, drug treatment participation, and treatment completion on probationer recidivism. *Journal of Drug Issues, 37*(3), 619–641. <https://doi.org/10.1177/002204260703700307>
- Joe, G. W., Simpson, D. D., & Broome, K. M. (1999). Retention and patient engagement models for different treatment modalities in DATOS. *Drug and Alcohol Dependence, 57*(2), 113–125. [https://doi.org/10.1016/s0376-8716\(99\)00088-5](https://doi.org/10.1016/s0376-8716(99)00088-5)
- Keen, J., Oliver, P., Rowse, G., & Mathers, N. (2001). Residential rehabilitation for drug users: A review of 13 months' intake to a therapeutic community. *Family Practice, 18*(5), 545–548. <https://doi.org/10.1093/fampra/18.5.545>
- Kelly, J. F., Finney, J. W., & Moos, R. (2005). Substance use disorder patients who are mandated to treatment: characteristics, treatment process, and 1- and 5-year outcomes. *Journal of Substance Abuse Treatment, 28*(3), 213–223. <https://doi.org/10.1016/j.jsat.2004.10.014>
- King, J., Stevenson, B., Moss, M., & Garden, E. (2019). *Review of outcomes for clients of Higher Ground. Report prepared for Higher Ground Drug Rehabilitation Trust.* Julian King & Associates Limited.
- Lang, M. A., & Belenko, S. (2000). Predicting retention in a residential drug treatment alternative to prison program. *Journal of Substance Abuse Treatment, 19*(2), 145–160. [https://doi.org/10.1016/s0740-5472\(00\)00097-0](https://doi.org/10.1016/s0740-5472(00)00097-0)
- Li, X., Sun, H., Marsh, D. C., & Anis, A. H. (2013). Factors associated with pretreatment and treatment dropouts: comparisons between Aboriginal and non-Aboriginal clients admitted to medical withdrawal management. *Harm Reduction Journal, 10*(1), 1–7. <https://doi.org/10.1186/1477-7517-10-38>
- López-Goñi, J. J., Fernández-Montalvo, J., Illescas, C., Landa, N., & Lorea, I. (2008). Determining socio-demographic predictors of treatment dropout: results in a therapeutic community. *International Journal of Social Welfare, 17*(4), 374–378. <https://doi.org/10.1111/j.1468-2397.2008.00584.x>
- Martin, B., Clapp, L., Bialkowski, D., Bridgeford, D., Amponsah, A., Lyons, L., & Beresford, T. P. (2003). Compliance to supervised disulfiram therapy: a comparison of voluntary and court-ordered patients. *American Journal on Addictions, 12*(2), 137–143. <https://doi.org/10.1111/j.1521-0391.2003.tb00611.x>
- Malivert, M., Fatséas, M., Denis, C., Langlois, E., & Auriacombe, M. (2012). Effectiveness of therapeutic communities: a systematic review. *European Addiction Research, 18*(1), 1–11. <https://doi.org/10.1159/000331007>
- Melnick, G., & De Leon, G. (1999). Clarifying the nature of therapeutic community treatment: The Survey of Essential Elements Questionnaire (SEEQ). *Journal of Substance Abuse Treatment, 16*(4), 307–313. [https://doi.org/10.1016/S0740-5472\(98\)00036-1](https://doi.org/10.1016/S0740-5472(98)00036-1)
- Melnick, G., De Leon, G., Hawke, J., Jainchill, N., & Kressel, D. (1997). Motivation and readiness for therapeutic community treatment among adolescents and adult substance abusers. *American Journal of Drug & Alcohol Abuse, 23*(4), 485–506. <https://doi.org/10.3109/00952999709016891>
- Messina, N., Wish, E., & Nemes, S. (2000). Predictors of treatment outcomes in men and women admitted to a therapeutic community. *American Journal of Drug and Alcohol Abuse, 26*(2), 207–227. <https://doi.org/10.1081/ada-100100601>
- Moana House. (2020). *Annual report July 2019 – June 2020.* <https://static1.squarespace.com/static/53604ae0e4b081613fd4b18f/t/5f277a7daa5c442b5a629c5f/1596422802437/Annual+Report+June+2020.pdf>
- Mulder, R. T., Frampton, C., Peka, H., Hampton, G., & Marsters, T. (2009). Predictors of 3- month retention in a drug treatment therapeutic community. *Drug and Alcohol Review, 28*(4), 366–371. <https://doi.org/10.1111/j.1465-3362.2009.00050.x>
- National Institute on Drug Abuse. (2003). *Drug use among racial/ethnic minorities.* US Department of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse, Division of Epidemiology, Services & Prevention Research.
- Newton-Howes, G., & Stanley, J. (2015). Patient characteristics and predictors of completion in residential treatment for substance use disorders. *BJPsych Bulletin, 39*(5), 221–227. <https://doi.org/10.1192/pb.bp.114.047639>
- Pompi, K. F., & Resnick, J. (1987). Retention of court-referred adolescents and young adults in the therapeutic community. *American Journal of Drug & Alcohol Abuse, 13*(3), 309–325. <https://doi.org/10.3109/00952998709001516>
- Schroder, R., Sellman, D., Frampton, C., & Deering, D. (2009). Youth retention: factors associated with treatment drop-out from youth alcohol and other drug treatment. *Drug and Alcohol Review, 28*(6), 663–668. <https://doi.org/10.1111/j.1465-3362.2009.00076.x>
- Simpson, D. D., Joe, G. W., Broome, K. M., Hiller, M. L., Knight, K., & Rowan-Szal, G. A. (1997). Program diversity and treatment retention rates in the Drug Abuse Treatment Outcome Study (DATOS). *Psychology of Addictive Behaviors, 11*(4), 279–293. <https://doi.org/10.1037/0893-164X.11.4.279>
- Smith, L. T. (2021). *Decolonizing methodologies: Research and indigenous peoples (3rd edn).* Zed Books.
- Stark, M. J. (1992). Dropping out of substance abuse treatment: A clinically oriented review. *Clinical Psychology Review, 12*(1), 93–116. [https://doi.org/10.1016/0272-7358\(92\)90092-M](https://doi.org/10.1016/0272-7358(92)90092-M)
- Zanis, D. A., Coviello, D. M., Lloyd, J. J., & Nazar, B. L. (2009). Predictors of drug treatment completion among parole violators. *Journal of Psychoactive Drugs, 41*(2), 173–180. <https://doi.org/10.1080/02791072.2009.10399910>

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