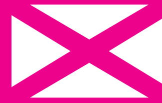


Scottish Government
Riaghaltas na h-Alba
gov.scot

Residential Rehabilitation: A Review of the Existing Literature and Identification of Research Gaps within the Scottish Context

HEALTH AND SOCIAL CARE

List of acronyms

AA	Alcoholics Anonymous
ACE	Adverse Childhood Experiences
ADP	Alcohol and Drug Partnership
ASI/ASI-X/ASI-MV	Addiction Severity Index
ATOS	Australian Treatment Outcomes Study
CA	Cocaine Anonymous
CBT	Cognitive Behavioural Therapy
DORIS	Drug Outcome Research in Scotland
DRD	Drug-Related Death
DTTO	Drug Treatment and Testing Order
DDTF	Drug Deaths Taskforce
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
IFDAS	Independence from Drugs and Alcohol Scotland
MAT	Medication Assisted Treatment
MATES	Methamphetamines Treatment Evaluation Study
MT	Milieu Therapy
NA	Narcotics Anonymous
NHS	National Health Service
NTORS	National Treatment Outcome Research Study
OST	Opioid Substitution Therapy
PDA	Percentage of Days Abstinent
PTSD	Post-Traumatic Stress Disorder
QOL	Quality of Life
RCT	Randomised Control Trial
RRWG	Residential Rehabilitation Working Group
SEEQ	Social Identity Mapping in Addiction Recovery
SOC	Sense of Coherence Test
S/R	Spiritual and Religious Treatment Intervention
SUD	Substance Use Disorders
TC	Therapeutic Community
WAI-S	Weschler Adult Intelligence Scale
WTE	Working Time Equivalent

Key Findings

Summary

- Previous research has explored a number of aspects of residential rehabilitation, including its overall effectiveness in producing positive outcomes; mechanisms that impact on outcomes; the effectiveness of different treatment models; and cost effectiveness.
- A relatively robust body of evidence suggests that residential rehabilitation is associated with improvements across a variety of outcomes relating to substance use, health and quality of life.
- There are a number of areas that remain under-researched, particularly within the Scottish context, and which require further exploration.

Overview of effectiveness of residential rehabilitation

- Demonstrating the association between residential rehabilitation and specific outcomes is complicated by the widely varied nature of provision in terms of programme length, treatment philosophy, the provision of throughcare (including preparatory work and aftercare) and quality. Further, with residential rehabilitation typically forming one of multiple interactions with alcohol and/or drugs treatment services, delineating which of these treatments has produced specific outcomes in the short, medium and longer-term is challenging.
- There is relatively robust evidence that residential rehabilitation is associated with improved substance use outcomes, although there is considerable variation in the quality of this evidence.
- Some evidence suggests that residential rehabilitation can improve mental health outcomes, particularly when programmes integrate treatment for substance use and mental health.
- While relatively few studies have explored social outcomes in the context of residential rehabilitation, results broadly suggest that residential rehabilitation is associated with improvements across domains such as offending, social engagement, and employment.
- While there has been limited robust research on mortality outcomes, there may be some indication that residential rehabilitation carries increased risk in comparison with other treatment models. However, mortality rates are affected by a number of confounding factors which are difficult to control for. Further, there is evidence to suggest that people accessing this form of treatment often have higher problem severity, which may lead to increased risk.
- There is scant research that considers the perspectives and experiences of people who have accessed rehabilitation, or which explores and measures outcomes important to them.

Factors associated with improved outcomes

- A relatively large body of literature explores factors associated with improved outcomes, with these factors including pre-treatment preparation; treatment

characteristics, such as programme length; treatment retention/completion rate; characteristics of the individual accessing residential rehabilitation; and aftercare.
- Relating to aftercare, there is a strong evidence base around the importance of ongoing support following placements, as well as the attainment of employment and a stable housing situation, as predictors of positive outcomes following residential rehabilitation.

Effectiveness of therapeutic communities and 12-Step approaches

- There is a relatively robust evidence-base for the effectiveness of the therapeutic community (TC) approach to residential rehabilitation, which suggests they can be highly effective in reducing substance use and criminal activity. However, there is variation in the quality of this evidence.
- Most research relating to 12-Step programmes concerns the efficacy of 12-Step on leaving residential rehabilitation, or as an intervention undertaken concurrently with residential treatment. However, some studies, largely US-based, show that 12-Step can impact positively on a variety of substance use, mental health and social outcomes.
- Very few studies have directly compared the effectiveness of different models of residential treatment programmes. Such comparisons are challenging as facilities often employ a blend of multiple treatment models.

Comparisons of residential rehabilitation with other treatment models

- Relatively little research explores the effectiveness of residential rehabilitation in comparison with other forms of treatment, such as outpatient or community-based treatment and Medication Assisted Treatment (MAT). The majority of the small existing evidence base suggests that residential rehabilitation produces more positive outcomes in relation to substance use than other treatment modalities, although conflicting evidence exists in some cases.
- It is also worth noting that comparative analysis of residential rehabilitation and community interventions is challenged by the aforementioned factors.

Cost effectiveness

- While residential rehabilitation is typically a more expensive treatment option than other forms of treatment, a limited evidence base exists which demonstrates its long-term economic benefit in comparison with other treatment modalities. However, such comparison is complex given the different models of residential treatment, the wide array of potential outcomes, and – given that residential rehabilitation typically forms one of multiple service encounters for the individual – challenges in terms of associating outcomes to a single episode of treatment.

Workforce

- There is limited research that focuses on issues in relation to the workforce within residential rehabilitation, both in Scotland and internationally.

- There is recent survey evidence of 20 residential rehabilitation providers across Scotland that explores the composition of the Scottish workforce across the sector.

1. Background

The level of harms from alcohol and drugs in Scotland are high in comparison to the rest of the UK and Europe, and cause avoidable damage to people's lives, families and communities. Tackling the high level of drug related deaths in Scotland is a priority for the Scottish Government. On 20th January 2021, the First Minister made a statement to Parliament which set out a National Mission to reduce drug deaths through improvements to treatment, recovery and other support services. One of the five priorities was increasing capacity and improving access to residential rehabilitation. This accompanied a commitment of £250 million investment in drug treatment services over the next five years, including £100 million for residential rehabilitation.

This paper forms part of a wider suite of research exploring residential rehabilitation across Scotland, and reviews the existing evidence from the Scottish, wider UK and international literatures pertaining to various aspects of residential rehabilitation. In doing so, it responds to the recommendation by the Residential Rehabilitation Working Group to better understand "the variety of treatment models available and…their components (medical, psychological and social approaches) and…the evidence base underpinning these" (Recommendation 7a). This paper will also feed into addressing the recommendations around "best value" (Recommendation 3b) and "standardisation" (Recommendation 4a) (Scottish Government 2020).

The literature review also identifies areas where there is a need for future research to inform our understanding of, and the ongoing development of, residential rehabilitation in Scotland. The need for a more strategic, systematic approach to developing the residential rehabilitation evidence base in Scotland has been noted previously (Best et al. 2010). The review seeks to identify overarching themes based on identified gaps in the existing literature, specifically those pertaining directly to the Scottish context, but likely with wider international relevance.

2. Methodology

A review of literature regarding residential rehabilitation was undertaken. Literature which fulfilled the following criteria was searched for:

- research with a date of publication between 2001 and 2021;
- publications in English;
- systematic reviews, evidence reviews, literature reviews and journal articles; grey literature such as theses, government reports and guidance documents;
- research which placed focus on;
    - effectiveness of residential rehabilitation in improving outcomes across substance use and other life domains;
    - evidence and outcomes relating to a range of residential programmes such as residential facilities, stabilisation services, day programmes and therapeutic communities;

- comparisons of residential rehabilitation outcomes with other treatment modalities;
- best practice for aspects of residential rehabilitation relating to candidate selection, assessment, detoxification, programme length and structure, approaches to abstinence, and continuity of care;
- cost effectiveness of residential rehabilitation;
- and experiences and perspectives of people who have accessed residential rehabilitation.

Initial search was undertaken through Google Scholar. A number of keywords were used, which included, but were not limited to "residential rehabilitation" "residential rehab" "rehab" "Therapeutic Communit(y/ies)" "12-Step"; "preparatory care"; "continuing care"; "aftercare". From the literature which was found through this initial approach, including systematic reviews, were then used to identify further literature. Academics published in the field were also contacted in order to identify relevant literature. A meta-analytical approach was undertaken alongside a thorough literature search. As well as a thorough search of the primary literature, this involved drawing out pertinent themes from previous literature reviews, including systematic reviews.

The focus of the review was in determining what is known in the Scottish and international contexts, and what remains to be better understood through research within the Scottish context. Due to the non-systematic nature of this review, it is acknowledged that some relevant literature may be missing; particularly from across the international literature. In identifying and reviewing a wide evidence base, inclusivity was prioritised, with randomised, non-randomised and qualitative studies included. It is therefore acknowledged that the quality of studies varies, which has been noted where applicable. Further, it must be noted that an in-depth review of the literature and evidence base pertaining to specific components of residential rehabilitation programmes (including aspects such as cognitive behavioural therapy (CBT), motivational interviewing, and individual and group therapy) or of aftercare (including aspects such as involvement in Lived Experience Recovery Organisations) are outwith the scope of this review. Services specialising in detoxification or stabilisation are similarly beyond the scope of the review. It must also be noted that the different contexts surrounding residential rehabilitation internationally will affect pathways into, through and out of rehab, the socioeconomic and demographic make-up of those attending rehab, and outcomes across a broad range of domains.

3. Overview of Residential Rehabilitation in Scotland and Internationally

'Residential rehabilitation' for the treatment of Substance Use Disorders (SUD) or problematic use of alcohol and/or drugs encompasses a large number of programmes and models of care in residential settings, and is widely recognised as an important treatment option. Residential rehabilitation facilities offer programmes which aim to support individuals to attain an alcohol or drug-free lifestyle, and which

provide intensive psychosocial support and a structured programme of daily activities that residents are required to attend over a fixed period of time. Research into residential rehabilitation is challenged by extensive variation in models of practices, including, for example, processes of candidate selection and preparation; philosophies of recovery; programme length, content and structure; and involvement in different types of aftercare programmes.

Significant disparities exist in the level of provision across and within different countries. According to a report on residential rehabilitation across Europe by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA 2014), six countries accounted for two-thirds of the 2,500 reported residential facilities in Europe in 2011[1]. These were Italy (708 facilities); Germany (320 facilities); Sweden (311 facilities); Spain (207 facilities); the UK (138 facilities) and Ireland (108 facilities)[2]. Data on capacity across Scotland comes from a 2021 pathways survey by the Scottish Government (2021) of 20 residential rehabilitation facilities identified by a previous (2020) Scottish Government mapping exercise. Two of these 20 facilities are statutory, three are run by private providers and 15 are third-sector. The survey found 425 beds across these facilities, with an average of 15 beds per facility. Providers reported a total of 1,601 individual placements across these facilities in 2019/20, and 1,164 in 2020/21[3].

The EMCDDA report identified three main therapeutic approaches to residential treatment in Europe, including:

- Therapeutic Community (TC) principles, emphasising self-help, mutual self-help, peer mentorship and often co-residence of staff and residents.
- 12-Step, emphasising 12-Step programmes, group sessions and understandings of substance dependency as a chronic illness or disease.
- Psychotherapy, drawing on cognitive-behavioural therapy (CBT) or other psychotherapeutic models, and emphasising group sessions/learning coping skills.

As demonstrated in the Scottish context by the Scottish Government's pathways survey, the report notes that facilities often use a combination of the above, and may tailor interventions to the needs of the individual. Most approaches continue to be abstinence-based, though there is a growing recognition that there may be benefits of continuing medication-assisted treatment (MAT) in residential settings (Galanter et al. 2016). However, studies of continued methadone maintenance and other MAT in residential settings are few and this remains a significant gap in the literature (Schuman-Olivier et al. 2014; Global and Public Health 2017).

[1] Residential rehabilitation facilities were categorised into two broad groups: 'hospital-based,' where treatment occurs in hospital settings and 'community-based,' where facilities are located in the community.

[2] It should be noted that data was not available for Turkey or for hospital-based facilities in Finland, and that data for other countries are approximate estimates due to limitations and differences in data collection.

[3] Data on the number of placements was provided by 18 facilities for 2019/20 and 17 facilities for 2020/21.

4. Effectiveness of Residential Rehabilitation

4.1 Measuring outcomes

Measuring outcomes has formed the focus of much of the literature on residential rehabilitation. However, it must be noted that measuring the effectiveness of residential rehabilitation in producing specific outcomes is complicated by a number of factors (Godfrey et al. 2004). First, as noted, there are substantial variations in residential rehabilitation provision, including a variety of models, treatment philosophies, programme lengths, and quality. Second, definitions of 'positive outcomes' are similarly diverse, and outcome measurement tools are many and heterogeneous. Positive outcomes in relation to treatment are often primarily defined in terms of individual and public health benefit, in relation to abstinence, reduced drug use, reduced criminal behaviour and improved physical/mental health, but rarely centre on the individual's personal goals. A recent systematic review found that Quality of Life (QOL) indicators have been inconsistently applied in studies of residential rehabilitation, and that QOL is often taken as subjective (Fischer et al. 2019). The review also found that out of 12 different instruments used to assess QOL, only two enabled individuals to identify QOL dimensions important to themselves. Third, with placement in residential rehabilitation typically forming one of multiple episodes of treatment for each individual, it is challenging to delineate which of these multiple treatments has produced specific outcomes. It should also be noted that clinical trials and other study formats investigating substance use issues often exclude certain demographics of people, such as people with severe and complex substance use or comorbid mental health issues, which is likely to affect research findings and their translation into practice (Day et al. 2005).

4.2 Overview of existing evidence of effectiveness of residential rehabilitation

Despite these challenges in measuring efficacy, a relatively robust body of evidence – including systematic reviews, evidence reviews, observational studies, treatment outcome studies and randomised control trials – suggests that residential rehabilitation can be effective in improving a variety of health-related and wider social outcomes. Four systematic reviews relating to residential rehabilitation treatment outcomes were identified as part of this literature review. All four found moderate quality evidence that residential rehabilitation improves outcomes across various domains, including substance use, mental health, social outcomes (including criminal justice involvement) and mortality (Drake et al. 2008; Cleary et al. 2009; De Andrade et al. 2019; AshaRani 2020). An evidence review by the Helena Kennedy Centre for International Justice (HKCIJ 2017) comparing international residential rehabilitation models similarly found that residential treatment broadly increases abstinence success, reduces criminal activity and improves wellbeing. This section explores this evidence base for various outcomes, including substance use, mental health, social (including criminal justice) outcomes, and mortality.

4.2.1 Substance use outcomes

Substance use outcomes have, understandably, formed the predominant focus of the body of research that has explored the effectiveness of residential rehabilitation. Broadly, there is relatively robust evidence that residential rehabilitation is associated with improved substance use outcomes. Previous systematic reviews have identified a range of studies within the UK and international literature which have reported substance use outcomes following residential rehabilitation. De Andrade et al. (2019) found seventeen studies published between 2013 and 2018 which had reported substance use outcomes. Three of these studies explored substance use outcomes for programmes which also deal with mental illness (Bergman et al. 2014; Schoenthaler et al. 2017; McGuire et al. 2018). The study by Bergman et al. (2014) of a cohort of young adults with substance use and mental health comorbidity found significant improvement in substance use for both groups, with no statistically significant differences between the two groups. At 3-month follow-up (81% retention), the percentage of days abstinent was 94% and 92% respectively, and 78% and 86% at 12-months (71% retention). Schoenthaler et al. (2017) found abstinence rates at 6 and 12-months of 68% and 65%, respectively, among their cohort of adults with comorbidity. McGuire et al. (2018) found 100% abstinence on discharge among their cohort of veterans. Another of these 17 studies reported high abstinence rates at 12-months (80%) following residence in a New Zealand therapeutic community, but much lower follow-up rate of 47% (King et al, 2016). These findings were weakened by the fact that 82% of those followed-up at 12 months had completed the full treatment (45% of the total sample). Šefránek and Miovský's (2017; 2018) cohort studies of therapeutic communities in the Czech Republic found abstinence rates of 88% at 12-month follow-up, with a 78% participant retention rate. A US study of a youth residential treatment centre found abstinence rates to be far lower at six months, with 43%, 42% and 41% for opioid dependence, non-opioid use, and opioid dependence, respectively (Schuman-Olivier et al. 2014). These rates were 29%, 32% and 22% on 12-month follow-up (71% retention).

This systematic review (de Andrade et al. 2019) also highlighted two high quality randomised control trials (RCT) which found improvements in both treatment (residential rehabilitation plus adjunctive therapy) and control groups (standard residential rehabilitation), although these improvements were not sustained over follow-up (Daughters et al. 2018; Davis et al. 2018). Compared to baseline, two cohort studies in South Africa (Myers et al. 2018) and New Zealand (Patterson et al. 2018) found statistically significant improvements in abstinence at the end of treatment and three-month follow-up and at discharge, respectively. A Brazilian study judged to be of weak quality (do Carmo et al. 2018), tested urine samples of the 69 study participants twice weekly at discharge, with 43 out of 1283 positive tests. This study reported relapse rates which were much higher than studies using self-reporting, with 49% relapsing at least once during their placement.

AshaRani's (2020) systematic review explored substance use outcomes for residential rehabilitation in the context of stimulants. Four international studies met the criteria, each of which found it to be effective in reducing methamphetamine use, craving and other related outcomes (McKetin et al. 2012, 2013, 2018; Kamp et al.

2019). In comparison with detoxification, residential rehabilitation demonstrated significantly reduced methamphetamine use, an effect that was time sensitive (McKetin et al. 2012), alongside an improvement in abstinence rates. At three months, 33% were continuously abstinent, dropping to 14% and 6% for one and three years, respectively. Another study demonstrated positive outcomes in relation to methamphetamine use, with a significant reduction in past month methamphetamine use at three and six months compared to baseline (McKetin et al. 2013). A further study by the same authors (2018) demonstrated 23% abstinence following residential rehabilitation.

One of the most significant trials undertaken in the UK, the National Treatment Outcome Research Study (NTORS) (Gossop et al. 2000; Gossop et al. 2003), interviewed 418 people from 54 agencies practicing four treatment modalities at intake to treatment and one year, two years and 4-5 years after leaving treatment. Residential rehabilitation was shown to result in substantial reductions in use of heroin, non-prescribed methadone, powder cocaine, benzodiazepines and amphetamines, with heroin use being halved by patients in both the residential and methadone programme cohorts. Positive outcomes were associated with longer time in treatment and completion rates. Age, sex, having friends or partners who used drugs; psychological/physical health; previous treatment contact; histories of using different substances were all found to have no statistically significant outcome on achieving positive outcomes; however, those who experienced lapses and relapses at follow-up were more likely to have used crack cocaine prior to treatment. Those who were undergoing criminal justice procedures at intake were similarly likely to have poorer outcomes. The NTORS study found that various treatments had less longitudinal impact on alcohol and crack cocaine use, noting that future treatment practice should be better adapted to meet the needs of people who use those specific substances.

4.2.2 Mental health outcomes

Numerous studies have explored both the effectiveness of residential rehabilitation in improving mental health outcomes and the effectiveness of an integrated approach to substance use and mental health treatment. The systematic review conducted by de Andrade et al. (2019) identified 17 international studies which reported on mental health outcomes associated with residential rehabilitation. Outcomes included ‘psychological distress, post-traumatic stress disorder (PTSD), depression, anxiety, stress and general mental health’ (de Andrade et al. 2019: 232). Four studies, including two of weak and two of moderate quality, found statistically significant improvement in Addiction Severity Index[4] (ASI-X or ASI-MV) composite scores for mental health at follow-ups (Deane et al. 2013; Turner and Dean 2016; Schoenthaler et al. 2017; Patterson et al. 2018). A strong quality study by Teesson et al. (2017) observed ‘significant’ improvements in mental health outcomes in the month prior to

[4] The Addiction Severity Index (ASI) is a widely used interview tool assessing past-month and lifetime substance use disorders, including both alcohol and drug-related disorders. The tool, which now has a number of variations, is a 200-item structured interview that gathers information about history, frequency and consequences of use as well as associated factors such as medical status, employment, family/social status and psychiatric status. The ASI provides two types of scores: severity and subjective ratings of the individual’s need for treatment, and composite scores of problem severity during the prior 30 days.

follow-ups over 11 years. For those who completed the programme, reductions in depression, anxiety and stress at discharge were similarly found in another strong quality Australian study, based in a therapeutic community with a median stay of 16 weeks. A cohort analytic study by Roos et al. (2018), moreover found that two or more sessions of mindfulness-based relapse prevention within residential settings lead to substantial improvements across a range of mental health outcomes.

De Andrade et al. (2019) also sourced five studies (among the seventeen in total) that examined the effects of integrated treatment for mental health and substance use. The first (Bergman et al. 2014) found that improvements in psychiatric symptoms for people with co-occurring mental and substance use disorder were largely maintained at follow-up, with high retention across follow-ups at three months (81%), six months (73%) and twelve months (71%). The second reported reduced rates of co-occurring mood disorders and substance dependence for individuals with problematic alcohol use at three follow-ups (Schoenthaler et al. 2017). The third study (McGuire et al. 2018) examined comorbid Post-Traumatic Stress Disorder (PTSD) and substance dependency in male veterans receiving integrated residential treatment, and reported substantial improvements in PTSD symptoms and resilience for all 29 participants. Two further studies (Morse and MacMaster 2015; Rome et al. 2017) found statistically significant improvements in ASI and ASI-X composite scores for mental health at follow-ups.

A literature review by Brunette et al. (2004) identified ten controlled studies that suggested a range of outcomes are improved when services integrate treatment for substance use and mental health. The authors note that some of the studies were methodologically limited by attrition; poor engagement; different wait times for the programmes; small sample sizes; high rates of drop-outs and limited individual demographics. There was nonetheless moderate evidence for the effectiveness of integrated services, and particularly their efficacy in addressing comorbid mental health and substance use disorder diagnoses. Planned length of residential stays in these studies ranged from one month to several years, and adopted different treatment models, including therapeutic communities, 12-Step programmes and cognitive behavioural therapy (CBT) models. A study examining a short-term residential programme (Aguilera et al. 1999 in Brunette et al. 2004) reported that the integrated approach was associated with higher completion rates compared with residential rehabilitation for substance use, though not different substance use outcomes. A second study (Anderson 1999 in Brunette et al. 2004) found that integrated dual-disorder programmes predicted higher treatment retention, and that people attending the programme were more likely to enter community programmes and housing upon discharge, and avoid using substances. Burnam et al. (1995 in Brunette 2004), reported improvement in measures of psychiatric symptoms and substance use among people attending an integrated residential programme, though results were not significantly different for individuals attending an integrated outpatient programme or non-integrated outpatient programme.

Lastly, a study evaluating substance use and mental health outcomes for women engaged in sex work found that more provision for mental health during residential treatment was associated with the cessation of sex work at follow-up. The cessation of sex work in turn was associated with lower substance use, higher abstinence and fewer mental health symptoms at 12-month follow-up (Burnette et al. 2009).

4.2.3 Social outcomes

Fewer studies have explored social outcomes from residential rehabilitation. Within those that have, primary focus has been placed on offending, social engagement, and employment. Results of these studies broadly suggest that residential rehabilitation is associated with substantial social improvements. The 2019 systematic review by de Andrade et al. identified 11 studies which have explored social outcomes, all of which reported positive outcomes following residential rehabilitation. A study of Iranian males (Babaie and Razeghi 2013) found that a minimum stay of six months in a therapeutic community was associated with improved quality of life in comparison to standard residential treatment and pharmacotherapy. This study was weakened, however, by high attrition rates in the therapeutic community and pharmacotherapy groups. A New Zealand study (King et al. 2016) found that a far shorter programme (18 weeks, with 12-week average length of stay) was associated with significant improvements in a range of social indicators at three-month follow-up. An Australian study (Harley et al. 2018) on a therapeutic community with a similar length of stay (16 weeks average) found significant improvements in financial satisfaction at discharge. A Brazilian study of residential rehabilitation for crack cocaine dependency (do Carmo et al. 2018) found that 97% of individuals were unemployed on admission, while 80% of those completing the programme were employed on discharge.

A number of studies have also reported statistically significant improvements in Addiction Severity Index (including ASI-X and ASI-MV) composite ratings for social and family relationships (Deanne et al, 2013; Morse and MacMaster, 2015; Turner & Deane, 2016; Rome et al, 2017; Schoenthaler et al, 2017; Patterson et al, 2018). Recent studies specific to Scotland and residential rehabilitation outcomes are relatively few, however an Edinburgh-based study, using a European version of the ASI-X, found significantly improved scores for those who participated in the 12-week abstinence-based residential treatment programme (Rome et al. 2017). Highest composite scores were for economic status and satisfaction with work, followed by family relationships, psychiatric status and other relationships. Economic, medical and psychiatric statuses were the slowest to improve. There were also substantially better outcomes for those who completed the programme than those who dropped out, particularly in medical and psychiatric domains.

4.2.4 Mortality

A number of studies have examined mortality outcomes in relation to residential rehabilitation, although existing studies are largely dated and limited by methodological issues. It is overall difficult to synthesise results from studies examining mortality rates in relation to residential rehabilitation, given the variation in methodology and research contexts. There is similarly a dearth of research exploring mortality rates in relation to different treatment modalities. While so, some existing studies suggest that residential rehabilitation may have a higher rate of mortality when compared with alternative treatment options, though it must be acknowledged that mortality rates are affected by a number of confounding factors difficult to control for, and which in turn affect the ability to draw definitive conclusions. A high quality Australian study (Lloyd et al. 2017), for example, used retrospective data linkage to

compare the effectiveness of different treatment modalities. Individuals who had engaged in residential services as their last treatment had an increased risk of death in the first year post-discharge, with only residential detoxification presenting a higher risk of death of the various treatment modalities included in the study. The authors note that this trend may reflect lack of sufficient aftercare or the comparative complexity of need among people attending residential services. They likewise note the need to explore the role of “individual, treatment and social factors that may contribute to mortality following treatment” (2017: 27). An older study explored mortality rates at one to four years following placement in a therapeutic community (Berg 2003). Nine people died during the observation period, giving a mortality rate of 2.28 deaths per 100 observation years. Mortality did not statistically differ between men and women. These findings are comparative with an older Norwegian study cited in Berg (2003) (Anderson et al. 1996 which conducted a ten-year follow-up of 482 individuals attending residential rehabilitation, with an estimated mortality rate of 1.6% in the study population. Rossow and Kielland (1995), also cited by Berg (2003), similarly found a mortality rate of 1.7% per year in the study population (N = 1491), with participants having undergone a psychiatrically oriented drug treatment in a hospital setting.

Other studies have explored factors associated with higher mortality risk following residential placements. A US-based study of 207 veterans attending a 60-day intensive residential rehabilitation programme examined factors which were specifically associated with reduced mortality and lower rates of relapse (Decker et al. 2017). Mortality rates were higher among those who had not completed treatment, those with a nicotine dependence, and those who underwent longer medical rehospitalisation. Comorbid psychiatric disorders were associated with higher risk of mortality in univariate analysis, although not when other variables were considered. Treatment completion and longer psychiatric hospitalisation were associated with reduced mortality. Treatment completion was not found to vary by type of preferred substance, with the majority of study participants engaging in polydrug and alcohol use. The authors theorised that psychiatric hospitalisation reduced mortality, in that participants were able to receive intensive medical attention, although this was noted as an area requiring further research.

A recent Australian study (Bista et al. 2021) similarly sought to explore mortality patterns among a sample of 3,256 young people engaged with a modified therapeutic community. Mortality patterns were assessed in relation to demographic, treatment and pre-treatment substance use, and mental health characteristics. Three treatment groups were included, including those who stayed up to three months in treatment; those who exited treatment after a month or less; and those who were referred but did not attend, or else who attended for less than three days. During follow-up, 64 people died, giving a crude mortality rate of 2.15 deaths per 1000 person-years. Crude mortality rates did not differ significantly between men and women, although standardised mortality ratios were nearly five times higher among women than men. The authors note this is likely due to both lower mortality rates among the female general population, and that a larger proportion of women in the study reported pre-treatment polydrug use, greater substance dependence, suicidal or self-harm attempts and clinically significant distress levels. Mortality rates did not differ significantly between treatment groups, but were closely associated with worse mental health scores on the Global Severity Index T-Score. The authors suggest that

aftercare should be offered to more than just those who completed the treatment, and should incorporate targeted interventions to address mental health comorbidities.

Mortality rates were found to differ between men and women by Anderson and Berg (2009), who explored the relationship between length of stay, employment of coping strategies, social integration, sex and type of facility. Six years after treatment entry, four men and three women had died (11.7% of the cohort), all of whom had a low rating on Antonovsky's Sense of Coherence Test (SOC), used to measure coping skills. Women were also 43% less likely to drop out of treatment than men. Results suggest that sex, 'normal' SOC ratings and high degree of social integration at treatment entry were predictive factors of survival.

4.3 Selected factors associated with improved outcomes

A substantial portion of the literature explores specific factors associated with improved outcomes across a range of substance use, social, psychological, behavioural and economic domains. This section explores these studies[5]. There is again a lack of evidence that relates directly to Scotland, although considerable work has been undertaken internationally. Evidence here broadly relates to treatment characteristics (including specific aspects of particular models), characteristics of the person accessing residential rehabilitation (including age, substance use history and motivation) and outcomes from the dynamics between these two (including retention and completion).

4.3.1 Specific Aspects of Treatment Programme

As noted, residential rehabilitation encompasses a diverse range of treatment models, programmes and philosophies, and no one model is robustly evidenced to produce routinely better outcomes. A number of studies, however, do highlight certain aspects of treatment as being effective in, for example, reducing problematic substance use, reducing contact with criminal justice services, improving mental health and wellbeing, as well as a range of other quality of life domains. Robust evidence suggests that programmes which integrate treatment for mental health comorbidities are often better placed to improve outcomes relating to mental health, social functioning and substance use (Brunette et al. 2004; de Andrade 2019). The National Treatment Outcomes Study (NTORS) (Gossop et al. 2002) found that emphasis on cognitive, avoidance and distraction coping strategies during treatment reduced rates of relapse in the cohort. As discussed above, evidence also exists to suggest that 12-Step programmes can effectively prevent instances of relapse when embedded within residential treatment or used concurrently with treatment (Kelly et al. 2013).

Treatment duration has also been found to be associated with substance use outcomes. Across the literature, the effect of programmes having longer durations (lasting three months or more) is noted by several studies as producing positive

[5] As stated, not all of the studies were clinical trials and this review includes past evidence and literature reviews. Therefore in some instances the above predictors of positive outcomes have not been controlled for other potential predictive factors.

outcomes and reducing time between relapse (Eastwood et al. 2018; Gossop et al. 2000; HKCIJ 2017). A literature review undertaken by the EMCDDA (2014) alternatively suggests that optimum length of time in treatment is between 12 to 24 months.

A recent qualitative study, centring on semi-structured interviews with six key stakeholders living and working in San Patrignano in Italy, explored the mechanisms by which the programme offered by this rehab facility leads to positive outcomes in its residents (Devlin & Wight, 2020)[6]. This study highlighted a range of intertwining mechanisms and contextual factors operating at the individual and organisational levels. Organisational factors included a visionary, entrepreneurial leader; the commitment and dedication of staff, shaped largely by the predominance of people with lived experience in the workforce; the social enterprise model which the rehab followed; and the implementation of evolutionary adaptive learning.

4.3.2 Treatment retention and completion

The association between retention/completion and outcomes has also been explored within the literature. A substantial evidence base indicates that positive outcomes are predicted by higher rates of treatment retention and treatment completion (Gossop et al. 2002; Vandersplasschen et al. 2013; Willey et al. 2016; Rome et al. 2017; Eastwood et al. 2018). Contrasting these, however, a retrospective cohort study by Keen et al. (2001) found no association between positive substance use outcomes and retention or length of stay, with being abstinent at entry the only factor significantly associated with positive outcomes in relation to substance use at follow-up. Across these studies, it has frequently been noted that aiming to ensure the retention of individuals in residential rehabilitation, and the development of swift pathways back into residential rehabilitation or other appropriate services for those who do not complete a placement, is necessary to avoid negative outcomes occurring.

Previous research has also explored factors contributing to the greater likelihood of retention and programme completion. During the NTORS study, Gossop et al. (2002) found an association between higher retention rates and older adults with short histories of substance use. Retention was also found by Johns et al. (2009) to be predicted by social variables, with higher rates of retention among those who were single and those who had higher levels of social support and functioning. Several studies have furthermore examined how therapeutic relationships predict retention rates (Barber et al. 2001; De Weert-Van Oene et al. 2001; Fenton et al. 2001; Meier et al. 2006; Nordheim et al. 2018). Meier et al.'s (2006) study of 187 residents across three residential rehabilitation facilities in the UK found that weaker counsellor rated therapeutic relationships resulted in much earlier drop-outs than stronger ones, even when controlling for variables. The study measured both client and counsellor ratings on the Working Alliance Inventory (WAI-S) during weeks 1-3, alongside a range of other measures such as demographics, substance use, coping skills and treatment expectations. 100 of 187 individuals (53.5%) completed treatment, which lasted 90

---

[6] San Patrignano has been referred to as a 'third generation (European) therapeutic community' (Broekaert et al. 2006), and has a model which is based on social enterprise. This study has relevance to the Scottish context in that the San Patrignano model is that on which Scotland's River Garden, run by Independence from Drugs and Alcohol Scotland (IFDAS), is based.

days, while the other 87 dropped out prematurely. Of those who dropped out, 28.7% left by the end of the second week, 55.2% by the end of the first month and 80.5% by the end of the second month (day 60). The ratings of the therapeutic relationship by people attending the service were not related to drop-out, which stands in direct contrast to other studies of therapeutic relationships (see Barber et al. 2001 and De Weert-Van Oene et al. 2001). Meier et al. (2006) propose that therapists may have a better sense of problems with treatment goals, whereas the person attending the service may attribute problems to factors other than the individual therapist. Therapists may also, they suggest, lose motivation or confidence in the relationship if they perceive a weaker bond, which may result in lessened quality of their work. The findings of Meier et al. (2006) also echo those of Gossop et al. (2002) in that higher retention and treatment completion were predicted by older age. However it was also found that confidence in treatment, more negative experiences of past treatment, and better education increased retention. People also stayed in treatment longer when treated by counsellors with more experience of drug counselling. In contrast, crack use prior to treatment, more secure attachment styles and more developed coping strategies predicted shorter retention. Regarding the latter two, it was suggested that individuals with better 'psychological resources' might feel ready to leave treatment before its formal completion (Meier et al. 2006: 61).

4.3.3 Characteristics of Person seeking Residential Rehabilitation

There is a dearth of literature relating to the appropriate identification and assessment of candidates for residential rehabilitation. However, some evidence – often conflicting – exists concerning the association between a range of characteristics of the individual seeking rehabilitation and treatment outcomes. An observational cohort study by Eastwood et al. (2018), for example, found that successful completion of treatment and lower likelihood of returning to residential rehabilitation were predicted by a variety of individual demographic factors, such as older age, being in paid employment, and participation in community-based treatment prior to and following residential treatment. Older adults, specifically those with less forensic and psychiatric histories, were similarly found to have better outcomes in an evidence review conducted by the HKCIJ (2017). The review likewise cited several studies which found that stable housing and paid employment lowered the likelihood of relapsing following placements.

Conversely, as discussed previously, Keen et al. (2001) found no association between the characteristics of the person observed at entry and positive outcomes, including age, sex, route of drug administration, polydrug use, length of time addiction or age of first addiction. The only individual characteristic associated with success was being abstinent on entry as opposed to requiring detoxification. The National Treatment Outcomes Study (NTORS) (Gossop et al. 2002) similarly found no statistically significant differences in age, sex, having drug-using friends, partners who used drugs, psychological health and physical health scores, or previous treatment contact between those who maintained abstinence and those who returned to using substances at follow-up.

As noted previously, there is little evidence on the association between substance use histories/profiles and outcomes. Gossop et al. (2002) found that neither duration of heroin use nor severity of heroin dependence were significant predictors of

relapse post-treatment, although people who relapsed reported more frequent use of heroin in the 90 days prior to treatment. There was also little difference between those who ‘lapsed,’ relapsed and maintained abstinence in rates of pre-treatment use of non-prescribed methadone, benzodiazepines, cocaine powder and amphetamines. Those who maintained abstinence were less likely, however, to have been users of crack cocaine at intake. Meier et al. (2006) similarly observed that crack cocaine use was associated with poorer outcomes, although a comparison of outcomes by histories/profiles of substance use was not a primary aim of the study. Meier et al. (2006) controlled for heroin and crack cocaine use, but not other substances, including alcohol.

An Australian study, using the Implicit Association Test, found that identification with heroin and/or alcohol predicted continued drug and alcohol use among people attending or having attended residential rehabilitation (Wolff et al. 2014). Without relying on self-reported measures of identification with substances, it was also found that identification with heroin and alcohol predicted treatment retention rates. Millar et al. (2014) alternatively suggest that people who use opioids are ‘more amenable’ to residential rehabilitation than those treated with other modalities. The study measured self-reported levels of drug use, offending, social measures and health, finding that people seeking residential rehabilitation for opioid use were better motivated than those seeking other treatment options.

Studies of how motivation affects the outcomes of residential rehabilitation are limited and often conflicting. Gossop et al. (2006) conducted a longitudinal prospective cohort study of 1075 individuals across 54 treatment agencies in England. No statistically significant association was found between readiness to change measures and use of opioids and stimulants at follow-up. The authors conclude that motivation and stated intentions do not translate directly into outcomes and are not sufficient mechanisms for treatment success. Motivation has been found in other studies to relate to engagement and satisfaction, although these in turn are not always directly associated with post-treatment outcomes (Gossop et al. 2003; Callaghan et al. 2005). Alternatively, as outlined above, Millar et al. (2014) argue that motivation may lead to better outcomes for people who have attended residential rehabilitation in comparison with other treatment modalities.

Although not specifically focused on outcomes, Piontek et al. (2017) explored how time in residential rehabilitation affected the ‘treatment readiness’ of the individual and, in turn, motivation. The study, based in Germany, also assessed whether treatment readiness differed by sociodemographic and substance use profiles. Average motivation was not found to significantly change for all individuals over the course of treatment, although rates of change did differ on an individual level. Treatment readiness was furthermore predicted by higher level of education, being employed, earlier substance use treatments and levels of craving. Alcohol use frequency and use of illicit drugs did not show statistically significant effects on treatment readiness.

Individual level factors identified by the aforementioned recent qualitative study of San Patrignano (Devlin & Wright, 2020) included commitment and motivation to recovery; removal from the formal social environment; being treated with respect; continual socialisation and communal living; the availability of peer mentors with

lived experience; highly structured day programmes with rules and routines; and the undertaking of meaningful work in the sector of social enterprise.

Shifts in social identity and participation in social networks have also been found to be important determinants of outcomes following residential rehabilitation. Beckwith et al.'s (2019) analysis, using the Social Identity Mapping in Addiction Recovery (SIM-AR) method, of 155 Therapeutic Community (TC) residents in Victoria, Australia found that substance use severity at follow-up was associated with changes in social identity and network composition. Better substance use outcomes were related to a decreased substance-using identity and an increase in recovery identity, as well as to a decrease in proportion of high-risk groups and an increase in proportion of low-risk groups in one's network. These factors intertwined; a shift towards a stronger recovery identity was positively associated with changes in the proportion of low risk groups in one's network. Similarly, Haslam et al. (2019) investigated the contribution that different types of social relationships in the period prior to residential treatment made to engagement with the treatment community and the subsequent recovery potential. Exploring the relationship between individual and group relationships and outcomes associated with quality of life, they found that group membership prior to treatment was associated with TC identification and quality of life. Further, early identification with TC group membership formed a particularly important platform for improvement in quality of life, functioning as a positive form of influence.

4.3.4 Aftercare

Aftercare is a well-documented and specific form of continuing care, and continues following the individual's placement in residential rehabilitation. There is a strong evidence base around the importance of ongoing support and aftercare as predictors of success following residential rehabilitation, alongside those studies demonstrating the importance of employment and stability in the individual's housing situation as outlined above. Gossop et al. (2003) placed specific focus on the impact of aftercare and continuity of care following residential treatment. Their study explored the influence of the mutual aid fellowship group of Alcoholics Anonymous (AA) prior to, during and following residential rehabilitation in an National Health Service (NHS) inpatient unit for alcohol problems in London. They found significant associations (15%) between frequency of attendance at AA meetings and reduction in alcohol consumption following residential treatment. They found that AA attendance was not significantly associated with quality of life or a reduction in psychiatric symptoms at 6 months follow-up, suggesting that both mutual aid and continuing care in the community following residential rehabilitation are of importance. A two- to three-year follow-up of residents who had completed a residential rehabilitation placement for opiate dependency in Ireland found that abstinence was significantly associated with both programme completion and aftercare (Smyth et al. 2005).

A study in the US by Jason et al. (2015) examined the role of aftercare for a sample of individuals who had (mainly) attended residential rehabilitation facilities. Their study drew on a cohort of 270 people who had been attending either a TC, a usual care setting or a recovery home termed an 'Oxford House'. This latter referred to a residential rehabilitation setting that did not include the formal therapeutic change interventions common to TCs, or on-site access to medical staff or other health

professionals. Those who were assigned to the Oxford House following completion of a TC placement demonstrated a range of positive outcomes in relation to those who had gone back to their usual home settings (whether staying with friends of family members, their own house or apartment, homeless shelters or other settings), emphasising the importance of continuity of care and of a protective and stable home environment that can encourage and nurture recovery pathways.

A review of evidence for the EMCDDA undertaken by Vanderplasschen et al. (2014) found that participation in aftercare, post-treatment employment, and old age were the strongest predictors of abstinence following residential rehabilitation placements in a therapeutic community setting. These findings were somewhat contrasted by Vanderplasschen et al. (2010) in their analysis of data collected through the Drug Outcome Research in Scotland (DORIS) study. Comparing outcomes across a 33 month period for 653 individuals, it was found that participation in aftercare did not substantially improve outcomes at 16-month follow-up, following residential treatment (although did improve outcomes following prison-based and community treatment). Aftercare participation was clearly associated with abstinence after eight months, with rates dropping at 16 months, before stabilising again at 33 months. Aftercare was not, however, established as an independent predictor of abstinence. Aftercare participants did score significantly better on various other outcome measures, such as incarceration, drug possession and contacts with non-drug using friends. The study concluded that while aftercare was still an important outcome predictor, treatment modality was a much stronger predictor, with residential rehabilitation in particular associated with substantially improved drug outcomes in comparison with other modalities. The authors highlight that, because programme participation was a stronger predictor of outcomes, and strongest for those in residential rehabilitation, most positive effects may occur during residential treatment and leave little room for further improvement following discharge.

While little data is available, the outcomes from aftercare have in some cases been found to be shaped by their fit with the residential rehabilitation programme which the individual has attended. A study by Best et al. (2020), for example, found that mutual aid engagement had a differential effect on treatment outcomes by the type of residential treatment service attended. Their quantitative study found that, while those who attended two types of residential rehabilitation service typically engaged in mutual aid groups, mutual aid groups were not associated with improved outcomes for those attending TCs. Prior to engagement with aftercare, TCs generally produced better outcomes than other forms of residential treatment, however, post-treatment participation in mutual aid groups produced comparable outcomes between people attending TC and non-TC facilities. Those who had attended TCs therefore received no added value in reducing or abstaining from substances through mutual aid. Best et al. (2020) suggest that the above results can be attributed to philosophical inconsistencies between effective therapeutic community engagement and engagement in 12-Step mutual aid groups in particular. It is also interesting to note that TC residents were more likely to engage with SMART Recovery, a non-spiritual and non-disease based model whose underlying rationale and philosophy may be more compatible with that of a TC. The authors suggest that these findings can also be interpreted from a social identity theory perspective (e.g. Jetten et al. 2015); an approach based on the idea that identity is in part conferred by the groups we belong to and that we positively value. Thus, for the

graduate from a TC, their social identity may be that they are ‘recovered’ and that their dominant social identity is around active re-engagement in the community and the shedding of the substance use identity. However, this is incompatible with embracing a 12-Step philosophy that requires a recognition of ‘powerlessness’ over substance use and the retention of the ‘addict’ identity as key to the ongoing recovery process.

4.4 Outcomes of different residential rehabilitation programme models

This section explores the evidence in relation to two different treatment philosophies dominant within the literature; therapeutic communities and 12-Step Programmes, recognising that psychotherapeutic models (including CBT, motivational interviewing and individual and/or group therapy) are often employed across both approaches. While having presented the data in this way, it is acknowledged that these often form ‘ideal types’; the aforementioned Scottish Government pathways survey of residential rehabilitation providers (Scottish Government 2021) found that a number of facilities in Scotland offer a programme which incorporates components drawn from these various approaches.

4.4.1 Therapeutic Communities

Therapeutic Communities (TCs) are a form of residential treatment that place emphasis on ‘the community,’ social relationships and structured activities as forces for psychological and social change (EMCDDA 2014). They largely employ a hierarchical model of care, in that different treatment stages entail different levels of personal and social responsibility, and peer influence is harnessed to both promote behaviour change and demonstrate the TC value system. There are numerous variants of the TC model, which began as longer-term residential treatment programmes and from the 1990s were increasingly modified towards short-term placements.

A body of research examines the effectiveness of TCs in producing positive outcomes; their effectiveness in comparison with other treatment modalities; their structure and everyday operation, and the qualitative experiences of those attending TCs (Agosti and Levin 2007; Albertella and Norberg 2012; Fernández-Calderón et al. 2015; Clarke and Waring 2018; Kaye 2020; González-Saiz and Vergara-Moragues 2021). The evidence base for the efficacy of TCs in comparison with other treatment modalities, including other forms of residential treatment, remains mixed, although there is robust evidence to suggest that they are effective in reducing substance use and criminal activity. The report by the EMCDDA (2014) included a literature review of 28 peer reviewed articles that reported on 16 RCTs and quasi-experiments (all in North America) and a further 21 articles reporting 14 Europe-based observational studies. The report finds moderate quality evidence for the effectiveness of TCs in achieving stated goals, such as reducing substance use, increasing employment and improving mental health in the US context. They note that as European studies are largely observational they are limited in the strength of their conclusions, but that TCs had generally positive outcomes in social and health domains. Retention rates varied across all contexts.

A systematic review by Smith et al. (2006) similarly found that the evidence on TCs was limited by methodological weaknesses and potential biases, but that there was at least some evidence of benefits of TCs. One RCT found that abstinence rates were significantly higher in a TC setting compared with other forms of residential rehabilitation, while others found that, when compared against other treatment programmes in prisons, the TC group had lower rates of re-incarceration and less alcohol and drugs offences 12 months after release. Lower rates of re-incarceration were echoed in the EMCDDA (2014) report, which also found reductions in reoffending and time to reincarceration for TC groups compared against control groups. Another systematic review (Malivert et al. 2012) based on 12 studies of TCs, reported highly variable completion rates for TC programmes (9–56%), and concluded that their effectiveness remains highly contentious, with concerns about completion rates and long-term outcomes outlined in a Cochrane Review by Smith et al. (2006).

Limited works have explored the impact of demographics and individuals' characteristics on TC treatment outcomes. An observational study based in Spain performed a latent class analysis on 4,102 TC attendees' substance use diagnosis, in order to determine the impact of SUD profiles on social, medical and psychiatric outcomes (Fernández-Calderón et al. 2015). The study found that profiles involving heroin, cocaine and benzodiazepines were associated with poorer social and medical function and impulse control disorders, while alcohol and cannabis/cocaine use were associated with cognitive dysfunction and psychotic illness, respectively.

There are similarly a number of studies that have explored TC outcomes in young people, finding positive treatment effects on substance use; health; psychological functioning in the year following treatment (Godley et al. 2001; Dasinger et al. 2004; Morral et al. 2004; Agosti and Levin 2007; Albertella and Norberg 2012). Others have found that positive effects tend to wane after 12 months (Jainchill et al. 2005; Edelen et al. 2007).

Several studies have explored the effectiveness of TCs within prison settings (Lipton et al. 2002; Vandevelde et al. 2004; Stevens 2012). Mitchell et al. (2007) conducted a meta-analysis of 30 prison-based Addictions TCs and found that the mean recidivism rate for the group was 43%, in comparison with an estimated 50% rate for the control group. Lipton et al. (2002) similarly conducted a meta-analysis of 42 studies that considered the effectiveness of TCs and milieu therapy (MT) in reducing recidivism. Both TCs and MT significantly reduced rates of recidivism, with a holistic approach; emphasis on personal and community identity; and longer lengths of stay contributing to positive outcomes. The authors suggest that prison-based interventions followed by community treatment are important aspects in incremental learning and recovery journeys. Ethnographic work by Stevens (2012) on prison-based TCs suggests that processes of identity reconstruction and narrative reframing of the self are connected to lower rates of recidivism in serial offenders. Stevens notes that by committing to 'radically different' cultures, TCs enable the production and reinforcement of individual change and pro-social behaviour.

Other qualitative works have drawn attention to numerous facets of the experience of those attending TCs, in addition to certain practices which impact recovery-oriented outcomes (Chenhall 2008; Gosling 2018). For example, ethnographic works have

explored the benefits of a TC in England in developing recovery capital, suggesting that recovery capital in turns offers a practical framework for exploring mechanisms of change (Gosling 2018).

While there is a lack of literature that compares TCs across international contexts, a comparative study by Goethals et al. (2011) explored differences between TCs in Europe and the US. They found that TCs in Europe scored significantly higher on the Survey of Essential Elements Questionnaire (SEEQ) – designed to explore whether residential programmes were faithful to the essential elements of a traditional TC model, as outlined by De Leon (2000) – compared with those in the United States, However, these contrasted existing literature in that they suggested relative congruence between European and US approaches to TCs; a departure from their relative difference previously.

As with much of the literature relating to residential forms of treatment, a substantial portion of the evidence-base concerning TCs is outcomes-focused. Clarke (2017) notes that there is a general lack of research that focuses on gendered experiences of TCs the power dynamics that structure social relationships, including their impact on outcomes.

In summary, TCs are underpinned by a relatively robust body of evidence, some of which suggests that TCs can be more effective in producing positive outcomes than other residential treatment modalities. TCs have been found to be particularly effective when examined in relation to young people and people in prison, although retention and completion rates are subject to high variation across all demographics.

4.4.2 12-Step programmes

Although there exists some variation in the international definition and application of 12-Step programmes, they broadly consist of a highly structured, step-based process, often based on a ‘spiritual’ understanding of recovery (Galanter 2007). In this sense, 12-Step programmes are often considered ‘spiritual fellowships,’ premised on a definition of spirituality as that which “gives people meaning and purpose in life” (Puchalski et al. 2014 in Galanter 2007). In comparison with residential TCs, there are generally fewer studies that consider the efficacy of 12-Step programmes in a residential treatment setting. Most research concerns the efficacy of 12-Step on leaving residential rehabilitation, or as an intervention undertaken concurrently with residential treatment (Lopez Gaston et al. 2010).

A systematic review and meta-analysis of spiritual and religious (S/R) treatment interventions reported that 12-Step-oriented interventions produced substantially better results than other interventions and in comparison with no-treatment groups (Hang-Hai et al. 2019). The study specifically analysed 12-Step treatments in the context of formal recovery programmes and not in community settings, and as such excludes Alcoholics Anonymous and Narcotics Anonymous. Comparison interventions included those commonly utilised in substance use treatments, such as CBT and Motivational Enhancement Therapy, among others. Sixteen of the 20 studies identified were 12-Step oriented, and four specifically tested the efficacy of 12-Step interventions. The systematic review concludes that 12-Step oriented programmes are more efficacious than comparison interventions for substance use

outcomes. However, it was also noted that the overall quality of the studies sourced was poor, and limited by attrition bias. Similarly, the systematic review by de Andrade (2019) that sought to establish the overarching effectiveness of residential rehabilitation, noted that outcomes were notably better for those who engaged with 12-step support on leaving residential rehabilitation.

Greater attendance of, and active involvement in, 12-Step groups during residential treatment was found by Kelly et al. (2013) to be associated with significantly greater percentages of days abstinent (PDA). The study involved assessment of 303 adults enrolled in residential rehabilitation and a 12-Step programme at intake, three, six and twelve months. Positive outcomes were more strongly associated with active involvement than with attendance alone. A randomised control trial undertaken in California likewise suggests that 12-Step programmes employed in residential rehabilitation settings are effective in both reducing substance use and reducing the adverse effects of substance use (Banerjee et al. 2009). Another US-based study (Decker et al. 2017) found that completion of a 12-Step residential programme was a significant predictor of reduced relapse rates and reduced mortality.

Lopez Gaston *et al.* (2010) examined engagement and barriers to engaging with 12-Step models of treatment for patients of an inpatient detoxification unit in England. They note that affiliation levels were low and that perceived religious components acted as a barrier to engagement, as did “prior negative experiences in 12-step meetings, failure to identify with group members, and difficulties simultaneously participating in both 12-step meetings and structured treatment” (Lopez Gaston et al. 2010: 313).

4.5 Effectiveness of residential rehabilitation in comparison with non-residential treatment interventions

Relatively little research explores the effectiveness of residential rehabilitation in improving outcomes in comparison with other forms of treatment, such as outpatient/community-based treatment and Medication Assisted Treatment (MAT). The majority of the small existing evidence base suggests that residential rehabilitation produces more positive outcomes in relation to substance use than other treatment modalities, although conflicting evidence exists in some cases. Assessing the comparative effectiveness of residential rehabilitation is again made difficult by the aforementioned factors.

The Drug Treatment Outcomes in Scotland (DORIS) (McKeganey et al. 2009) found that people who had attended residential rehabilitation were more likely to sustain a 90-day period of abstinence than those receiving MAT or other treatment options. There were no significant differences in the severity of dependence among those receiving residential rehabilitation and MAT. It is, however, noted that results may have been affected by other factors not controlled for, such as individuals’ motivation.

The Australian Treatment Outcomes Study (ATOS), which included 615 participants, found that residential rehabilitation was 16 times more effective in achieving abstinence at the three-year follow-up when compared with MAT and inpatient

withdrawal management (Teesson et al. 2008). At the 11-year follow-up, research participants who had undergone residential rehabilitation were also more likely to have remained abstinent. The Methamphetamines Treatment Evaluation Study (MATES), which included 360 participants, evidenced that residential rehabilitation successfully produced large reductions in the frequency of methamphetamine use at three-months relative to inpatient withdrawal and a non-treatment control group, although rates of reduction slowed over time (McKetin et al. 2012).

Similarly, a prospective, multi-site treatment and outcome study with 796 people from 21 alcohol and drug services in Victoria, Australia (Manning et al. 2017) explored substance use outcomes among people who had accessed a range of treatment interventions, including individual and group counselling, inpatient or home-based withdrawal, pharmacotherapy treatment or residential rehabilitation. With 52.0% of the overall sample having achieved abstinence or reduction in drug use at 12 months, having residential rehabilitation as the primary treatment intervention was a significant predictor of abstinence from all drugs of concern, although this was limited to those with a primary alcohol problem (Manning et al, 2017).

A randomised study of 227 people allocated to three different treatments for substance dependency in Iran found that therapeutic communities produced better mental health and quality of life outcomes than MAT and other forms of residential rehabilitation (Babaei and Razeghi 2013). Therapeutic communities are defined in the study as interventions that emphasise long-term care, and which centre education, personal growth, and self-efficacy, although no definition is provided for residential rehabilitation, so it is unclear how these differed. The study is also limited by the small sample size and the uneven distribution of participants across treatment modalities. A large South African study found similar findings; those at discharge from residential rehabilitation were significantly more likely to be abstinent in comparison with those attending outpatient treatment services (Myers et al, 2018).

Contrasting these findings, a US-based study that considered the impact of drug treatment on recidivism among drug-involved offenders found no significant differences between those receiving residential and non-residential treatment (Krebs et al. 2009). Those receiving residential treatment did, however, take longer to recidivate than those who received no treatment. The study employed a propensity model analysis of administrative data of 129,577 people, observing explanatory factors such as demographics and history of involvement with criminal justice in order to account for baseline differences. The authors note that the study is limited by the lack of data on individual histories of substance use and an inability to strictly define what constituted treatment.

4.6 Cost effectiveness of Residential Rehabilitation

There is a dearth of research exploring the cost-effectiveness of residential rehabilitation. Again, it is acknowledged within the literature that comparative analysis of the cost-effectiveness of different treatment modalities is challenged by the difficulty in terms of ascribing short, medium and, particularly, longer-term

outcomes to a single episode of treatment given that people likely draw on multiple treatment episodes (Godfrey et al. 2004).

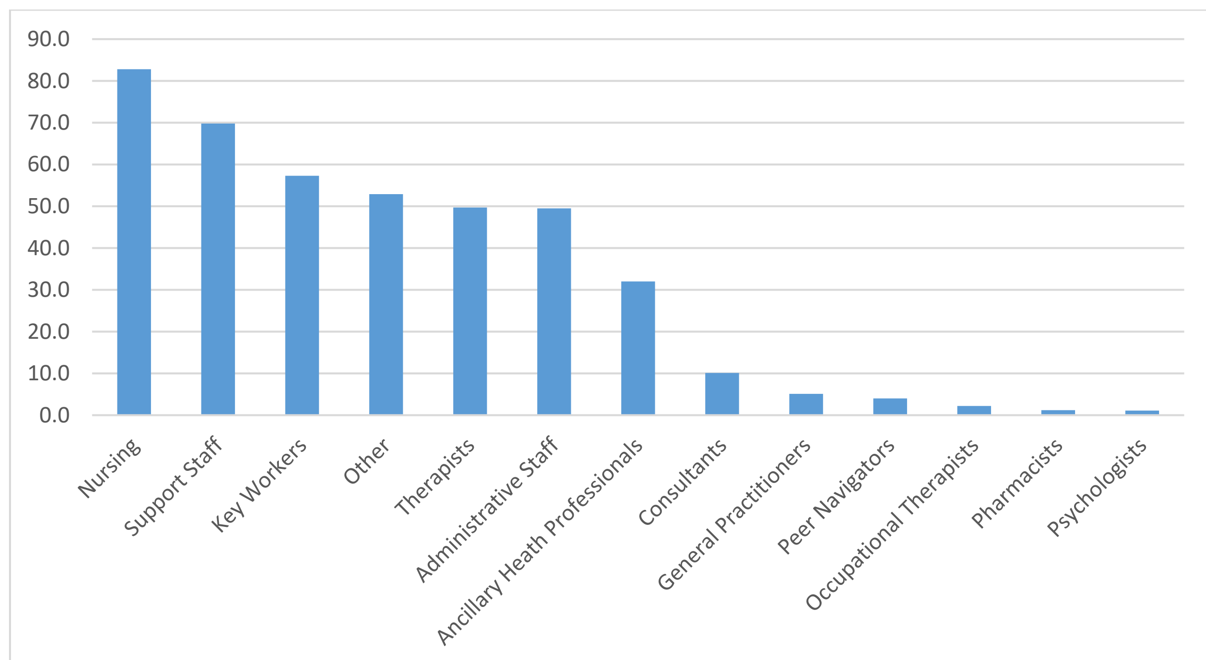
One study of the cost-effectiveness of drug treatment services in the UK demonstrated that residential rehabilitation and other treatment modalities (specialist inpatient treatment, community treatment and MAT) were associated with substantial economic benefits over the two year period post-follow up (Godfrey et al. 2004). These researchers measured both healthcare and other expenditure, such as criminal justice, on a cohort of 549 individuals both two-years prior to their index treatment, and two-years post-treatment. The study found a ratio of potential consequences to net treatment investment ratio of 18:1 across all treatment modalities, although it was not possible to break down this analysis by treatment type given the aforementioned complexity of relating outcomes to any single episode of treatment. The researchers suggest that these estimates were conservative, in that many potential benefits were not estimated.

A US study by Mojtabai and Graff Zivin (2003) explored the cost effectiveness of four treatment modalities for substance use disorders using propensity score analysis. The study found that all four modalities – inpatient programmes, residential rehabilitation programmes, outpatient detox and methadone programmes, and outpatient drug-free programmes – were cost-effective in comparison with other, non-substance related health interventions. Of the four modalities, this study found that the outpatient drug-free treatment programmes were the most cost effective, even for those who were more likely to choose (or be referred to) treatment in other modalities. However, this study was limited in that it did not consider wider costs mitigated by treatment, such as reductions in criminal activity, and cautioned that the data on which it drew was now relatively outdated (with the rate and length of residential treatment having reduced in the period since). These authors noted that their study contrasted with previous analysis by Hubbard et al. (1989) which found that residential treatment provided the greatest cost-effectiveness in comparison with MAT and outpatient drug-free programmes when taking wider costs and benefits (including employment, criminal activity and mental health) into consideration.

5. Workforce

While literature exists on the wider workforce within alcohol and drug treatment sector, there is scant research explicitly focusing on issues in relation to the workforce within residential rehabilitation, both in Scotland and internationally. A recent Scottish Government report (2021) of a survey of 20 residential rehabilitation providers explored the composition of the workforce across the sector in Scotland. This report found that the majority of the workforce is made up of paid members of staff (85%), with the number of paid workers ranging from 4 to 130 across these facilities. Fifteen percent of the staff were voluntary, with numbers ranging from 1 to 20 across these facilities. Just over a third of staff (35%) were reported to have lived experience of recovery from problematic alcohol and/or drug use (although several providers reported not knowing this information).

The report highlighted that the Scottish workforce was made up of a number of roles, displayed in figure 1 below.



[1] 'Other Staff' included executives, management staff, cleaners and chefs.

[2] Data on occupational role was missing for 38 working time equivalent (WTE) paid staff

Figure 1 – Staff Roles across Residential Rehabilitation in Scotland (n=417.2 WTE)

Facilities which did not employ in-house medical and/or nursing staff primarily cited financial reasons, while others highlighted that they were a social model rather than a medical model. Twelve facilities reported external partnerships with external services, including Social Care, General Practitioner surgeries, NHS Occupational Therapists, consultant psychiatrists, medicine wholesalers, medical practices, pharmacies, NHS detox providers, sexual health nurses and opticians. Nine (45%) worked with other external partners, including Local Authorities (for accommodation); third-sector partners focusing on employability, training and education; Housing Agencies and other charities for housing; advocacy services, food distribution charities; and Jobcentres.

All 20 facilities reported that their staff received a range of training. Every facility reported health and safety training, while others reported drug and alcohol awareness training (n=18, 90%), emergency first aid (n=17, 85%), trauma awareness training (n=15, 75%) and Naloxone training (n=14, 70%). Mental health first-aid training was undertaken by around half (n=9, 45%) while other training included a range of courses on personal development, including those relating to employability skills.

6. Conclusions and Recommendations for Future Research

6.1 Overview

There is a wide-ranging and highly varied body of literature relating to residential rehabilitation and although some evidence is mixed and of weak quality, some robust evidence does exist to suggest that residential rehabilitation is an effective form of substance use treatment. Residential rehabilitation has been evidenced to produce positive outcomes relating to substance use, mental and physical health, social life and criminal activity. There is similarly some evidence that residential rehabilitation comprises a cost effective form of treatment when considering long-term outcomes, and that residential rehabilitation can be more effective than other treatment modalities.

While there is a substantial body of literature internationally, there is a dearth of evidence that pertains directly to residential rehabilitation across Scotland. The following section offers suggestions for potential research themes, based on areas which are currently under-explored in literature.

6.2 Areas for Future Investigation in Scotland

From this review of the existing literature on residential rehabilitation, it is possible to make a number of recommendations as to areas for future research. The review identified several areas that would benefit from further exploration in the Scottish context, and which would further develop the evidence base in an international context.

6.2.1 Defining and measuring outcomes

- Exploration of what constitutes a positive outcome from residential rehabilitation, the efficacy of existing measurement tools, and how best to measure outcomes across a broad range of domains (e.g. abstinence/ stabilisation of use; wider impact on relationships, employment status, housing situation, general emotional and functional wellbeing, etc).
- Such research may make use of data linkage between health, welfare and justice administrative data to better understand outcomes of residential rehabilitation.
- Such research would also benefit from addressing methodological issues of research on residential rehabilitation, such as heterogeneity of models and practices.

6.2.2 Mechanisms of Effect

- Mechanisms through which residential rehabilitation generates outcomes and the ways in which these differ from other treatment modalities.
- How mechanisms through which residential rehabilitation produces outcomes differ across different population groups (including by substance use severity, socioeconomic position, gender etc).

6.2.3 Individual characteristics and demographics

- Impact of characteristics/demographics like gender, age, socioeconomic, exposure to adverse childhood experiences (ACE)/trauma, substance use histories, psychiatric histories on experiences of residential rehabilitation and outcomes.
- The role of a whole families approach across the system.
- Comparative complexity of needs of those seeking residential treatment as opposed to non-residential, community-based treatment.

6.2.4 Differences between residential rehabilitation programmes

- Comparisons of different programme models within residential rehabilitation and of residential treatment with non-residential treatment, including analysis of outcomes for different population groups.
- Potential benefits and disadvantages for service users receiving opioid substitution therapy (OST) and residential treatment simultaneously.
- Efficacy of programmes for different demographics.
- Approaches to service provision sensitive to race, gender, class, disability.
- Exploration of the mechanisms through which different models of residential rehabilitation produce outcomes for different population groups.

6.2.5 Addressing Trauma/Mental Health

- Ability of different residential rehabilitation programmes to address PTSD, trauma and mental health comorbidities.
- Service understandings of ‘trauma informed care’ and its application in practice.

6.2.6 Attitudes towards residential rehabilitation

- Attitudes towards residential rehabilitation among practitioners, people who use drugs, families, Alcohol and Drug Partnerships (ADPs) and other key stakeholders, and the consequences of these attitudes on funding, referrals and placements.
- The motivations for seeking residential rehabilitation among people who use drugs.
- The role of stigma in acting as a barrier to accessing residential rehabilitation.

6.2.7 Pre-residential rehabilitation (Identification, Selection, Referrals, Assessment, Preparation)

- Processes of candidate identification, selection, referral and assessment for residential rehabilitation.
- Identification, selection and referral of people with multiple or complex needs, including complex mental health comorbidities and/or complex substance use (e.g. polydrug use, benzodiazepine use).

- Factors determining the likelihood of referral, including stage in recovery journey, drug use profile, possession of ‘cultural capital’, unconscious bias and stigma.
- Practices of determining who is most likely to benefit from residential rehabilitation and association of both identification process and individuals’ characteristics with outcomes.
- Practices of informing and managing client expectations and association of preparatory work with outcomes.

6.2.8 Funding pathways

- Awareness of funding pathways among people who use drugs, their families, potential referrers and other key stakeholders.
- Factors determining likelihood of accessing statutory funding for residential rehabilitation.
- Association between different funding pathways and outcomes for different demographics of people.

6.2.9 Detoxification

- Impact of different detoxification experiences consequent outcomes from residential rehabilitation.

6.2.10 People’s experiences of residential rehabilitation

- People’s experiences of the therapeutic relationship and facilitators/barriers to its development.
- Impact of interpersonal dynamics, social hierarchies and social relationships during the programme on outcomes.
- Impact of multiple journeys on outcomes.

6.2.11 Period following residential rehabilitation (departure, aftercare, continuity in care planning)

- Exploration of the potential risks presented by planned or unplanned departure from residential rehabilitation and how best to mitigate risks.
- Outcomes and risks of harm associated with early departure.
- Factors associated with sustained abstinence or returns to substance use on leaving residential rehabilitation.
- Factors predicting attendance at aftercare services.
- Comparisons of the efficacy of different aftercare interventions, such as 12-Step, mutual aid and structured therapy.
- Ideal timeframes for employment/volunteering for the individual.
- Best practice for housing/aftercare planning.

6.2.12 Workforce

- Relationship between workplace satisfaction and treatment provision/therapeutic alliance.
- Needs of workforce in terms of retention, training, capacity.
- Association of increased presence of peer workers with outcomes.

6.2.13 Mortality

- Mortality rates during and in the short, medium and longer-term following residential rehabilitation, including comparative analysis with other treatment modalities.

6.2.14 Wider Societal Context

- Impact of wider social, historical and cultural context on experiences of residential rehabilitation and programme provision.
- Effect of pre- and post-treatment housing, employment, social relationships on experiences of residential rehabilitation.
- Impact of Scotland’s specific context of drug use, particularly patterns of poly and complex drug use, on the suitability of residential rehabilitation as a treatment intervention.

7. References

Agosti, V., Levin, F.R. 2007. One-year posttreatment outcome of cannabis-dependent adolescents. *Addictive Disorders and Their Treatment*, Vol. 6 (2), pp. 61–66.

Aguilera R, Anderson A, Gabrie, E, Merlo M, Parades T, Pastrana, R. 1999. A clinical impact evaluation of integrated anddisease specific substance abuse program models in Honduras. *Int J Psychosoc Rehab,* Vol. 3: 97 – 167.

Albertella, L., Norberg, M.M. 2012. Mental health symptoms and their relationship to cannabis use in adolescents attending residential treatment. *Journal of Psychoactive Drugs*, Vol. 44 (5), pp. 381–389.

Anderson A. 1999. Comparative impact evaluation of twotherapeutic programs for mentally ill chemical abusers. *Int. J Psychosoc Rehab,* Vol. 4: 11 – 26.

Anderson, S., Berg, J. 2009. The use of a Sense of Coherence Test to Predict Drop-Out and Mortality After Residential Treatment of Substance Abuse. *Addiction Research & Theory*, Vol. 9 (3), pp. 239-251. https://doi.org/10.3109/16066350109141752.

AshaRani, P.V., Hombali, A., Seow, E., Ong, W.J., Tan, J.H., Subramaniam, M. 2020. Non-pharmacological interventions for methamphetamine use disorder: a systematic review. *Drug and Alcohol Dependence,* Vol. 212, pp. 108060. https://doi.org/10.1016/j.drugalcdep.2020.108060.

Babaie, E., Razeghi, N. 2013. Comparing the Effects of Methadone Maintenance Treatment, Therapeutic Community, and Residential Rehabilitation on Quality of Life and Mental Health of Drug Addicts. *Addict Health*, Vol. 5 (1-2): 16-20.

Banerjee, K., Howard, M., Mansheim, K., Beatte, M. 2009. Comparison of Health Realization and 12-Step Treatment in Women's Residential Substance Abuse Treatment Programs. *The American Journal of Drug and Alcohol Abuse*, Vol. 33 (2), pp. 207-215. https://doi.org/10.1080/00952990601174758.

Barber, J.P., Luborsky, L., Gallop, R., Crits-Christoph, P., Frank, A., Weiss, R.D., 2001. Therapeutic alliance as a predictor of outcome and retention in the National Institute on Drug Abuse Collaborative Cocaine Treatment Study. *Journal of Consulting and Clinical Psychology,* Vol. 69, pp. 119–124.

Beckwith, M., Best, D., Savic, M., Haslam, C., Bathish, R., Dingle, G., Mackenzie, J., Staiger, P.K., Lubman, I. 2019. Social Identity Mapping in Addiction Recovery (SIM-AR): extension and application of a visual method. *Addiction Research & Theory,* Vol. 27 (6), pp. 462-471. https://doi.org/10.1080/16066359.2018.1544623

Berg, J. 2003. Mortality and return to work of drug abusers from Therapeutic Community treatment 3 years after entry. *Journal of Clinical Psychiatry*, Vol. 5, pp. 164-167.

Bergman, B. G., Greene, C., Slaymaker, V., Hoeppner, B. B., Kelly, J. F. 2014. Young adults with co-occurring disorders: substance use disorder treatment response and outcomes. *Journal of Substance Abuse Treatment*, Vol. 46 (4), pp. 420-8. https://doi.org/10.1016/j.jsat.2013.11.005.

Best, D., Rome, R., Hanning, K.A., White, W., Gossop, M., Taylor, A., Perkins, A. 2010. *Research for Recovery: A Review of the Drugs Evidence Base.* Edinburgh: Scottish Government.

Best, D., Manning, V., Allsop, S., Lubman, D. I. 2020. Does the effectiveness of mutual aid depend on compatibility with treatment philosophies offered at residential rehabilitation services? Addictive Behaviours, Vol. 103, pp. 106221. https://doi.org/10.1016/j.addbeh.2019.106221.

Bista, S., Nathan, S., Rawstorne, P., Palmer, K., Ferry, M., Williams, M., Hayen, A. 2021. Mortality among young people seeking residential treatment for problematic drug and alcohol use: A data linkage study. *Drug and Alcohol Dependence*, Vol. 228, pp. 109030.

Brunette, M.F., Mueser, K.T., Drake, R.E. 2004. A review of research on residential programs for people with severe mental illness and co-occurring substance use disorders. *Drug and Alcohol Review*, Vol. 23, pp. 471-481.

Burnette, M., Schneider, R., Timko, C., Ilgen, M.A. 2009. Impact of Substance-Use Disorder Treatment on Women Involved in Prostitution: Substance Use, Mental Health, and Prostitution One Year After Treatment. *Journal of Studies on Alcohol and Drugs*, Vol. 70 (1), pp. 32-40.

Callaghan, R. C., Hathaway, A., Cunningham, J. A., Vettese, L.C., Wyatt, S., Taylor, L. 2005. Does stage-of-change predict dropout in a culturally diverse sample of adolescents admitted to inpatient substance-abuse treatment? A test of the Trans-theoretical Model. *Addictive Behaviour*, Vol. 30, pp. 1834–47.

Chenhall, R. 2008. What's in a rehab? Ethnographic evaluation research in Indigenous Australian residential alcohol and drug rehabilitation centres. *Anthropology & Medicine*, Vol.15 (2), pp. 105-116. https://doi.org/10.1080/13648470802122024.

Clarke, J.M. (2017), "The case for “fluid” hierarchies in therapeutic communities", Therapeutic Communities: *The International Journal of Therapeutic Communities*, Vol. 38 No. 4: 207-216.

Clarke, JM & Waring, J 2018, 'The transformative role of interaction rituals within therapeutic communities', *Sociology of Health and Illness*, vol. 40, no. 8, pp. 1277-1293.

Cleary, M., Hunt, G.E., Matheson, S., Walter, G. 2009. Psychosocial treatments for people with co-occurring severe mental illness and substance misuse: systematic review. *Journal of Advanced Nursing*, Vol. 65 (2), pp. 238-258. https://doi.org/10.1111/j.1365-2648.2008.04879.x.

Dasinger, L.K., Shane, P.A., and Martinovich, Z. 2004. Assessing the effectiveness of community-based substance abuse treatment for adolescents. *Journal of Psychoactive Drugs*, Vol. 36 (1), 27–33.

Daughters, S. B., Magidson, J. F., Anand, D., Seitz-Brown, C. J., Chen, Y., Baker, S. 2018. The effects of a behavioral activation treatment for substance use on post-treatment abstinence: a randomized controlled trial. *Addiction,* Vol. 113 (3), pp. 535-544.

Davis, J. P., Berry, D., Dumas, T. M., Ritter, E., Smith, D. C., Menard, C., Roberts, B. W. 2018. Substance use outcomes for mindfulness based relapse prevention are partially mediated by reductions in stress: results from a randomized trial. *Journal of Substance Abuse Treatment,* Vol. 91, pp. 37-48.

Day, E., Ison, J., Strang, J. 2005. Inpatient versus other settings for detoxification for opioid dependence. *Cochrane Database of Systematic Reviews*. Issue 2. Art: No: CD004580.

de Andrade, D., Elphinston, R., Quinn, C., Allan, J., Hides, L. 2019. The effectiveness of residential treatment services for individuals with substance use disorders: A systematic review. *Drug and Alcohol Dependence*, Vol. 201, pp. 227-235.

De Leon G. 2000, *The Therapeutic Community: Theory, Model, and Method*. New York, NY: Springer Publishing Company.

Deane, F. P., Kelly, P. J., Crowe, T. P., Coulson, J. C., Lyons, G. C. B. 2013. Clinical and Reliable Change in an Australian Residential Substance Use Programme using the Addiction Severity Index. *Journal of Addictive Diseases,* Vol. 32 (2), pp. 194-205.

Decker, K. P., Peglow, S. L., Samples, C. R., Cunningham, T. D. 2017. Long-Term Outcomes After Residential Substance Use Treatment: Relapse, Morbidity, and Mortality. *Military Medicine,* Vol. 182 (1-2), pp. e1589-e1595.

De Leon, G., Unterrainer, H.F. 2020. The therapeutic community: A unique social psychological approach to the treatment of addictions and related disorders. *Frontiers in Psychiatry*, Vol. 11 (786): 1-6. https://doi.org/10.3389/fpsyt.2020.00786.

De Weert-Van Oene, G.H., Schippers, G.M., De Jong, C.A. and Schrijvers, G.J. 2001. Retention in substance dependence treatment: the relevance of in-treatment factors. *Journal of Substance Abuse Treatment*, Vol. 20, pp. 253-64.

Devlin, A. M., & Wight, D. (2020). Mechanisms and context in the San Patrignano drug recovery community, Italy: A qualitative study to inform transfer to Scotland. *Drugs Education, Prevention and Policy*, *28*(1), 85–96.

do Carmo, D.A., Palma, S.M.M., Ribeiro, A., Trevizol, A.P., Brietzke, E., Abdalla, R.R., Alonso, A.L.S., da Silva, C.J., Cordeiro, Q., Laranjeira, R., Ribeiro, M. 2018.

Preliminary results from Brazil's first recovery housing program. *Trends in Psychiatry and Psychotherapy*, Vol. 40, pp. 285-291.

Drake, R.E., O'Neal, E.L., Wallach, M.A. 2008. A systematic review of psychosocial research on psychosocial interventions for people with co-occurring severe mental and substance use disorders. *Journal of Substance Abuse Treatment*, Vol. 34 (1), pp. 123-38. https://doi.org/10.1016/j.jsat.2007.01.011.

Eastwood, B. Peacock, A., Millar, T., Jones, A., Knight, J., Horgan, P., Lowden, T., Willey, P., Marsden, J. 2018. Effectiveness of inpatient withdrawal and residential rehabilitation interventions for alcohol use disorder: A national observational, cohort study in England. *Journal of Substance Abuse Treatment*, Vol. 88, pp. 1-8. https://doi.org/10.1016/j.jsat.2018.02.001.

Edelen MO, Tucker JS, Wenzel, SL, et al. 2007 Treatment process in the therapeutic community: associations with retention and outcomes among adolescent residential clients. *J Subst Abuse Treat*, 32: 415-421.

European Monitoring Centre for Drugs and Drug Addiction. 2014. Residential treatment for drug use in Europe. EMCDDA Papers, Publications Office of the European Union, Luxembourg. Available at: https://www.emcdda.europa.eu/system/files/publications/813/TDAU14005ENN_475698.pdf

Fenton, L. R., Cecero, J. J., Nich, C., Frankforter, T. L. and Carroll, K. M. 2001. Perspective is everything: the predictive validity of six working alliance instruments. *Journal Psychotherapeutic Practice Research*, Vol. 10, pp. 262-8.

Fernández-Calderón, D., Fernández, F., Ruiz-Curado, S., Verdejo-Garcia, A. 2015. Profiles of substance use disorders in patients of therapeutic communities: Link to social, medical and psychiatric characteristics. *Drug and Alcohol Dependence*, Vol. 149 (1), pp. 31-39. https://doi.org/10.1016/j.drugalcdep.2015.01.013

Fischer, J., Roche, A., Kostadinov, V. 2019. Operationalising the quality of life construct in studies of alcohol and drug residential rehabilitation programme clients: A systematic review. *Drug and Alcohol Review*, Vol. 38 (6), pp. 674-689. https://doi.org/10.1111/dar.12981.

Galanter M, Dermatis H, Bunt G, Williams C, Trujillo M, Steinke P. 2007. Assessment of spirituality and its relevance to addiction treatment. *J Subst Abuse Treat.* 33(3):257-64.

Galanter, M., Seppala, M., Klein, A. 2016. Medication-assisted treatment for opioid dependence in Twelve Step–oriented residential rehabilitation settings. *Substance Abuse*, Vol. 37 (3), pp. 381-383. https://doi.org/10.1080/08897077.2016.1187241.

Godfrey, L., Stewart, D., Gossop, M. 2004. Economic analysis of costs and consequences of the treatment of drug misuse: 2-year outcome data from the National Treatment Outcome Research Study (NTORS). *Addiction*, Vol. 99 (6), pp. 697-707. https://doi.org/10.1111/j.1360-0443.2004.00752.x.

Godley, M.D., Godley, S.H., Funk, R.R., Dennis, M.L., Loveland, D. 2001. Discharge status as a performance indicator: can it predict adolescent substance abuse treatment outcome? Journal of Child Adolescent Substance Abuse 11, Vol. (1), 91–109.

Goethals, I., Soyez, V., Melnick, G., De Leon, G., Broekaert, E. 2011. Essential Elements of Treatment: A Comparative Study Between European and American Therapeutic Communities for Addiction. *Substance Use and Misuse*, Vol. 46 (8), pp. 1023-1031. https://doi.org/10.3109/10826084.2010.544358.

González-Saiz, F., Vergara-Moragues, E. 2021. In-Treatment Changes in Quality of Life-Related Variables in Therapeutic Communities for Cocaine Abusers: Are These Changes Associated with Clinical Outcomes? *Int. J. Environ. Res. Public Health*, Vol. 18 (14), pp. 7442.
https://doi.org/10.3390/ijerph18147442.

Gosling, H. (2018), Recovery capital: a framework for the contemporary Therapeutic Community? *Therapeutic Communities: The International Journal of Therapeutic Communities*, Vol. 39 No. 3, pp. 129-136. https://doi.org/10.1108/TC-01-2018-0001.

Gossop M, Marsden J, Stewart D. 2000. The UK National Treatment Outcome Research Study and its implications. *Drug Alcohol Review*. Vol. 19: 5–7.

Gossop, M., Marsden, J., Stewart, D., Kidd, T. 2003. The National Treatment Outcome Research Study (NTORS): 4-5 year follow up results. *Addiction*, Vol. 98, pp. 291-303.

Gossop, M., Stewart, D., Browne, N., Marsden, J. 2002. Factors associated with abstinence, lapse or relapse to heroin use after residential treatment: protective effect of coping responses. *Addiction*, Vol. 97 (10). https://doi.org/10.1046/j.1360-0443.2002.00227.x.

Gossop M., Stewart D., Marsden J. 2003. Treatment process components and heroin use outcomes among methadone patients. *Drug and Alcohol Dependence*, Vol. 71, pp. 93–102.

Gossop, M., Stewart, D., Marsden, J. 2006. Readiness for change and drug use outcomes after treatment. Addiction, Vol. 102, pp. 301-308.
https://doi.org/10.1111/j.1360-0443.2006.01681.x.

Hang-Hai, A., Franklin, C., Park, S., DiNitto, D.M., Aurelio, N. 2019. The efficacy of spiritual/religious interventions for substance use problems: A systematic review and meta-analysis of randomized controlled trials. *Drug and Alcohol Dependence*, Vol. 202, pp. 134-148.

Harley, M., Pit, S.W., Rees, T. *et al.* 2018. Completion rates and psychosocial intervention effectiveness in an Australian substance use therapeutic community. *Subst Abuse Treat Prev Policy,* 13, 33.

Haslam, C., Best, D., Dingle, G.A., Staiger, P.K., Savic, M., Bathish, R., Maackenzie, J., Kelly, A.J., Lubman, D.I. 2019. Social group membership before treatment for substance dependence predicts early identification and engagement with treatment communities. *Addiction Research & Theory,* 27(5), pp. 363-372.

Helena Kennedy Centre for International Justice. 2017. *Residential Treatment Services: Evidence Review*. Sheffield Hallam University. Available at: Final Full Report.pdf (shu.ac.uk).

Hubbard RL, Marsden ME, Rachal JV, Harwood HJ, Cavanaugh ER, Ginzberg HM. 1989. *Drug Abuse Treatment: A National Study of Effectiveness.* Chapel Hill: University of North Carolina Press.

Jainchill, N., Hawke, J., Messina, M. 2005. Post-treatment outcomes among adjudicated adolescent males and females in modified therapeutic community treatment. *Substance Use & Misuse*, Vol. 40 (7), pp. 975–996.

Jason LA, Olson BD, Harvey R. 2015. Evaluating Alternative Aftercare Models for Ex-Offenders. *Journal of Drug Issues*; 45(1): 53-68.

Jetten, J., Branscombe, N.R., Haslam, S.A., Haslam, C., Cruwys, T., Jones, J.M., Cul, L., Dingle, G., Liu, J., Murphy, S., Thai, A., Walter, Z., Zhang, A. 2015. Having a lot of a good thing: multiple important group memberships as a source of self-esteem. *PLoS ONE*. 10(5): e0124609.

Johns, K., Baker, A., Webster, R. A., Lewin, T. 2009. Factors associated with retention in a long-term residential rehabilitation programme for women with substance use problems. *Mental Health and Substance Use*, Vol. 2 (1), pp. 40-51. https://doi.org/10.1080/17523280802593285.

Kamp, F., Proebstl, L., Hager, L., Shreiber, A., Riebschlager, M., Neumann, S., Straif, M., Schacht-Jablonowsky, M., Manz, K., Soyka, M., Koller, G. 2019. Effectiveness of methamphetamine abuse treatment: Predictors of treatment completion and comparison of two residential treatment programs. *Drug and Alcohol Dependence,* Vol. 201, pp. 8-15.

Kaye, K. 2020. *Enforcing Freedom: Drug Courts, Therapeutic Communities and the Intimacies of the State*. Columbia, Columbia University Press.

Keen, J., Oliver, P., Rowse, R., Mathers, N. 2001. Residential rehabilitation for drug users: a review of 13 months' intake to a therapeutic community. *Family Practice*, Vol. 18 (5), pp. 545-548. https://doi.org/10.1093/fampra/18.5.545.

Kelly JF, Stout RL, Slaymaker V. Emerging adults' treatment outcomes in relation to 12-step mutual-help attendance and active involvement. *Drug Alcohol Depend*. 2013 Apr 1;129(1-2):151-7.

Kelly, JF, Humphreys, K, Yeterian, J (2013) Mutual-help groups. In Herie, M, Skinner, WJW (Eds). *Fundamentals of Addiction: A Practical Guide for Counsellors*. Toronto, ON Centre on Addiction and Mental Health, 321–48.

King, J., Dow, J., Stevenson, B. 2016. Measuring outcomes for TC clients: Higher Ground Drug Rehabilitation Trust. *Therapeutic Communities,* Vol. 37 (3), pp. 121-130. https://doi.org/10.1108/TC-01-2016-0003

Kopak, A.M., Dean, L., Proctor, S., Miller, L., Hoffmann, N.G. 2014. Effectiveness of the rehabilitation for addicted prisoners trust (RAPt) programme. *Journal of Substance Use*, Vol. 20 (4), pp. 254-261. https://doi.org/10.3109/14659891.2014.904938.

Krebs, C.P., Strom, K., Koetse, W.H., Lattimore, P.K. The Impact of Residential and Nonresidential Drug Treatment on Recidivism Among Drug-Involved Probationers. *Crime & Delinquency*, Vol. 55 (3), pp. 442-471. https://doi.org/10.1177/0011128707307174.

Lipton, D.S., Pearson, F.S., Cleland, C.M. and Yee, D. 2002. The effects of therapeutic communities and milieu therapy on recidivism. In: McGuire J (ed.) *Offender Rehabilitation and Treatment: Effective Programmes and Policies to Reduce Re-offending*. Etobicoke, Canada: John Wiley, pp. 39–77.

Lloyd, B., Zahnow, R., Barratt, M. J., Best, D., Lubman, D. I., Ferris, J. 2017. Exploring mortality among drug treatment clients: The relationship between treatment type and mortality. *Journal of Substance Abuse Treatment*, Vol. 82, pp. 22-28. https://doi.org/10.1016/j.jsat.2017.09.001.

Lopez Gaston, R., Best, D., Day, E., White, W. 2010. Perceptions of 12-Step Interventions Among UK Substance-Misuse Patients Attending Residential Inpatient Treatment in a UK Treatment Setting. *Journal of Groups in Addiction & Recovery*, Vol. 5 (3-4), pp. 306-323. https://doi.org/10.1080/1556035X.2010.523371.

Malivert, M., Fatséas M., Denis, C., Langlois, E., Auriacombe, M., 2012. Effectiveness of Therapeutic Communities: A Systematic Review. *European Addiction Research*, Vol. 18, pp. 1-11.

Manning, V., Garfield, J.B.B., Best, D. et al. 2017. Substance use outcomes following treatment: Findings from the Australian Patient Pathways Study. *Australian and New Zealand Journal of Psychiatry*, 51(2). pp. 177-189.

McGuire, A. P., Mota, N. P., Sippel, L. M., Connolly, K. M., Lyons, J. A. 2018. Increased resilience is associated with positive treatment outcomes for Veterans with comorbid PTSD and substance use disorders. *Journal of Dual Diagnosis,* Vol. 14 (3), pp. 181-186. https://doi.org/10.1080/15504263.2018.1464237

McKeganey, N., Bloor, M., Robertson, M., Neale, J., MacDougall, J. 2009. Abstinence and drug abuse treatment: Results from the Drug Outcome Research in Scotland study. *Drugs: Education, Prevention and Policy*, Vol. 13 (6), pp. 537-550. https://doi.org/10.1080/09687630600871987.

McKetin, R., Dunlop, A. J., Holland, R. M., Sutherland, R. A., Baker, A. L., Salmon, A. M., Hudson, S. L. 2013. Treatment outcomes for methamphetamine users

receiving outpatient counselling from the Stimulant Treatment Program in Australia. *Drug and Alcohol Review,* Vol. 32, pp. 80-87.

McKetin, R., Kothe, A., Baker, A. L., Lee, N. K., Ross, J., Lubman, D. I. 2018. Predicting abstinence from methamphetamine use after residential rehabilitation: Findings from the Methamphetamine Treatment Evaluation Study. *Drug and Alcohol Review,* Vol. 37, pp. 70-78.

McKetin, R., Najman, J. M., Baker, A. L., Lubman, D. I., Dawe, S., Ali, R., Lee, N. K., Mattick, R. P., Mamun, A. 2012. Evaluating the impact of community-based treatment options on methamphetamine use: Findings from the Methamphetamine Treatment Evaluation Study (MATES). *Addiction*, Vol. 107 (11), pp. 1998–2008.

Meier, P.S., Donmall, M.C., McElduff, P., Barrowclough, C., Heller, R.F. 2006. The role of the early therapeutic alliance in predicting drug treatment dropout. *Drug and Alcohol Dependence*, Vol. 83 (1). pp. 57-64. http://dx.doi.org/10.1016/j.drugalcdep.2005.10.010.

Millar, T., Hayhurst, K., Jones, A., Pierce, M., Davies, L., Weston, S., Dunn, G., Donmall, M. 2013. Factors associated with receipt of residential rehabilitation by opiate users indicate that these clients are more amenable to drug treatment. *Education, Prevention and Policy*, Vol. 14 (2), pp. 165-172. https://doi.org/10.3109/09687637.2013.810707.

Mojtabai R, Zivin JG. 2003. Effectiveness and cost-effectiveness of four treatment modalities for substance disorders: a propensity score analysis. *Health Serv Res*. ;38(1 Pt 1):233-59.

Morral, A.R., McCaffrey, D.F., Ridgeway, G. 2004. Effectiveness of community-based treatment for substance-abusing adolescents: 12-month outcomes of youths entering phoenix academy or alternative probation dispositions. *Psychology of Addictive Behaviour*, Vol. 18 (3), pp. 257-268.

Morse, M., MacMaster, M. 2015. Characteristics and outcomes of young adult opiate users receiving residential substance abuse treatment. *Journal of Evidence-Informed Social Work*, Vol. 12 (6), pp. 556-566.

Myers, B., Williams, P., Govender, R., Manderscheid, R., Koch, J. R. 2018. Substance abuse treatment engagement, completion and short-term outcomes in the West Cape province, South Africa: findings from the Service Quality Measures Initiatives. *Drug and Alcohol Dependence,* Vol. 185, pp. 278-284.

Nordheim, K., Walderhaug, E. Alstadius, S., Kern-Godal, A. 2018. Young adults' reasons for dropout from residential substance use disorder treatment. *Qualitative Social Work*, Vol. 17 (1), pp. 24-40.

Patterson, T., Macleod, E., Hobbs, L., Egan, R., Cameron, C., Gross, J. 2018. Measuring both primary and secondary outcomes when evaluating treatment effectiveness in alcohol and drug treatment programmes. *Clinical Psychologist,* Vol. 23 (2), pp. 152-164.

Piontek D, Kurktschiev S, Kraus L, Hölscher S, Rist F, Heinz T, Scherbaum N, Bender S, Buchholz A. 2017 . "This Treatment Can Really Help Me"-A Longitudinal Analysis of Treatment Readiness and Its Predictors in Patients Undergoing Alcohol and Drug Rehabilitation Treatment*. Alcohol Clin Exp Res.*;41(6):1174-1181.

Puchalski CM, Blatt B, Kogan M, Butler A: Spirituality and health: The development of a field. *Acad Med* 2014;89:10–16.

Roos, C. R., Kirouac, M., Stein, E., Wilson, A. D., Bowen, S., Witkiewitz, K. 2018. An open trial of rolling admission mindfulness-based relapse prevention (rolling MBRP): feasibility, acceptability, dose-response relations, and mechanisms. *Mindfulness,* Vol. 10, pp. 1062.

Rome, A., McCartney, D., Best, D., and Rush, R. 2017. Changes in Substance Use and Risk Behaviors One Year After Treatment: Outcomes Associated with a Quasi-Residential Rehabilitation Service for Alcohol and Drug Users in Edinburgh. *Journal of Groups in Addiction & Recovery*, Vol. 12 (2-3), pp. 86-98. https://doi/org/10.1080/1556035X.2016.1261384.

Schoenthaler, S. J., Blum, K., Fried, L., Oscar-Berman, M., Giordano, J., Modestino, E. J., Badgaiyan, R. 2017. The effects of residential dual diagnosis treatment on alcohol abuse. *Journal of Systems and Inegrative Neuroscience,* Vol. 3 (4). https://doi.org/10.15761/JSIN.1000169

Schuman-Olivier, Z., Green, M. C., Bergman, B. G., Kelly, J. F. 2014. Is residential treatment effective for opioid use disrders? A longitudinal comparison of treatment outcomes among opioid dependent, opioid misuing, and non-opioid using emerging adults with substance use disorder. *Drug and Alcohol Dependence,* Vol. 144, pp. 179-185.

Scottish Government. 2020. Residential Rehabilitation Working Group: recommendations on drug and alcohol residential treatment services. Scottish Government. Available at: Supporting documents - Residential Rehabilitation Working Group: drug and alcohol residential treatment services - recommendations - gov.scot (www.gov.scot).

Scottish Government (2020). *Residential Rehabilitation in Scotland: Service Mapping Report 2019/20.* Edinburgh: Scottish Government.

Scottish Government (2021). *Pathways into, through and out of Residential Rehabilitation in Scotland.* Edinburgh: Scottish Government.

Šefránek, M., Miovský, M. 2017. Treatment Outcome Evaluation in Therapeutic Communities in the Czech Republic: Changes in Methamphetamine Use and Related Problems One Year After Discharge. *Journal of Groups in Addiction and Recovery,* Vol. 12 (2-3), pp. 68-85.

Šefránek, M., Miovský, M. 2018. Treatment Outcome Evaluation in Therapeutic Communities in the Czech Republic: Alcohol Consumption and Other Results One Year After Discharge. *Alcoholism Treatment Quarterly*, Vol. 36 (1), pp. 54-71.

Smith, L., Gates, S., Foxcroft, D. 2006. Therapeutic communities for substance related disorder. John Wiley & Sons. https://doi.org/10.1002/14651858.CD005338.pub2.

Smyth, B. P., Barry, J., Lane, A., Cotter, M., O'Neill, M., Quinn, C., & Keenan, E. 2005. In-patient treatment of opiate dependence: medium-term follow-up outcomes. *The British journal of psychiatry: the journal of mental science*, 187: 360–365.

Stevens, A. 2012. 'I am the person now I was always meant to be': Identity reconstruction and narrative reframing in therapeutic community prisons. *Criminal Justice*, Vol. 12 (5), pp. 527-547. https://doi.org/10.1177/1748895811432958.

Teesson, M., Mills, K., Ross, J., Darke, S., Williamson, A., & Havard, A. 2008. The impact of treatment on 3 years' outcome for heroin dependence: Findings from the Australian Treatment Outcome Study (ATOS). *Addiction*, Vol. 103 (1), 80–88.

Teesson, M., Marel, C., Darke, S., Ross, J., Slade, T., Burns, L., Mills, K. L. 2017. Trajectories of heroin use: 10-11-year findings from the Australian Treatment Outcome Study. *Addiction,* 112, pp. 1056-1068.

Turner, B., Deane, F. P. 2016. Length of stay as a predictor of reliable change in psychological recovery and well being following residential substance abuse treatment. *Therapeutic Communities,* Vol. 37 (3), pp. 112-120.

Vanderplasschen W, Bloor M, McKeganey N. 2010. Long-Term Outcomes of Aftercare Participation following Various Forms of Drug Abuse Treatment in Scotland. *Journal of Drug Issues*, 40(3):703-728.

Vanderplasschen, W., Vandevelde, S., Broekaert, E. 2014. Therapeutic communities for treating addictions in Europe: Evidence, current practices and future challenges. European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). Available at: Therapeutic communities for treating addictions in Europe: evidence, current practices and future challenges | www.emcdda.europa.eu.

Vandevelde, S., Broekaert, E., Yates, R., Kooyman, M. 2004. The development of the therapeutic community in correctional establishments: A comparative retrospective account of the 'democratic' Maxwell Jones TC and the hierarchical concept-based TC in prison. *International Journal of Social Psychiatry*, Vol. 50 (1), pp. 66–79.

Willey, H., Eastwood, B., Gee, I. L., Marsden, J. 2016. Is treatment for alcohol use disorder associated with reductions in criminal offending? A national data linkage cohort study in England. *Drug and Alcohol Dependence*, Vol. 161, pp. 67-76. https://doi.org/10.1016/j.drugalcdep.2016.01.020.

Wolff, N., Von Hippel, C., Brener, L., Von Hippel, W. 2014. Implicit Identification With Drug and Alcohol Use Predicts Retention in Residential Rehabilitation Programs. *Psychology of Addictive Behaviours*, Vol. 29 (1), pp. 136-141.

© Crown copyright 2022
You may re-use this information (excluding logos and images) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit http://www.nationalarchives.gov.uk/doc/open-government-licence/ or e-mail: psi@nationalarchives.gsi.gov.uk. Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

The views expressed in this report are those of the researcher and do not necessarily represent those of the Scottish Government or Scottish Ministers.

This document is also available from our website at www.gov.scot.
ISBN: 978-1-80435-531-2

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

Produced for
the Scottish Government
by APS Group Scotland
PPDAS1097002 (05/22)
Published by
the Scottish Government,
May 2022

Social Research series
ISSN 2045-6964
ISBN 978-1-80435-531-2

Web Publication
www.gov.scot/socialresearch

PPDAS1097002 (05/22)