Screening for Mental Disorder Comorbidity in Australian Alcohol and Other Drug
Residential Treatment Settings

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Abstract

There has been much international impetus to address the importance of
identifying and treating clients experiencing both a substance use disorder and a
mental disorder in treatment settings. Gaps in the literature still exist after a
decade of research into this area. There is little research on the prevalence of co-
occurring mental disorders (COD) in the residential alcohol and other drug
(AOD) treatment modality. In the present study the mental disorder status of
278 participants resident in AOD treatment settings across Australia was
estimated using the Addiction Severity Index – Self Report (ASI-SR, Cacciola,
Pecoraro, & Alterman, 2008) and the Mental Health Screening Form – III (MHSF-
III, Carroll & McGinley, 2001). The estimated rate of diagnosable Axis I mental
disorder comorbidity varied from 64% to 71% depending upon which cut-off
score was used with the MHSF-III. Missing data emerged as a major limitation of
the self-report version of the ASI psychiatric composite score in this population.

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1. Introduction

Substance use disorders and mental disorders are significant personal and societal problems. Annually the estimated cost to society of substance-related problems worldwide is over US$200 billion (Fabricius, Langa, & Wilson, 2008). Mental disorders accounted for over 15% of the burden of disease in market economies according to the Global Burden of Disease study conducted by the World Health Organisation (Murray & Lopez, 1996). The burden of mental disorders exceeds the burden of disease caused by all cancers (Alonso et al., 2004). In Australia in 2004 mental disorders were the leading cause of non-fatal burden of disease and injury and third only to cancer and cardiovascular disease as the leading overall cause of the burden of (fatal and non-fatal) disease and injury (Begg et al., 2007).

A concurrent diagnosis with at least one or more mental disorders and one or more substance use disorders is necessary for a person to be said to suffer "co-occurring disorders" (COD) (Center for Substance Abuse Treatment, 2005). Internationally, the problem of co-occurring disorders was first highlighted by clinicians in the late 1970s to early 1980s (Brunette, Mueser, & Drake, 2004). Over a 25-year period epidemiological and service-utilisation data has consistently shown that mental disorders and addictions co-occur as frequently as they exist independently of one another (Davidson & White, 2007).

The prevalence of co-occurring disorders among the general population is high (Kessler et al., 1996). According to the main epidemiological studies to come out of the United States of America, around five million adult Americans

have co-occurring disorders (Center for Substance Abuse Treatment, 2007). Estimate based upon the second National Survey for Mental Health and Well-being conducted in Australia suggest the number of people in Australia who misuse drugs nearly every day over a period of 12 months at 183,900. Of these, almost two in three (63%) are estimated to have a 12-month mental disorder (Australian Bureau of Statistics, 2007). This compared to an overall 12-month disorder prevalence of just 20% (Australian Bureau of Statistics, 2007). Thirty-five percent of individuals with a substance use disorder had at least one co-occurring affective or anxiety disorder (Mills et al., 2009).

The prevalence of COD in alcohol and other drug, "treatment-seeking" populations a whole is even higher (Whiteford & Groves, 2009). One overview summarized the literature by suggesting comorbid lifetime mental disorder prevalence in treatment populations is between 50% and 75% (Center for Substance Abuse Treatment, 2007). Much of the research into the prevalence of COD in "treatment" populations, however, reports on collective samples sourced from mixed treatment modalities, (for e.g., public outpatient methadone clinics, outpatient and inpatient drug-free programs, outpatient programs for drug abusing prostitutes and residential recovery shelters for women; see Compton et al., 2000). This approach assumes comorbidity across the different treatment modalities is monolithic.

Recent research suggests this is not the case (see Ross et al., 2005). Ross and others (2005) examined heroin users seeking treatment across three different treatment modalities (detoxification units, residential rehabilitation facilities and outpatient methadone/burprenorphine maintenance agencies) and those not seeking treatment. These authors found that heroin users in residential

treatment services had significantly greater levels of psychological distress, suicide history, Axis I and Axis II disorders (Ross et al., 2005)(Ross et al., 2005). It was concluded that heroin users in residential treatment represented a hard core compared to other treatment modalities (Ross et al., 2005). Whether the same is true of residential clients with substance use disorders other than heroin is currently unknown.

Sources of prevalence rates for mental disorder comorbidity specifically in the residential alcohol and other drug treatment setting are based on research conducted nearly 30 years ago (see Jainchill, 1994 for a review). This research conducted within therapeutic communities reported a lifetime COD rate of 78% and a 30-day prevalence of just 33.70% (Jainchill, 1994). Both mental health and alcohol and other drug treatment environments, diagnostic systems and drugs of abuse have changed since this time. This research utilised the old DSM-III (American Psychiatric Association, 1980) and DSM-IIIR (American Psychiatric Association, 1987) nosology and diagnostic instruments that are not the standard used in the industry today (see Jainchill, 1994). Jainchill's review identified a ten-year pattern of worsening psychiatric symptoms among those entering treatment for substance use disorders during 1974 to 1984. This research was also conducted before the emergence of pseudoephedrine-based amphetamines and the drug ice, as well as cannabis of far greater potency, all of which are thought to have a role in psychosis today.

Comorbidity has important consequences for the individual. Problems facing people with co-occurring disorders include poorer treatment response and an inability to maintain functional stability (Grella & Stein, 2006; Ziedonis & Stern, 2001), higher rates of relapse (Swofford, Kasckow, Scheller-Gilkey, &

Inderbitzin, 1996), more hospital visits (Haywood et al., 1995), increased involvement in violence (Swartz et al., 1998), family difficulties and limited social relationships, increased unemployment, victimisation (Goodman, Rosenberg, Mueser, & Drake, 1997), incarceration (Abram & Teplin, 1991), homelessness (Drake, Osher, & Wallach, 1991), HIV (Adams, 2008; Brunette et al., 2004; Ziedonis & Stern, 2001) and Hepatitis C (Rosenberg et al., 2001). In 2005, in most cases in Australia where a mental or behavioural disorder was recorded as the underlying cause of death, the abuse of psychoactive substances such as alcohol and heroin was also involved (Australian Institute of Health and Welfare, 2008).

The accurate identification of comorbidity is an important first step towards improving treatment and the effective management of this population (Ziedonis et al., 2005). It has been acknowledged that clients with COD have received poor care due to gaps in service provision (Adams, 2008; Harris & Edlund, 2005). Not treating co-occurring disorders, "contributes to some of the most intractable and expensive social problems" (Davis et al., 2006, p. 263).

Both Australian and international guidelines advocate routine screening for co-occurring disorders (Center for Substance Abuse Treatment, 2005; Dawe, Loxton, Hides, Kavanagh, & Mattick, 2002; Gordon, 2008; Hawkings & Gilburt, 2004; Mills et al., 2009; NSW Health, 2000). Yet despite the guidelines, government initiatives and increasing awareness of the poor outcomes associated with COD, currently clinicians often miss the co-occurrence of mental disorders and substance use disorders because of an absence of routine screening (Croton, 2007; Donald, Dower, & Kavanagh, 2005; Lubman, Hides, & Elkins, 2008). In one large three-year study that assessed the rates of detection

of co-occurring mental disorders in an addiction treatment system, co-occurring mental disorders were only detected in 22% of actual cases (N = 47,379) (Hu, Kline, Huang, & Ziedonis, 2006).

The dearth of contemporary data about mental disorder comorbidity in residential AOD treatment is evident in recent reviews (see, for e.g., Center for Substance Abuse Treatment, 2007; Mills et al., 2009). The little research that has been conducted in recent years has tended to focus on samples with specific drug-problem types. For example, research into heroin-taking populations that only investigated the co-occurrence of anxiety and depression (see Darke & Ross, 1997) and outpatient clients on methadone maintenance (see Callalay, Trauer, Munro, & Whelan, 2001). Such subpopulations linked to opioid dependence are not generalisable to the broader substance-use disorder treatment population and rates of mental disorder comorbidity can be expected to be much higher in residential than outpatient populations (Ross et al., 2005). In 2005 heroin users were again studied, but only depression and post traumatic stress disorder were assessed (see Ross et al., 2005). Dyer and Cruickshank (2005) investigated the psychological profile of people admitted to a methamphetamine detoxification program. More recently Axis I mental disorder comorbidity was assessed, but only among outpatients and limited to youth (see Hides, Lubman, Elkins, Catania, & Rogers, 2007).

Currently, internationally and in Australia, there is limited data regarding the extent of mental disorder comorbidity in AOD, residential treatment services. Little is known about contemporary residential alcohol and other drug treatment populations specifically. This is likely to hamper the appropriate development of treatments and services to address comorbidity. The present study aims to fill

this gap by using standardized, widely used screening measures to estimate the prevalence of co-occurring Axis I mental disorders in Australian, alcohol and other drug, residential treatment services. The research questions include: What is the prevalence of co-occurring Axis I mental disorders in residential, AOD treatment services? Has mental disorder comorbidity worsened in those presenting to residential AOD treatment services? Has the rate of psychotic-based disorders increased in residential alcohol and other drug treatment services?

2. Materials and methods

2.1 Participants

The study was conducted across eight of The Salvation Army's alcohol and other drug recovery service centers located throughout New South Wales, the Australian Capital Territory and Queensland. Participants were 278 alcohol and other drug, residential, recovery service clients. University of Wollongong Human Research and Ethics Committee approval was gained for the study and all participation followed an informed consent process with participants. There were 233 (84%) males and 44 (16%) females (one participant failed to enter their gender). Ages ranged from 18 to 68 years, averaging 37 years old (SD = 10.90). Participants had been in the programs for an average of 16 weeks (SD = 17.05) and indicated they had alcohol or other drug problems for an average of 17 years (SD = 9.59). Alcohol was the primary drug of concern for 155 participants (55.8%), followed by amphetamines for 41 participants (14.8%), cannabis for 29 participants (10.4%) and heroin for 16 participants (5.8%). Most participants (63%) had sought drug or alcohol treatment previously and

almost half (48%) indicated they had sought treatment for a mental disorder previously. Fifty-seven percent of clients reported at least one historical mental disorder diagnosis. Sixty-eight participants (24%) were resident in a recovery service that included an identified dual disorder program for some (less than 50%) of its clients. However, the overall rate of mental disorder at this service was actually lower than the rate of mental disorder in the rest of the sample so this did not positively skew the estimates.

2.2 Materials

The rate of co-occurring mental disorders in The Salvation Army, alcohol and other drug, recovery service centers was estimated by administering two widely used mental disorder screening instruments as part of a larger, cross-sectional study.

Addiction Severity Index – Self Report Psychiatric Status Domain (ASI-SR)*.* The Addiction Severity Index (McLellan et al., 1995; McLellan, Luborsky, Woody, & O'Brien, 1980) is the most used measure in research into substance abuse outcomes (Doub, 2001). It has been extensively validated, including within COD populations (see Hodgins & El-Guebaly, 1992). The full ASI is a structured clinical interview that usually takes approximately 40 minutes to complete. It covers seven domains: medical condition, employment, drug use, alcohol use, legal status, family/social relations, and psychiatric condition (McLellan et al., 1995). ASI composite scores in each domain are arithmetically derived indices based upon items that examine problem severity *over the last 30 days*. Scores range from 0 (no significant problem) to 1 (extreme problem) (Clark & Young, 2009).

In the present study a self-report version of the Addiction Severity Index Psychiatric Scale was used (see Rosen, Henson, Finney, & Moos, 2000). Cacciola et al., (2008) reported that at a cut-off score of 0.22, the Addiction Severity Index Psychiatric Status Composite Score had a sensitivity of 80.07% and a specificity of 60.11%, giving the instrument an overall accuracy of about 70% in their sample where it predicted 58% of the sample was positive for mental disorder and the actual overall prevalence as measured by a SCID-III-R diagnostic interview was 45.3%.

Rosen and others (2000) compared the full interview version with the self-administered version of the ASI and concluded the two formats had similar internal consistency and were strongly correlated in the Psychiatric scale (0.67). The mean endorsement of psychiatric symptoms was significantly higher on the self-administered version (0.36) than in the interview (0.27), $p < .01$, in line with a general tendency to endorse more problems on the pencil-and-paper questionnaire (Rosen et al., 2000). The authors speculated this difference may reflect social desirability concerns with respondents more willing to endorse psychiatric symptoms on a pencil-and-paper measure than when face-to-face with an interviewer (Rosen et al., 2000). Given the negative consequences associated with unidentified comorbidity, the tendency of the ASI-SR to act in a more sensitive manner was viewed as desirable in our population.

The ASI is considered adequate as a screening instrument for co-occurring disorders but the individual ASI domains examined singly have been criticised for not providing enough descriptive detail and depth of coverage (Doub, 2001). It has been recommended that the Psychiatric Status section of the ASI be supplemented with more detailed, domain specific measures and that validity

with respect to DSM-IV diagnostic criteria could be, "improved through the addition of expanded descriptors of clinical symptomatology [sic]" (Doub, 2001, p. 104). We followed this recommendation in the present study by adding an additional measure detailed below.

Mental Health Screening Form III (MHSF-III)*. The MHSF-III (see Carroll & McGinley, 2001) is a screening instrument designed to detect mental disorder comorbidity in drug and alcohol taking populations. The first four questions on the MHSF-III are not unique to any particular mental disorder diagnosis; however, questions 5 through 17 reflect symptoms associated with specific diagnoses/diagnostic categories (e.g., Q5, Schizophrenia; see Table 2 for others). Each MHSF-III question is answered either "yes" or "no." All questions reflect the respondent's life history; therefore all questions begin with the phrase "*Have you ever...*" A Total Score is calculated by adding the total number of "yes" responses. The maximum possible score on the MHSF-III is 18 (question 6 has two parts).

The MHSF-III was first validated within a long-term, residential, therapeutic, alcohol and other drug, treatment community in the Bronx, New York, (r = .74 for test-rest; Cronbach Alpha's of .83 and .89 at Time 1 and Time 2 respectively; 87% of participants marked items "Yes" that corresponded with their primary mental health diagnosis) (see Carroll & McGinley, 2001). The original recommendation made by the creators of the MHSF-III was that specialist consultation should be arranged if any of items five through 17 were endorsed with a "yes" response (Carroll & McGinley, 2000). In a subsequent review of over 150 screening measures the MHSF-III was identified as one of the three best performing measures when the MHSF-III total score was used as an indication of overall need for follow up (Sacks et al., 2007).

2.3 Procedure

   Questionnaires were handed out to participants in large group meetings at each of The Salvation Army recovery service centers. Participation was voluntary and those who chose not to participate could return incomplete measures in an envelope without being identified. Participants were given as much time as they required to complete the questionnaires. Literacy problems were overcome by reading questions to participants where necessary, although this was rarely required. The data was entered into SPSS for analysis.

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3. Results

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Almost half (47.6%) of respondents reported seeking psychological treatment previously and 56.8% self-reported being diagnosed with a mental disorder previously. Table 1 displays the breakdown of these historical self-reported diagnoses.

Table 1

Percentage of Self-Reported Previous Mental Disorder Diagnoses

Historical Mental Disorder Diagnosis	Proportion of Historical Diagnoses
Depression	35%
Bipolar Disorder	13%
Anxiety	9%
Post Traumatic Stress Disorder	5%
Schizophrenia	5%
Psychosis	4%
Borderline Personality Disorder	3%

Almost half (48%) of the self-reported historical disorder diagnoses were affect disorders, followed by 14% reporting some form of anxiety disorder. Nine percent of self-reported historical mental disorder diagnoses were schizophrenia or psychosis-related disorders.

On the MHSF-III (N = 259) using the first cut-off score of 3, 253/259 (97.68%) of clients in our residential, AOD treatment sample screened positive for mental disorder. Using psychometric validation figures from previous research (see Sacks et al., 2007) it is suggested if structural clinical interviews were conducted upon the sample it would be found the MHSF-III accurately identified 73% of these 253 respondents who screened positive, meaning the best estimate is that 185 of the 259 (71.31%) respondents who completed the full measure actually have a fully diagnosable mental disorder.

On the MHSF-III (N=259) using the cut-off score of 6, 229/259 (88.4%) of clients screened positive for mental disorder. Again, previous psychometric validation research using structured clinical interviews as the criterion suggests at this cut-off score it would be found the MHSF-III accurately identified 72% of these 229 respondents who screened positive. This returns the estimate that 165 of 259 (63.66%) respondents actually have a diagnosable mental disorder.

Lastly, on the MHSF-III (N=259) at the cut-off score of 11 previously recommended for detecting severe mental disorder only, (major depression, bipolar disorder and schizophrenia), 137/259 (52.90%) of clients screened positive and using previous research that reports 76% accuracy, 104/259 (40.20%) clients in our sample are estimated to have a severe mental disorder.

The mean MHSF-III total score (N=259) in our sample was 10.60 (SD = 4.07), which indicated clients reported an average of 10.60 symptoms of mental disorder. The breakdown of these positive responses to the different symptom-questions contained within the MHSF-III was as follows in Table 2.

Table 2

MHSF-III Symptom-Question Response Prevalence

Question Number/Disorder Symptom Queried	Frequency	Percentage
Q5 Schizophrenia symptom	97/272	35.7%
Q6a Depressive disorder symptom	215/271	79.3%
Q6b Depressive suicide attempt symptom	120/262	45.8%
Q7 Post traumatic stress disorder symptom	160/272	58.8%
Q8 Phobias symptom	201/272	73.9%
Q9 Intermittent explosive disorder symptom	174/270	64.4%
Q10 Delusional disorder symptom	191/271	70.5%
Q11 Sexual & gender identity disorder symptom	136/270	50.4%
Q12 Eating disorders symptom	93/270	34.4%
Q13 Manic episode symptom	169/269	62.8%
Q14 Panic disorder symptom	209/276	75.7%
Q15 Obsessive compulsive disorder symptom	143/276	51.8%
Q16 Pathological gambling symptom	138/275	50.2%
Q17 Learning disorder & mental retardation	64/275	23.3%
Q6a & Q13 Bipolar disorder symptoms	143/269	53.1%

On the ASI-SR (N = 164) using a cut-off composite score of .22, 107/164 (65.2%) of clients who validly completed the measure in our sample screened positive for mental disorder. Using previous psychometric validation figures derived from comparing the ASI Psychiatric Status score to a SCID-III-R interview (see Cacciola et al., 2008), it is suggested the ASI-SR accurately identified 70% of these 107 respondents who screened positive, with the result that the ASI-SR estimate is that 75 of the 164 (45.67%) respondents who completed the full ASI-SR measure have a diagnosable mental disorder. The mean ASI-SR Psychiatric Composite score (N = 164) was .41 (SD = .38). For the reasons to be discussed below, these ASI-SR results should be considered preliminary.

Comparison of MHSF-III and ASI-SR estimates

Of those who did screen positive for mental disorder on the ASI-SR, 92.52% (99/107) validly completed the MHSF-III. At a cut-off score of three on the MHSF-III, all of those 99 (100%) who screened positive for current mental disorder when asked about the last 30 days on the ASI-SR also screened positive for current mental disorder when asked about their entire lifetime on the MHSF-III, (as would be expected). At a cut-off score of six on the MHSF-III, 95.96% (95/99) of those who screened positive for mental disorder when asked about the last 30 days on the ASI-SR also screened positive on the MHSF-III. This means four participants who screened positive for mental disorder in the last 30 days on the ASI-SR did not also screen positive for mental disorder when asked about their lifetime experience on the MHSF-III at this higher cut-off score of six. At a cut-off score of 11 on the MHSF-III 69.70% (69/99) of those who screened

positive for mental disorder when asked about the last 30 days on the ASI-SR also screened positive for severe mental disorder on the MHSF-III.

Of those who screened negative for mental disorder on the ASI-SR 96.49% (55/57) validly responded to the MHSF-III. At a cut-off score of three on the MHSF-III, 98.18% (54/55) of those who screened negative for mental disorder on the ASI-SR screened positive on the MHSF-III. At a cut-off score of six on the MHSF-III, 83.64% (46/55) of those who screened negative for mental disorder on the ASI-SR screened positive on the MHSF-III. Even at a cut-off score of 11 on the MHSF-III, 38.18% (21/55) of those who screened negative for mental disorder on the ASI-SR screened positive for severe mental disorder on the MHSF-III.

Of the significant number of participants who failed to validly complete the ASI-SR, 91% managed to validly complete the MHSF-III. Using a cut-off score of three on the MHSF-III, 95% of participants who failed to validly complete the ASI-SR screened positive for mental disorder on the MHSF-III. Using a cut-off score of six, it was 84% and with a cut-off score of 11, 44% of those who failed to validly complete the ASI-SR screened positive for severe mental disorder on the MSHF-III.

4. Discussion

Our results suggest there are very high levels of mental disorder comorbidity in Australian, alcohol and other drug, residential, treatment services. Sixty-five percent to 98% of participants screened positive to the presence of mental disorder using two screening instruments. A problem emerged with using the ASI-SR in this population. The scoring methodology

employed with the ASI-SR requires all items on the form to be completed for a composite score to be generated. One missing item means the score cannot be generated. In our sample, only 164 of 278 (59%) respondents managed to complete every part of the ASI-SR to enable a score to be generated. This compares to the MHSF-III where 259 of 278 (93.2%) respondents successfully completed the MHSF-III measure. The relatively high frequency of missing data on the ASI-SR measure combined with the limitation of any missing data to generating a score emerged as a major constraint with using a self-report version of the ASI with COD populations in our study. As a consequence of this limitation and the smaller sample size using the ASI-SR measure as a result, the mental disorder estimates from the ASI-SR should be viewed as preliminary only and the mental disorder estimates from the MHSF-III are to be preferred. It is recommended the ASI should be administered in its interview format to this population in the future.

Estimates based upon previous psychometric validation research conducted upon the MHSF-III suggest diagnosable general Axis I mental disorder comorbidity exists in between 64% and 71% of clients in those services. Severe mental disorder is estimated to be present in 40% of clients. This represents a significant increase in psychological comorbidity compared to the figures reported from thirty years ago (see Jainchill, 1994).

Previous research on the MHSF-III reported three different cut-off scores at which general and severe mental disorder may be indicated (see Sacks et al., 2007). AOD treatment services must weigh up the relative costs and benefits related to correctly identifying the maximum number of clients with mental disorder comorbidity with the increased costs from initiating further assessment

of the false positives that a more sensitive cut-off score also returns. If the overall true prevalence of mental disorder in a sample is high then a low cut-off score that provides the highest sensitivity (for e.g., 90%) will provide the most accurate estimate of mental disorder (71% in our study) (Gordis, 2004). Accordingly, our research suggests a cut-off score of three on the MHSF-III is most appropriate for AOD services unwilling to allow clients with current COD to fall through the cracks of screening given the serious consequences that correlate with untreated COD. This is because a cut-off score of three affords maximum (90%) sensitivity and is most unlikely to miss mentally disordered cases. If true prevalence is not that high and/or services wish to limit false positives for cost or other reasons such as limited access to further mental disorder assessment and follow up, then a cut-off score of six may be preferred with its increased ability to rule-out false positives (with a higher specificity of 67.5%) at the expense of lesser sensitivity (75%). In our sample this cut-off score provided an estimate that 64% of clients had a co-occurring mental disorder. The higher cut-off score used to generate this estimate is likely to result in fewer false positives but slightly lower overall accuracy. At the other end of the scale is the cut-off score of 11 recommended as indicating severe mental disorder such as major depression, bipolar disorder and schizophrenia. Services that are interested in identifying the most severe of mental disorder may choose this cut-off score. In our sample this reduced the number of clients identified to 40%.

A significant number of clients screened negative for mental disorder on the ASI-SR but screened positive on the MHSF-III. Ninety-five per cent, 84% and 44% respectively at cut-off scores of 3, 6 and 11 on the MHSF-III. These results could be interpreted in two ways. The difference in estimated lifetime-prevalence and

30-day prevalence of COD may reflect that fact that some individuals made a recovery from mental disorder. Alternatively, the discrepancy may suggest the ASI-SR with its truncated taxonomy of mental disorder symptoms lacks sensitivity to detect a broad spectrum of mental disorder in this population, as suggested by previous research (see Doub, 2001). A further complication was the low valid response rate returned on the ASI-SR. It appears the self-report format of the ASI-SR may be a limitation that could see significant comorbidity missed in this population. The interview version of the ASI needs to be tested in conjunction with the MHSF-III in order to confirm whether it is the self-report version or something inherent in the items that raises the risk of missing comorbidity.

Another notable finding was the high frequency of symptom endorsement. Clients across the entire valid sample of MHSF-III responses (N = 259) reported experiencing over 10 symptoms of mental disorder on average. This high frequency of symptoms represents a significant departure from previous research using this measure. The original validation study conducted upon the MHSF-III in a long-term, residential, therapeutic community program for substance abuse in New York reported a mean MHSF-III total score of just 5.1 (SD = 4.0) (Carroll & McGinley, 2001). More recently in a prison substance abuse setting the average MHSF-III total symptom endorsement score was again only 4.2 (SD = 4.3) (Ruiz, Peters, Sanchez, & Bates, 2009). Our mean MHSF-III total symptom endorsement score is double these previously reported figures. This result suggests clients in residential, AOD treatment services in Australia may be presenting with higher rates of psychological comorbidity than was previously

the case, representing a hard core of people who suffer from multiple co-occurring disorders (see Jainchill, 1994; Ross et al., 2005).

The breakdown of symptoms experienced by clients in Australian, residential, AOD treatment services was very different from epidemiological surveys in the general population. For example, over 35% of participants indicated that they had heard voices no one else could hear or had seen objects or things that others could not see. Seventy percent of participants endorsed the Delusional Disorder symptom question, indicating they had felt that people may have something against them without them necessarily saying so or that some person or group may be influencing their thoughts or behaviour. It is unclear whether these are positive symptoms associated with a psychotic disorder or secondary to drug use. A structured clinical interview would be needed to clarify this issue further, but the potential that psychotic disorders are on the rise in this population is clearly indicated. Many screening measures fail to screen for "lower prevalence" disorders and may fail to identify these clients in need of further assessment (for e.g., Goldberg et al., 1997; Kessler et al., 2002; Lee et al., 2007). Both the unexpectedly high prevalence of symptom endorsement in this population and a breakdown of symptom endorsement that is potentially indicative of very severe psychiatric disorder have implications for residential treatment services. Our estimates suggest the need to use measures that screen for lower prevalence disorders such as psychotic disorders. If these disorders are found in this population at anything like the rate estimated, much greater access to psychiatric services is needed among residential AOD treatment services.

When high-prevalence affect and anxiety disorders are considered, they too are more prevalent in our Australian residential AOD treatment sample than in the general population (see Slade et al., 2009). Almost 80% of participants indicated they had major symptoms of depression and almost half (45.8%) of the participants indicated they had attempted to commit suicide previously. Symptoms of a manic episode had been experienced by 62.8% of participants and when combined with positive responses to the depressive disorders symptom question, 53.1% or more than half of participants screened positive for possible bipolar disorder. Three-quarters (75.5%) of Australian, AOD, residential treatment clients endorsed experiencing symptoms of panic disorder. All of these results represent a significant increase in psychiatric comorbidity when compared to the therapeutic community studies of the 1970s and 1980s (see Jainchill, 1994).

It has previously been noted chemically dependent persons present with a variety of disorders across a wide spectrum of diagnoses (Carroll & McGinley, 1998). Ross et al., (2005) found that those with heroin substance use disorder in residential treatment represented a hard core with significantly greater levels of psychiatric comorbidity even when compared with heroin users in other treatment modalities (Ross et al.). Our results accord with this previous research and suggest the same is true for a broader range of substance-disordered clients in residential treatment. This highlights the need for greater access to specialist psychiatric services within this population. Clearly more research using structured clinical interviews is needed in this area to definitively identify the needs of this population.

Conclusions

Axis I mental disorder comorbidity is estimated to exist at high rates (64%-71%) in Australian, residential, alcohol and other drug, treatment populations. Much higher than the rate reported thirty years ago (33.7%) (see Jainchill, 1994). Australian, residential, AOD treatment populations endorse a large number of mental disorder symptoms from a wide spectrum of mental disorders when surveyed with short screening instruments. Psychotic disorders may be present in this population at a much higher rate than reported previously in either treatment or non-treatment populations (see Jainchill, 1994). Comprehensive mental disorder assessment with structured clinical interviews is necessary to accurately ascertain the identity and needs of this population.

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