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Point prevalence and patterns of mental health comorbidity among people accessing Australia's first older adult−specific alcohol and other drug treatment service

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Title: Point Prevalence and patterns of mental health co-morbidity among people accessing Australia's first older adult-specific Alcohol and Other Drug treatment service

Short Title: Dual Diagnosis among older adults

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Abstract

Objective: There is good data regarding the prevalence and patterns of dual diagnosis among the general population; however, data regarding the older adult cohort is limited. We aimed to extend the knowledge of the point prevalence and patterns of dual diagnosis among older adults, and the impact of dual diagnosis on the utilization of Alcohol and Other Drug (AOD) treatment services.

Method: A 12 month medical chart audit of clients discharged from an Australian older adult-specific AOD treatment service. Measures included the Alcohol Use Disorders Identification Test - Consumption, the Drug Use Disorders Identification Test- Consumption, the Kesler-10 and the Modified MINI Screen. Additional data collected included mental health diagnoses, number of session types and treatment outcomes.

Results: There were 79 (n=45, 57% male) medical charts audited with a mean age of 65.9 years (*SD*=5.8). There were 68 (89%) clients having at least one co-morbid mental illness. Clients with a dual diagnosis were younger (p=0.011) than those without. Some co-morbid mental health conditions were associated with additional service utilization (p<0.05). Clients with personality disorders required more telephone calls and outreach services (p<0.05). The number of mental health diagnoses was associated with additional treatment sessions (p<0.05).

Conclusions: Further research with a larger sample size of older adults seeking age-specific AOD services is required. Older adult-specific AOD services need to allow for longer episodes of care for clients with certain dual diagnoses and a focus on reducing anxiety to increase treatment retention.

Key Words: older adults, alcohol treatment, drug treatment, service utilization, dual diagnosis

Point prevalence and patterns of mental health co-morbidity among people accessing Australia's first older adult-specific Alcohol and Other Drug treatment service

People with dual diagnoses have higher mortality rates, can be difficult to engage in treatment and are more likely to relapse (Teesson et al., 2015; Teesson & Proudfoot, 2003). The impact dual diagnosis has on older adult treatment service utilization might be significantly greater than that of adult treatment services, given older adults have additional medical co-morbidities, reductions in activities of daily functioning and polypharmacy (Hurnall et al., 2015). Given the aging population, even if rates of mental health do not rise, the number of older people requiring mental health services will increase. Recent figures also show significant increases in the use of alcohol and cannabis among older Australians (Australian Institute of Health and Wellbeing, 2014). This suggests there is the potential for the proportion of older Australians with dual diagnosis to increase. There is a need for greater understanding of dual diagnosis among older adults, in light of a paucity of research into dual diagnosis among this age group compared to others (Searby, Maude, & McGrath, 2015).

Estimated dual diagnosis rates among older adults have varied. A retrospective 12-month medical chart audit of 101 patients aged over 50 who were discharged from three USA psychiatric hospitals, found 38% of patients experienced a mental health disorder within the past 12 months, and met DSM-III-R criteria for Substance Abuse (Blixen, McDougall, & Suen, 1997). The most common substance used was alcohol, though a third of patients also used other substances. Major depressive disorder (71%) was the most prevalent mental health condition, followed by dementia (11%) and bipolar disorder (8%). Lower rates have been reported in Australia. Searby, Maude and McGrath (2016) found up to 16% of patients within an Australian Aged Psychiatry Unit had a co-morbid substance use disorder. These findings were limited by the study methodology. The audit-recording template was designed to monitor performance indicators and contained minimal information about previous Alcohol and Other Drug (AOD) use (Searby et al., 2016). Only one study has examined the prevalence of dual diagnosis among older patients (*M*=53.9, *SD*=4.01 years) accessing AOD services. However, these patients were receiving opiate maintenance therapy, not direct treatment (Rosen, Smith, & Reynolds, 2008).

The primary aim of the present study was to understand the prevalence and patterns of dual diagnosis among older Australians seeking AOD treatment at an older adult-specific service. A secondary aim was to understand the impact that dual diagnosis had on service utilization.

Method

This study was a retrospective medical chart audit undertaken at Peninsula Health, Victoria. The study was conducted in accordance with the Declaration of Helsinki and waiver of consent approved by Peninsula Health's Human Research Ethics Committee (LRR/16/PH/14). No identifying information was collected as part of this audit.

Participants and Setting

The medical charts were audited of all community dwelling clients who attended, and were discharged between June 2015 and June 2016 from an older adult-specific AOD treatment service. This service is the only older adult-specific AOD service in Australia. It was established in 2009 in response to an international increase in the number of older adults seeking treatment for substance use disorders (Center for Substance Abuse Treatment, 1998). Staffing of the service includes nurses and counsellors providing outpatient withdrawal, brief interventions, longer term counselling and referral to in-patient services. Outreach services are incorporated to meet specific needs with treatment episodes ranging between 1 and 18 months.

Procedure

A data collection sheet was developed with program staff. Two nurses and two counsellors from the service conducted the chart audits; with an external senior clinician (SB) overseeing the data collection. The senior clinician crosschecked any outlying cases and ensured data entry consistency when queries regarding anomalous information emerged. This ensured accurate data extraction. Recorded demographic information was extracted, including age, gender and drug for which clients were primarily seeking treatment. The Alcohol Use Disorders Identification Test – Consumption (AUDIT-C) was used to determine severity of use for clients seeking treatment for alcohol (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). The AUDIT-C has published validity and reliability measures of alcohol consumption, and performs better psychometrically for older adults than the full AUDIT (Berks & McCormick, 2008). For people seeking treatment for other drugs, severity of use was determined with the Drug Use Disorders Identification Test – Consumption (DUDIT-C). The DUDIT-C is an adaptation of the AUDIT-C (Berman, Bergman, Palmstierna, and Schlyter 2003), with satisfactory psychometric properties across a range of populations (Hildebrand 2015). The reported type and number of mental health diagnoses, together with whom made the diagnosis (e.g. Primary health care physician, Psychiatrist, Psychologist or self-reported) were extracted, together with the Kessler-10 (K-10) (Kessler et al., 2002), and Modified MINI Screen (MMS) (OASAS, 2005). The K-

10, a validated measure of recent psychological distress among people with a substance use disorder (Hides et al., 2007), and the MMS (OASAS, 2005) were used as an indicator of mental illness. The MMS was developed based on the Mini International Neuropsychiatric Interview (Sheehan et al., 1997) and has good internal consistency, test-retest reliability, sensitivity (81.9%) and specificity (61.4%) of predicting the presence of a DSM-IV-TR disorder with a cut off score of 6 (Alexander, Haugland, Lin, Bertollo and McCorry 2008). The number of telephone, outpatient and outreach sessions were extracted as a measure of treatment utilization and these were considered as an approximate proxy for treatment duration.

Data Analysis

Demographic data were explored as frequencies (%) and means (SD). Logistic regression analyses determined any differences between groups with and without dual diagnosis. Linear regression analyses determined any association between the number of diagnoses and service utilization. Univariate and multivariable regression analysis determined which variables were associated with treatment completion. The whole of data set was included within the analysis and there was no imputation of missing variables. Data were analyzed with Stata 13 (StataCorp, 2013).

Results

A total of 79 (n=45, 57% male) medical charts were audited. The males had a mean age of 65.5 years (*SD*=4.8) and the females, 66.4 years (*SD*=6.8). Clients had between 1 and 27 sessions (*Median*=6, *IQR*=6).

Substance Use

At service intake, 91% (*n*=72) of clients sought treatment for alcohol and had a mean AUDIT-C score of 11.3 (*SD*=1.3). Four of these clients reported cannabis to be their secondary drug of choice with a mean DUDIT-C score of 6.5 (*SD*=3.4), and two reported benzodiazepines to be their secondary drug of choice with the mean DUDIT-C score being 2.5 (*SD* =3.5). Meanwhile, 5% (*n*=4) were primarily seeking treatment for cannabis and had a mean DUDIT-C score of 6.5 (*SD* =3.1). Of these clients, three admitted to a secondary drug of choice, including benzodiazepines and amphetamines. Additionally, one client primarily sought treatment for prescription opioid dependence (DUDIT-C=7) with benzodiazepines a secondary drug of choice, one for benzodiazepine dependence (DUDIT-C=1) with no secondary drug of choice, and one for amphetamine use disorder (DUDIT-C=10) with cannabis noted as a secondary drug of choice.

Mental Health

At intake, 89% (n=70) of clients had at least one co-morbid mental health disorder. In 99% (*n*=78) of cases, the diagnosis of the mental health disorder/s was made by either a primary health care physician (43%, n=34), psychologist (23%, *n*=18) or within the public mental health system, including a psychiatric assessment (20%, *n*=16). In 5% (*n*=4) of cases, the diagnoses was made by more than one health professional. Table 1 describes the specific mental health disorders of the population.

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Dual Diagnosis

Table 2 reports the differences between clients with and without dual diagnosis. Clients with dual diagnosis were younger (p=0.011) and had higher K10 scores (p=0.010). There was a high prevalence of clients with dual diagnosis with more than single mental health diagnoses in this cohort. Linear regression determined more diagnoses were directly associated with more treatment sessions (see Table 3, p=0.014). There was no one treatment session type (outpatient, outreach or telephone) utilized more for clients with dual diagnoses (p>0.05).

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TABLE 2 & 3 ABOUT HERE

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Differences in treatment utilization among clients with different types of mental disorders were explored. Clients with post-traumatic stress disorder (p=0.012), bipolar disorder (p=0.009) and personality disorders (p=0.011) were all individually associated with requiring more treatment sessions. Diagnoses and their association between different types of treatment environments were explored with multivariable logistic regression. It was found that the diagnosis of post-traumatic stress disorder was associated with more telephone sessions (p=0.010), while diagnosis of personality disorders, was associated with more telephone (0=0.023) and outreach (p=0.012) sessions (Figure 1). There was an overall increase in the number of sessions for clients who had a bipolar disorder, though no one session type was used greater than any others.

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INSERT Figure 1

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There were 78% (*n*=61) of clients who completed treatment, 6% (*n*=5) left by mutual agreement, 12% (*n*=10) ceased engagement and 3% (*n*=3) died during the course of treatment. There were no

differences between clients with or without a dual diagnosis in treatment completion (p=0.36), but the MMS anxiety subscale was associated with non-completion of treatment (p=0.029) for all clients.

Discussion

These results show a significantly higher prevalence of dual diagnosis among older adults accessing AOD treatment than past audits of mental health services (Blixen et al., 1997; Searby et al., 2016). Previous audits found 38% of patients meeting the DSM-III-R criteria for Substance Abuse also reported similar rates of depression among patients with a dual diagnosis; however, rates of dementia were higher in that population (Blixen et al., 1997). Despite other studies' methodological limitations, being younger was a common factor in people accessing psychiatric services with a dual diagnosis (Searby et al., 2015). The prevalence of dual diagnosis in Searby et al (2015) was higher than Rosen et al (2008), with participants receiving opiate replacement maintenance therapy; however, the most common diagnoses were similar.

The age differences between groups may be due to higher rates of mortality among people with a dual diagnosis (Teesson et al., 2015; Teesson & Proudfoot, 2003). Previous research found that in two thirds of the people who were diagnosed with a substance use disorder, this diagnosis occurred before the age of 65 (Liberto & Oslin, 1995). Previous medical intervention for dual diagnosis was not collected within this present study, therefore it is not possible to state if this was also the case with this cohort. The Victorian Dual Diagnosis Initiative commenced in 2001 in Australia, and did not gain significant traction until after 2007 (Department of Human Services, 2007). This local service infrastructure may indicate that enhanced service capacity is required to work with clients who have dual diagnoses. This would ensure early treatment of both disorders, thus reducing the high incidence of dual diagnoses among older adult clients. We had no way of determining the age at which clients were first diagnosed with mental health problems or substance use disorders as this was not routinely collected at our service. Future research should examine age of onset to understand the impact of existing service enhancements.

While having a dual diagnosis did not predict additional service utilization, certain mental health conditions did. For example, clients with bipolar disorder required an increased total number of sessions, though the session type was not a factor. Clients with post-traumatic stress disorder and personality disorder required different session settings and more sessions. This suggests that some older adults with dual diagnoses require longer episodes of care which has implications for funding.

All clients with higher levels of anxiety at service intake were less likely to complete treatment, as indicated by the association between a high MMS anxiety subscale and attrition. This finding is incongruent with studies into younger populations. Pagnin, de Queiroz, and Saggese (2005) found high anxiety to be a predictor of AOD treatment adherence. Many of the older adults accessing the service reported having had little previous exposure to counselling. This suggests that when older adults with high levels of anxiety present, additional work may be required to build rapport and focus on anxiety reduction strategies.

The small sample size of clients with and without a dual diagnosis was a limitation of this audit. This sample size disparity potentially introduced a Type II error meaning that potentially significant relationships were not found due to a lack of statistical power. Future research of older adults accessing AOD services should recruit larger sample sizes. This is problematic within Australia due to there only being one specific service, therefore international collaboration would be required.

Conclusion

In conclusion, we have described the prevalence and patterns of dual diagnoses among clients accessing an older adult-specific AOD treatment service. It highlights that rates of dual diagnoses may be higher in older adults seeking AOD services. Additionally, clients with some mental health conditions require specific service settings. It also highlights the importance of focusing on anxiety reduction techniques among older people who screen high on anxiety measures to improve their treatment engagement.

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Figures and Tables

Table 1. Prevalence of mental health condition among the sample. Mean scores are reported with Standard Deviations in brackets.

	Total n(%)	AUDIT – C Mean (SD)	DUDIT-C Mean (SD)	K-10 Mean (SD)
Anxiety	42 (53%)	10.80 (2.99)	1.22 (2.81)	32.65 (8.18)
- GAD	39 (49%)	10.70 (3.06)	1.31 (2.89)	32.70 (8.33)
- PTSD	7 (9%)	10.57 (3.78)	1.00 (2.65)	35.00 (9.82)
- Social Phobia	3 4%)	8.67 (5.77)	2.33 (4.04)	31.00 (10.44)
- Panic Disorder	1 (1%)	12 (N/A)	0 (N/A)	27 (N/A)
Depression	53 (67%)	10.78 (2.81)	1.34 (3.01)	29.44 (10.32)
Bipolar Disorder	7 (9%)	11.14 (2.27)	0.86 (2.27)	29.02 (11.90)
Schizophrenia	1 (1%)	10 (N/A)	0 (N/A)	21 (N/A)
Dementia	1 (1%)	8 (N/A)	0 (N/A)	10 (N/A)
Personality Disorder	8 (10%)	8.75 (4.92)	2.43 (4.24)	31.13 (8.69)

Note: AUDIT-C = Alcohol Use Disorders Identification Test, DUDIT = Drug Use Disorders Identification Test, K-10 = Kessler 10, GAD = Generalised Anxiety Disorder, PTSD = Post traumatic stress disorder

Table 2. Logistic regression analysis of differences between clients with and without dual diagnoses.

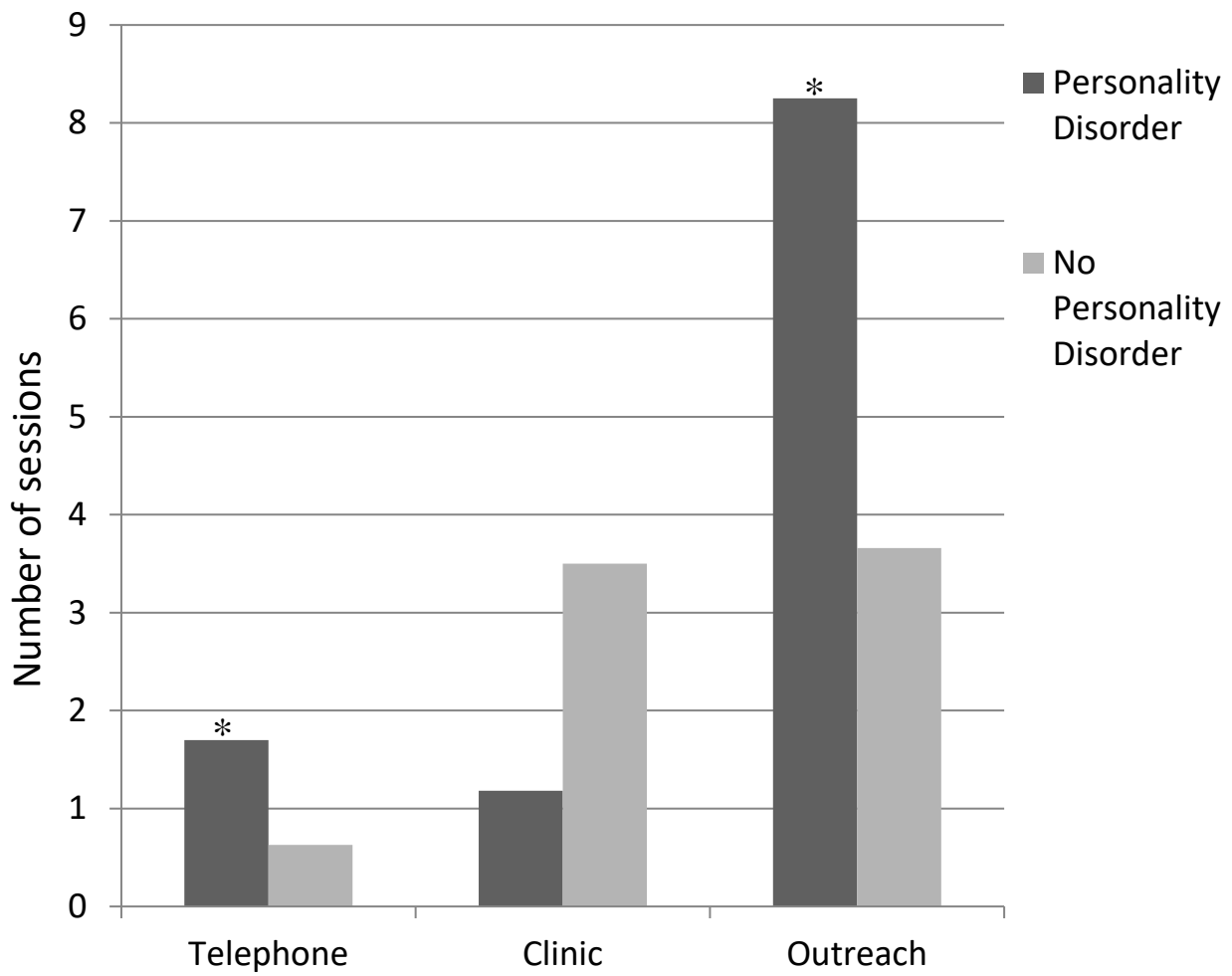|	Without Dual Diagnosis Mean (SD) or n (%)	With Dual Diagnosis Mean (SD) or n(%)	OR, [95% CI], p
Male	7 (9%)	38 (61%)	1.90, [-0.79, 2.1], 0.379
Age	70.80 (7.76)	65.19 (5.01)	0.87, [-0.25, -0.03], 0.011
AUDIT-C	10.16 (3.72)	10.34 (2.91)	1.01, [-0.15, -0.25], 0.620
DUDIT-C	1.11 (3.14)	1.16 (2.76)	1.01, [-0.25, 0.26], 0.959
K10	18.98 (13.34)	29.29 (10.36)	1.12, [0.03, 0.19], 0.010

Note: AUDIT-C = Alcohol Use Disorders Identification Test, DUDIT = Drug Use Disorders Identification Test, K-10 = Kessler 10, OR = Odds Ratio, CI = Confidence Interval

Table 3. Frequency of dual diagnoses and association between dual diagnoses numbers and treatment sessions

	Number (%)	Association between number of diagnoses and treatment sessions Coef, [95% CI], p
One diagnosis	70 (89%)	0.14, [0.03, 0.25], 0.014
Two diagnoses	22 (28%)	
Three diagnoses	23 (29%)	
Four or more diagnoses	12 (18%)	

Note: Coef = coefficient, CI = Confidence Interval

Figure1. Mean number of telephone, clinic and outreach sessions for clients with and without a personality disorder

Note: * = p < 0.05