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Retrospective study

A Retrospective Study to Determine the Impact of having a Dual Diagnosis for Patients who are on the Opioid Treatment

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Abstract

Introduction: Dual Diagnosis (DD) is the condition of suffering from a mental illness and a co-morbid substance use disorder. This presents a challenge in daily clinical practice. DD patients have been found to have more complications and poorer outcomes compared to patients with a single disorder. The aim of the study was to determine the prevalence of co-morbid mental disorders among patients on an Opioid Treatment Program (OTP) and the impact of having DD on employment and incarceration. Comparison was also made between patients with and without DD on their duration of stay on OTP.

Settings: Data was collected from two outpatient OTP clinics at the Alcohol and Other Drug Services (AODS) at the Gold Coast Health and Hospital Service (GCHHS).

Methods: This study was a retrospective chart review of 122 new referrals to AODS at the GCHHS between 01/01/15 to 31/12/2015.

Findings: The prevalence of co-morbid Axis 1 or Axis 11 disorders (DSM-1V TR) was 67.2% among patients on the OTP. 81.1% of OTP patients were unemployed. There was a significant difference between the duration of stay on the OTP for patients with DD and without DD ($p<0.025$). 89% of patients who disengaged from OTP had DD.

Conclusion: DD is an evolving field as shown by the high prevalence of co-morbid mental disorder among the patients on OTP. DD is associated with poorer outcomes and further research is required in understanding casual relationships and developing effective prevention, treatment and recovery strategies.

Keywords: Co-morbidity; Dual diagnosis; Incarceration; Opioid treatment program; Substance use disorder

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Background

Dual Diagnosis (DD) is the co-occurrence of mental illness and a substance use disorder. DD is often associated with high rates of continued substance use, greater psychological impairment and increased utilization of services [1,2]. This is now recognised as a major problem of patients receiving care from both mental health and AODS [3]. DD is associated with more severe symptoms, higher relapse rates, higher service use, poorer treatment outcomes and a strong association with violence and suicide [4-8]. Historically, people have found many barriers to accessing both mental health and substance abuse services and may not receive help from either service [9]. In comparison to non-DD patients, DD patients are more prone to complications and are at greater risk of adverse outcomes from poor personal hygiene, medication non-adherence, in addition to their psychiatric symptoms and their limited protective factors. DD patients often need more intense case management due to the complexity of their cases which is impacted on by the severity of their illness and drug use as well as the psychosocial impact of both diagnoses.

Studies of psychiatric co-morbidity in opioid abusers suggest that up to 80% of patients meet the criteria for at least one non-substance use disorder during their lifetime while current figures for psychiatric co-morbidity have been reported in 30%-70% of the patients [10-12]. Depression and antisocial personality disorder are the most common psychiatric diagnoses reported in patients dependent on opioids followed by dysthymia and anxiety disorders [10].

Substance use is common in the general population. The National Drug Strategy Household Survey of 2007 found that, in an Australian sample of 23,356 (of over 14 years old), 44.6% had smoked tobacco, (19.4% in the past 12 months); 89.9% had tried alcohol, (82.9% in the past 12 months); 38.2% had used an illicit drug (13.4% in the past 12 months), 9.1% Cannabis (THC), 3.9% prescription medication, 3.5% ecstasy and 2.3% amphetamines [13]. The prevalence of substance use is higher in people with severe mental health problems, with approximately 50% having had problems relating to their substance use and a quarter to a third having a current problem [14].

There have been many studies showing a much higher incidence of substance misuse in people with psychosis [14]. The Epidemiolog-

ical Catchment Area (ECA) study found that in patients with schizophrenia, the odds of having an alcohol use disorder were three times higher and another drug use disorder six times higher, than for the general population [15]. The odds were five times higher and eight times higher in patients with bipolar disorder. An Australian study of community patients with schizophrenia showed a lifetime use of any substance of 59.8%, with a 26.8% use in the past 6 months (mainly alcohol and cannabis) [16]. The same ECA study reported that 47% of people with schizophrenia misused substances: (including alcohol -37%, cannabis -23% and stimulants or hallucinogens -13%) [15]. Of those with an affective disorder, 32% had a co-morbid substance use disorder. The lifetime prevalence of alcohol dependence or misuse in those with social anxiety disorder was, 22%, while among the opioid dependent population, lifetime prevalence of anxiety disorders were 6.1% in men and 10.7% in women.

Conversely, mental health problems are common in people involved in substance use. The ECA study found that of people abusing alcohol, 37% had a mental illness [15]. Of these, 12% had a mood disorder and 29% had an anxiety disorder (the most common was post traumatic stress disorder-PTSD at 5.6%). Antisocial personality disorder co-occurred in 14%. Of people with drug disorders, 53% had another mental health problem; 28% anxiety disorder, 26% mood disorder and 18% had antisocial personality disorder.

Objectives of the Study

The aim of the study was to determine the prevalence of a co-morbid mental disorder among patients on OTP, and the impact of DD on employment and incarceration. We also looked at the duration of stay and hence the engagement of patients with/without DD on the OTP.

We hypothesized that patients diagnosed with a DD would have a lower employment rate and shorter stay/poor engagement on the OTP.

Method

Study population

Newly registered male and female patients on the OTP between 01/01/2015 and 31/12//2015, who were aged 18 and over from all ethnic groups were included in the study. Patients who were less than 18 years old were excluded from the study.

Study setting/location

For this study, patients were recruited from two outpatient OTP centres located at the AODS in central GCHHS and southern GCHHS. On average, there are about 100-120 new registrations on the OTP each year for both clinics.

Study design

This study was a retrospective chart review of all new referrals (registered on OTP) at AODS at the GCHHS between 01/01/2015 to 31/12/2015. Referrals came from GPs, private and public hospitals and self-referrals. No measurement tools were used. All data were de-identified and only the diagnoses, demographics and length of stay were extracted. The first author collected the data from the patients' charts.

Data analysis

Statistical analysis was completed using SPSSv23 computer database software. In order to determine whether there were differences in ages, sex, employment status and mental health diagnoses affected their length of stay on OTP, statistical tests were applied (Chi squared for sex, age, employment status and DD status). As multiple tests were applied, adjustment was made for the P value to reduce the risk of type 2 error. Comparative analysis using independent t-test given the Gaussian distribution was also performed to investigate the length of stay on the OTP in relation to patients who had no dual diagnosis versus patients who had a dual diagnosis.

Ethics approval

Consent was not required as this was a retrospective chart review. Ethical approval was obtained from the Gold Coast Research Clinical Governance Committee. Approval was granted to access data contained in consumer files under the Queensland Health Public Health Act.

Results

A total of 122 charts were reviewed. 94 patients (77%) were between 26-50 years. 6.6% were between 18-25 years and 16.4% were more than 51 years old, of those 60.7% were males and 39.3% were females (Table 1). At the time of registration to the OTP, the majority of the patients were unemployed (81.1%) versus employed (18.9%) (Table1). Interestingly, 73.7% of the DD patients were unemployed compared to only 7.4% non DD patients were unemployed.

The main opioid medication that patients were commenced on after registration with the OTP was the compound medication Suboxone TM (buprenorphine and naloxone). GCHHS uses Suboxone TM as first line treatment policy due to its relatively lower rate of diversion. Methadone was commenced on patients who were allergic to Suboxone TM. Buprenorphine alone (Subutex) was commenced on seven patients who were allergic to Suboxone TM and one patient who was pregnant (Table 1).

Demographic variables	N=122
Age	
Less than 25 years	8 (6%)
26-50 years	94 (77%)
More than 50 years	20 (16.4%)
Gender	
Male	74 (60.6%)
Female	48 (39.4%)
Employment	
Employed	23 (18.9%)
Unemployed	99 (81.1%)
OTP Medications	
Suboxone TM	85 (69.6%)
Methadone	30 (24.5%)
Subutex	7 (5.7%)

Table 1: Demographics and clinical data of the sample.

Assuming unequal variances, T test showed that DD has a significant effect on the length of stay in the OTP program (Table 2).

		No of Patients	% Patients	OTP Stay in Months (Mean)	P Value
DD	Yes	88	72.1	5.3	0.007
	No	40	27.9	6.5	

Table 2: Effect of having dual diagnosis on length of engagement in OTP.

Chi square test was used for multiple variable data analysis. P value was adjusted to p=0.01 to minimise the risk of type 2 error. Analysis showed DD had a significant effect on patient's employment status. Analysis also showed age was also a significant factor, where 77.8% of less than 25 year old group having a DD (Table 3).

At the time of registration to the OTP, 81 patients (66.3%) had DD and 41 patients (33.6%) did not have a dual diagnosis. In our study 32% patients were diagnosed with either generalised anxiety disorder, major depressive disorder or both generalised anxiety disorder and major depressive disorder [17]. However, major depressive disorder as a single co-morbidity was found in only 4.1% of opioid users (Table 4). Our study found a low rate of anxiety disorders (panic anxiety, phobic disorder, obsessive compulsive disorder), psychotic illnesses including mania, schizophrenia and personality disorder than previous studies (Table 4).

Patients without DD had a significantly longer duration of stay in the OTP ($p<0.05$). 71.5% patients who did not have a DD completed the OTP successfully. Only 28.5% patients with DD completed OTP successfully.

1-Duration of stay with Dual Diagnosis, 2- Duration of stay without Dual Diagnosis, Durtn Stay- Duration of Stay, D/D- Dual Diagnosis.

The stem and leaf plot in figure 1 demonstrates that patients with Dual diagnosis had a shorter mean duration of engagement with OTP however the overall range was comparable in both categories.

Stem-and-Leaf Plots

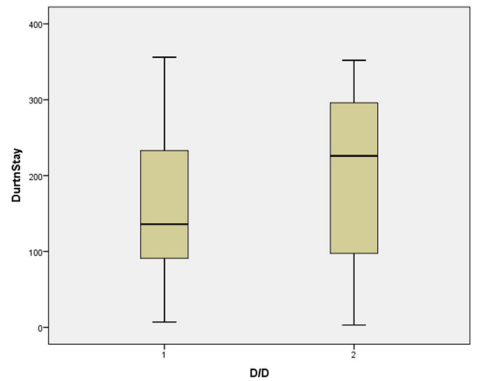

Figure 1: Box plot displaying the distribution of data for the variable, duration of stay, for patients with or without a dual diagnosis.

The reasons for patients leaving the OTP provided some understanding of the impact of having a DD (Table 5).

- Twelve patients left the OTP prior to completion due to mental health reasons, either due to relapse, admission or aggression
- Of the patients who did not attend at all the OTP (17/19); 89.4% had a dual diagnosis

Discussion

Our study showed a higher rate of (67.2%) DD patients on OTP compared to previous studies. Two studies by Brooner et al., reported psychiatric co-morbidity of 37% and 47% respectively among patients on OTP [18,19]. Similarly, Rouser et al., reported that 39% of OTP patients had a co-morbid psychiatric diagnosis [20]. Other studies including Kessler et al., Dake et al., Limbeek et al., reported 50%, 60% and 85% additional psychiatric co-morbidity in their opioid dependent population respectively [11,12,21]. In contrast to other studies Merikan et al., and Musharaf and Rehman et al., reported less than 10% psychiatric co-morbidity in their samples [22,23]. There can be several reasons for these wide variations, including widely different populations studied by different authors, use of different diagnostic criteria and the heterogeneous settings in which the studies were conducted.

Prior studies have shown higher rates of depression among opioid users. Findings of Limbeek et al., [16], Regier et al., and Rounsaville et al., reported a high figure of around 48% with major depression in their samples [24,25]. In our study, the rate of MDD was 4.1% among OTP patients. Although Musharaf and Rehman et al., reported a much lower figure of less than 2% in their study, it has to be noted that the Musharaf and Rehman et al., study was a retrospective study based on case notes which could have inherent problems. These studies indicate that about one third of patients suffering from opioid dependence have additional depressive illness. These findings support the hypothesis of a relatively high prevalence of psychiatric co-morbidity among people dependent upon opioids seeking treatment [11].

The studies done by Brooner et al., Khan M and Rehman A et al., and Regier DA et al., have shown anxiety and psychotic disorders to be less associated with opioid dependence than depressive illness [9,18,23]. However the co-morbidity of schizophrenia and substance abuse has attracted considerable attention in recent years with evidence that the rate is rapidly increasing [24,26]. Fowler et al., reported a higher prevalence of about 26% for overall substance abuse in schizophrenia; however, opioid use has been reported in only 2-9% in this population. Similarly Caniwell et al., showed that 7% of the study population with first episode psychosis met the diagnosis of substance abuse including 8.4% with substance related psychotic disorder [10,27]. Our study showed 9.1% with generalised anxiety disorder, Schizophrenia in 8.2% and drug induced psychosis in 1.8% respectively among the opioid users. Most authors agree that substance abuse and schizophrenia are associated not only with violence but also with a number of other problems including poor treatment adherence , an increased suicide risk, increased rates of hospital admission and Human Immunodeficiency Virus (HIV) infections [24].

Similarly, personality disorder has been a co-morbid diagnosis in excess of 30% in many studies [9,11,19-21]. Dake et al., even reported a figure of 60% in their study [21]. In our study the percentage of ASPD ad BPD were 11.0% and 8% respectively (Table 2).

This study highlights the high prevalence of psychiatric co-morbidity in patients with opioid dependence with GAD and ASPD being the highest. As hypothesized our study showed a high unemployment rate 81.1% among the OTP patients but with a low incarceration rate. These results are in keeping with prior similar studies by Griffin et al., which showed an unemployment rate of 62.8% and Bennningfield et al., showed an unemployment rate of 77%. The incarceration rate in Benningfield et al., showed a lower rate of 19.5%. This is possibly due to a different population (American pregnant women). As hypothesized our study showed a shorter duration of stay on the OTP for patients with DD, we were unable to find similar studies comparing duration of stay on OTP with or without DD.

Variable		Number Patients	% Patients	OTP Average Month Stay	DD (n)	DD (%)	Chi Square	P Value p<0.01
Age	<25	9	7.4	4.1	7	77.8	9.53	0.008523
	26-50	94	77	5.6	68	72.3		
	>50	19	15.6	6.7	7	36.8		
Gender	Male	74	60.6	5.4	42	56.8	4.3859	0.3627
	Female	48	39.4	6	40	83.3		
Employment	Yes	23	18.9	5.6	8	34.8	13.5271	0.0002
	No	99	81.1	5.7	74	74.7		

Table 3: Effect of multiple demographic variables on duration of engagement with OTP patients who have a dual diagnosis.

Generalised Anxiety Disorder (GAD)	11 (9%)
Schizophrenia	10 (8.2%)
Drug Induced Psychosis	2 (1.8%)
Bipolar Affective disorder	7 (5.7%)
Major Depressive Disorder (MDD)	5 (4.1%)
Post Traumatic Stress Disorder	2 (1.6%)
Post Natal Depression	1 (0.8%)
Anti-Social Personality Disorder	11 (9.0%)
Borderline Personality Disorder	9 (7.4%)
GAD + MDD	23 (18.9%)

Table 4: Mental Health (MH) diagnoses.

Reasons Given	N=122
Mental health reasons	12 (9.8%)
Transfer to another service	14 (11.5%)
Did not attend	19 (15.6%)
Incarceration	4 (3.3%)
Completed detox	7 (5.7%)
Remained registered in OTP	66 (54.1%)
Total	122 (100%)

Table 5: Reasons for patients leaving OTP.

The most common co-morbid mental disorders are major depression and anxiety. Detection and treatment of these conditions has a significant preventative role in the management of opioid dependence. It appears that in clinical practice most of these cases go undetected even in the tertiary care units as was the case in these centres. Appropriate treatment of mood disorders can potentially help to decrease the severity, duration and complications of drug dependence. This suggests the need for psychiatric screening of all patients with opioid dependence who come for detoxification. While the presence a co-morbid mental disorder makes the treatment of drug dependence more difficult, there is also evidence that successful treatment of co-morbid mental disorder improves outcomes in co-morbid substance use disorders, and vice versa [19].

Our study showed that patients aged less than 25 years had a shorter mean duration of stay compared to the patients who were 26 years and older. In less than 25 years age group, larger proportion of patients disengaged from the OTP. This could possibly be due to the fact that younger age group are more likely to disengage due to recurrent illicit substance use. This age group possibly will require several attempts at stabilising on OTP. We could not find other similar studies comparing duration of stay on OTP with DD patients.

Limitations

There were a number of limitations in this study. This was a retrospective study, with information gathered from chart reviews. Results may be influenced by recall bias, although previous work suggests that informants of illicit substance users underestimate psychiatric and substance use problems [25]. Some patients may not have disclosed having a co-morbid mental disorder at the time of the registration due to stigma or for other reasons. It was assumed that patients with DD who disengaged prior to completion of the OTP were due to a relapse of co-morbid mental disorder or admission to mental health units, as the reason for disengagement was not recorded on the charts.

Conclusion

These results show that the presence of a co-morbid mental disorder was associated with poor outcomes in patients enrolled in an OTP, including lower employment, more likely not to attend any sessions and a shorter time to discharge from the OTP. These findings suggest that screening for co-morbid mental disorder at the time of enrolment in the OTP may lead to better outcomes both for mental health and for substance use disorders by targeted treatment of co-morbid conditions.

Detection and treatment of a co-morbid mental disorder has significant preventive role in the management of substance dependence. Therefore, it is necessary for screening all opioid dependent patients for co-morbid mental disorders who come for detoxification is recommended. Timely detection of DD could lead services to link OTP patients to appropriate services (mental health services, dual diagnosis services). It is recommended that training of AODS staff working in the AODS be implemented and screening instruments be used to detect psychiatric co-morbidity.

Conflict of Interest

The authors have no conflict of interest to report in conducting this study.

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