

## *Review Article*

# Substance abuse and Comorbidity

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## Introduction

Comorbidity denotes the presence of a distinct clinical entity that has existed or may occur during the clinical course of a patient having the index disease<sup>1</sup>. The term has also been used for disease or disorder occurring together<sup>2</sup>.

Alcoholics are three times more likely to have another psychiatric disorder<sup>3</sup>. The self medication hypothesis for drug dependence proposed also signifies etiological relationship between the substance abuse and mental disorder<sup>4</sup>.

The importance of this area can be recognized from the fact that nearly one hundred articles on this topic are being published in the indexed journals every year<sup>5</sup>.

## Comorbidity

### Concept and Definition

The term comorbidity is often used interchangeably with the term dual diagnosis disorder, co-occurring illness, concurrent disorders, comorbid disorders, dual disorder and double trouble. Jung, (2001) defined comorbidity as “presence of two or more psychiatric classifications”. Watkins et al., (2001) defined dual diagnosis as “coexistence of mental illness and substance abuse disorders”. “Individuals who have at least one mental disorder as well as an alcohol or drug use disorder, while these disorders may interact differently in any one person.....at least one disorder of each type can be diagnosed independently of the other”<sup>6</sup>.

“Comorbidity” was defined as “any distinct clinical entity that has co-existed or that may occur during the clinical course of a patient who has the index disease under study”<sup>1</sup>. Within psychiatry, comorbidity is commonly used to refer to the overlap of two or more psychiatric disorders<sup>7</sup>.

More recent work in psychology has distinguished between two types of comorbidity.

*Homotypic comorbidity* refers to the co-occurrence of mental disorders within a diagnostic grouping<sup>8</sup>. The co-occurrence of two different substance use disorders (e.g. cannabis and alcohol) is an example of homotypic comorbidity. *Heterotypic comorbidity* refers to the co-occurrence of two disorders from different diagnostic groupings<sup>8</sup>. This might include, for example, the co-occurrence of a substance use disorder and an anxiety disorder.

The term “comorbidity” and its synonyms are used for various combinations. Sometimes, it is used as the comorbidity of mental disorder and mental retardation, alcohol with other drug disorders, two mental disorders or mental disorder with substance abuse or dependence.

Until the publication of DSM-III-R, the presence of concurrent and independent psychiatric disorders was largely ignored. According to DSM-I alcohol addiction couldn't be diagnosed if an “underlying diagnosis” is present. However, most of the hierarchical exclusionary rules used in DSM-II were dropped in DSM-III-R, allowing clinicians to give multiple diagnoses when different syndromes occur together in one episode of illness<sup>9</sup>.

### Concept Of Psychoactive Substance Dependence

As the concepts about the nature of psychoactive substance use disorders have evolved, the terminology has undergone changes. Earlier the terms “addiction” and “habituation” were in common use. In 1964, a WHO expert committee on addiction producing drugs recommended that instead of the use of “addiction” and “habituation” the term “dependence” should be used. This was because “addiction” often has a pejorative connotation and also that they are loose terms referring to variety of behaviors such as solving cross-word puzzles and running.

The meaning of dependence was to be defined

separately for each variety of drugs. DSM-III, published in 1980, provided operational criteria and divided these disorders into two major categories—drug dependence and drug abuse.

An international working group, sponsored by the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA) and WHO, (1980) defined dependence as “a syndrome manifested by a behavioral pattern in which the use of a given psychoactive drug or class of drugs, is given a much higher priority than other behaviors that once had higher value. The term “syndrome” is taken to mean no more than a clustering of phenomenon so that not all the components need always be present or not always present with the same intensity the phenomenon that exists in different degrees.”<sup>10</sup>

The term dependence has usually been used to convey two distinct ideas: a behavioral syndrome and physical or physiological dependence. The ADAMHA-1980 WHO working group recommended restricting the terms “dependence” to the behavioral syndrome and substituting the term “neuro-adaptation” for physical dependence.<sup>10</sup>

## Review of Literature

### Prevalence of Psychiatric Disorders in Patients with Psychoactive Substance use Disorders

The largest study conducted so far has been carried was National Institute for Mental Health Epidemiological Catchment Area [ECA] Programme<sup>11</sup>. They carried out their study in a sample of 20, 291 subjects, used the Diagnostic Interviewing Schedule (DIS) and the DSM-III criteria. Among patients with alcohol dependence 36.6% had a comorbid psychiatric disorders out of which the common disorders were anxiety disorders (19.4%), antisocial personality disorders (14.3%), affective disorders (13.4%), and schizophrenia (3.8%). Among patients of opiod dependence, 65.2% had a comorbid psychiatric diagnosis; 31.6% anxiety disorders, 36.7% antisocial personality disorders, 30.8% affective disorders and 11.4% had schizophrenia.

The design of the ECA was improved upon by researchers who designed and conducted the US National Comorbidity Survey (NCS) in 1992<sup>12,13</sup>. The NCS extended the ECA in the following ways:

1. The NCS used DSM-III-R diagnostic criteria, with some allowance for

comparisons with DSM-IV when it was released, in contrast to the DSM-III criteria used in the ECA;

2. The NCS was designed not only as a study of the prevalence of mental disorders, but also as a study of the risk factors for such disorders;
3. It was a nationally representative sample of US adults, as opposed to the five catchment areas that were used in the ECA; and
4. As the title suggests, one of the NCS primary aims was to explore the patterns of comorbidity between different mental disorders that had been observed in the ECA.

The NCS was designed to explore the prevalence, causes and consequences of comorbidity. The age range (18 to 54 years) used in the study was chosen because comorbidity was found to be most prevalent among this age group in the ECA<sup>12,13</sup>. The NCS was a national survey: participants were selected from the non institutionalized civil population in the 48 contiguous US States, with an additional sample of students from university campus housing. Institutional samples were not selected since the inclusion of such samples in the ECA had not been found to make a substantial difference to prevalence rates of mental disorders<sup>14</sup>. Experienced field interviewers were used in the data collection to ensure that interviews were conducted by competent staff.

A special feature of the NCS was that non-responders to initial interviews were re-targeted for interview to ensure that prevalence estimates were not affected by non response rates. This was because research had suggested that those who refused to participate in surveys had higher rates of mental disorders<sup>12</sup>.

The NCS had a response rate of 83%, with a final sample size of 8,098. The psychiatric diagnoses assessed were DSM-III-R diagnoses of anxiety disorders, mood disorders, substance use disorders and psychotic disorders. The diagnostic interview was the Composite International Diagnostic Interview (CIDI), which was designed for administration by trained interviewers who are not clinicians<sup>12,13</sup>. It was administered by staff at the Survey Research Centre at the University of Michigan between September 1990 and February 1992<sup>12,13</sup>.

### Other Epidemiological Studies

A study was carried out in a sample of 501 psychoactive substance abuse/dependence patients<sup>15</sup>. They used the DSM-III criteria and interviewed patients according to Diagnostic Interviewing Schedule (DIS)<sup>15</sup>. Of the cases of alcohol dependence/abuse 78.1 % had a comorbid psychiatric disorders, out of which 50.7% had generalized anxiety disorder, 30.5% had phobias, 30.3% had psychosexual dysfunction, 41.9% had antisocial personality disorder, 22.6% had a major depression and 13.4% had dysthymia<sup>15</sup>. Of the cases of other drug dependence/abuse 67.4% had a comorbid psychiatric disorders, 41.4% having generalized anxiety disorder, 28.7% having phobias, 27.6% having psychosexual dysfunction, 42% having antisocial personality disorder, 27.7% having dysthymia and 19.9% having major depression<sup>15</sup>.

A study on 533 opiate addicts coming for treatment, used the Research Diagnostic Criteria for Diagnosis and Schedule for Affective Disorders and Schizophrenia (SADS) for interviewing the patients and found that 86.9% of the patients had a comorbid psychiatric diagnosis<sup>16</sup>. Out of these, 74.3% had phobias, 34.5% alcohol abuse and 5.4% had anxiety disorders<sup>16</sup>.

In a community sample of alcoholic persons, it was found that 70% had at least one other psychiatric disorder<sup>17</sup>. Major depression was present in 44%, bipolar disorder in 50%, generalized anxiety disorder in 9%, phobia in 35% and other drug abuse in 12%<sup>17</sup>.

These studies were consistent in that they found mental disorders to be common in the adult population and to be associated with disability and social disadvantage.

### Comorbid Substance Use Disorders

A study of a large sample (n=2,945) of persons in treatment for alcohol dependence found that 81% of the sample had used cannabis more than 21 times in their lives; 57% had used cocaine more than 11 times; 45% had used amphetamines more than 11 times; and 32% and 38%, respectively, had used opiates and sedatives more than 11 times<sup>18</sup>.

Epidemiological research, predominantly in the US, has found that persons who meet criteria for alcohol use disorders are also likely to also meet

criteria for other substance use disorders. The ECA found that those with alcohol abuse or dependence were significantly more likely to have used other drugs, and to meet criteria for another drug use disorder<sup>19</sup>. Slightly more than one in five persons (22%) who met lifetime criteria for alcohol abuse or dependence also met criteria for another substance use disorder, with the majority of such persons meeting criteria for a cannabis use disorder<sup>19</sup>.

Similar results were found in the NCS. Those who met criteria for alcohol abuse or dependence at some time in their lives were significantly more likely to meet criteria for other drug abuse or dependence. Drug use disorders were reported among approximately one third of persons with lifetime alcohol abuse (30% of men and 33% of women) and in just under half of persons who met lifetime criteria for alcohol dependence (41% of men and 47% of women)<sup>20</sup>.

A study that used data from US, Canadian, French, Mexican and Dutch epidemiological surveys found an association between alcohol use problems and other substance use problems in all study sites<sup>21</sup>.

Over half of the sample also met criteria for DSM- III- R drug dependence at some point in their lives. The most common drug of dependence was cannabis (34%), followed by cocaine (31%), amphetamines (17%), sedatives (12%) and opiates (9%)<sup>18</sup>.

A study of comorbidity among a sample of 222 heroin injectors (half of whom were in treatment for heroin dependence) found that 95% used tobacco in the past 6 months, 83% had used cannabis, 73% used alcohol and 59% had used benzodiazepines<sup>22</sup>. In the sample, 49% met criteria for DSM-III-R dependence upon alcohol in the past year; 40% met criteria for cannabis dependence, and 24 % and 16% met criteria for amphetamine and benzodiazepine dependence respectively<sup>22</sup>.

### Substance use and Mood Disorders

A study of 2,713 persons in treatment for alcohol use disorders found 42% met criteria for DSM-III-R major depression, 4% met criteria for bipolar disorder, and 4% met criteria for dysthymia<sup>23</sup>. These rates were significantly higher than among control participants (rates of 16%, 1% and 1%, respectively).

One study reported a rate of lifetime DSM-III-R major depression of 44% among a sample of 6,355 persons in treatment for substance use disorders<sup>24</sup>. A sample of patients in treatment for drug dependence found that 24% had met lifetime criteria for DSM-III-R major depression, with another 12% meeting criteria for DSM-III-R dysthymia<sup>25</sup>.

Depression has been found in 20%-50% of the patients with psychoactive substance use disorder<sup>16,17</sup>.

### **Substance use and Anxiety Disorder**

Epidemiological research has also found that the association between alcohol use disorders and anxiety disorders observed in clinical settings also exists in general population samples. In the ECA, there were elevated rates of all DSM III anxiety disorders assessed (panic disorder, obsessive-compulsive disorder, and phobic disorder) among persons meeting lifetime criteria for DSM-III alcohol abuse or dependence<sup>19</sup>. The prevalence of lifetime DSM-III panic disorder was 2.6 times higher among persons meeting lifetime criteria for DSM-III alcohol abuse or dependence<sup>19</sup>. Phobic disorders were 1.4 times more prevalent among persons meeting lifetime criteria for alcohol abuse or dependence, while obsessive compulsive disorder was two times more prevalent<sup>19</sup>.

These associations were also observed among the anxiety disorders assessed in the NCS<sup>20,26</sup>. The UK's National Psychiatric Morbidity Survey, as mentioned above, found that persons with high rates of neurotic symptoms were more likely to be problematic alcohol users<sup>27</sup>.

The comparative study found an association between lifetime alcohol use disorders and anxiety disorders in epidemiological samples in the US, Canada, France, Mexico and the Netherlands<sup>21</sup>. A study found that the presence of a lifetime alcohol use disorder predicted higher odds of meeting criteria for an anxiety disorder (odds ratios of between 2.1 and 2.5) after accounting for age, gender and education<sup>28</sup>.

There is clinical evidence of an association between problematic alcohol use and anxiety disorders. Research with a sample of 75 inpatient alcoholics, which used diagnostic criteria to assess anxiety disorders, found that 40% had met criteria

for an anxiety disorder at some point in their lives<sup>29</sup>.

Elevated rates of anxiety disorders were found among alcohol dependent persons<sup>23</sup>. Around 5% of a sample of alcohol dependent persons in treatment met criteria for DSM-III-R panic disorder, 3% for agoraphobia, 4% met criteria for social phobia, and 3% for obsessive-compulsive disorder. These rates compared to rates of around 1% each for each disorder among control participants<sup>23</sup>.

60 alcoholic patients specifically assessed for agoraphobia and social phobias and found that more than half of the patients were suffering from these disorder<sup>30</sup>. On assessing these patients on the severity of alcohol dependence questionnaire they found that among the males, the more severely phobic patients were significantly more alcoholic. All the phobic alcoholics reported that alcohol had helped them cope with the feared situation.

### **Substance use and Psychotic Disorder**

The prevalence of substance use in schizophrenic patients has varied between studies but it is generally higher than comparable figures in the general population<sup>31</sup>. These variations are probably due to differences in the sampling of patients with younger newly incident cases reporting higher rates than older persons with chronic disorders. Studies have also differed in the criteria used to diagnose schizophrenia and in the way that substance use has been assessed<sup>32</sup>.

A recent study found that more than 80% of first-episode schizophrenic patients were tobacco smokers<sup>33</sup>.

Estimates of the lifetime prevalence of alcohol abuse/dependence have ranged from between 21 %<sup>35</sup>.

The ECA estimated that the rate of schizophrenia was 3.4 times higher among those with a lifetime DSM-III diagnosis of alcohol abuse or dependence<sup>19</sup>. A diagnosis of lifetime DSM-III alcohol abuse/dependence predicted an eight-fold increased risk of reporting at least one psychotic symptom in the follow-up period (RR = 7.9, 95% CI 2.0, 31.4)<sup>36</sup>. This was after adjusting for baseline psychopathology (mood, anxiety and personality disorders) and socio-demographic variables.

The UK National Psychiatric Morbidity Survey found that persons in institutions with schizophrenia, delusional disorders or affective

psychoses did not appear to have higher rates of heavy or dependent alcohol use, but this may have been due to their institutionalization. In contrast, homeless persons (who were likely to have had psychotic disorders) had higher rates than the general population of heavy and dependent alcohol use<sup>36</sup>. This was after adjusting for baseline psychopathology (mood, anxiety and personality disorders) and socio-demographic variables.

1%-12% of the patients of psychoactive substance dependence have been shown to have schizophrenia<sup>11,15,37</sup>. On the other hand 15%-60% of schizophrenic patients have been shown to be abusing drugs<sup>38-42</sup>.

In a study of 83 Patients of schizophrenic group found 48% to be suffering from drug or alcohol abuse or dependence among which the main drug were cannabis, alcohol and amphetamines<sup>38</sup>. These patients reported that they used the drug to get "high" to relieve depression, and to relax. They had significantly fewer positive and negative symptoms at discharge and better sexual adjustment; but worse school performance during adolescence and more family histories of drug abuse than patients not abusing drug.

### Substance use and Personality Disorders

Earlier studies on personality were mostly psychoanalytic popular or oversimplified in the earlier 1970's and emphasized peer group presence, escape, euphoria or self destructive themes to explain the compelling nature of drug dependency. In contract, the work of a number of psychoanalysts in the 1960's and 1970's has led to observation theoretical formulation and subsequent represented a significant departure from these previous approaches and explanation.

Studies attempted to identify the personalities of substance abusers divided alcoholics into two groups: Type I were those in whom alcohol use began after the age of 25 years: and whom environmental factors played a precipitation role. Type II were those in whom onset occurred before the age of 25 years, these patients had novelty seeking traits and heredity was considered to be a major factor<sup>45</sup>. Subsequent studies failed to validate this type I/ type II dichotomy<sup>43,44</sup>.

In a study on 100 in-patients of substance abuse program, using the structured clinical interview for

DSM-III-R and the DSM-III-R criteria found 57 % of these patients to have a DSM-III-R diagnosis of a personality disorder<sup>46</sup>. Out of these 17% had borderline, 7% paranoid, 6% histrionic, 4% narcissistic, 3% antisocial, 4% dependent, 5% passive-aggressive, 2% avoidant, 2% obsessive compulsive, 5% self defeating and 2% had personality disorders not otherwise classified. The subjects with personality disorder were more extensively involved in substance abuse. On alcohol use in inventory the subjects with personality disorder scored higher on measure of compulsive alcohol use, use of alcohol to manage mood, use of alcohol to enhance functioning and pervasiveness of alcohol in one's life. On the health and daily living form, the personality disorder group scored significantly higher on global depression, negative life changes, avoidance and emotional discharge as a means of coping. On the satisfaction questionnaire the personality disorder group indicated that they were significantly less satisfied with their social lives, emotional health relationship and occupational and school performance.

When the pre-alcoholic adolescent stage of alcoholics was evaluated, it was found that these persons had, even then, less than adequate controls over their aggressiveness and impulsivity<sup>47</sup>. In a study on offsprings of alcoholics, found that these subjects had increased risk of antisocial behavior<sup>48</sup>.

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