When Acute-Stage Psychosis and Substance Use Co-Occur: Differentiating Substance-Induced and Primary Psychotic Disorders

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Substances such as alcohol, cocaine, amphetamine, and cannabis can produce psychotic reactions in individuals who are otherwise free of serious mental illness. However, persons with primary psychotic disorders, such as schizophrenia and bipolar disorder, who use these substances often present for treatment with signs and symptoms similar to those whose psychosis resulted from the use of drugs alone. While it is often difficult to distinguish substance-induced from primary psychoses, especially early in the course of treatment, this differential diagnosis has important implications for treatment planning. To help clinicians distinguish these two types of presentations, the authors first review the types of psychotic symptoms that can co-occur with substance use. They discuss the prevalence and patterns of substance use that have been found in patients with schizophrenia and other primary psychotic disorders and review the negative outcomes associated with substance use in this population. The prevalence of and types of symptoms and problems associated with psychotic symptoms that occur as a result of substance use alone are also reviewed. The authors describe assessment procedures for differentiating substance-induced and primary psychotic disorders. They stress the importance of accurately establishing the temporal relationship between the substance use and the onset and continuation of psychotic symptoms in making a differential diagnosis, as well as the importance of being familiar with the types of psychological symptoms that can occur with specific substances. The authors review the utility and limitations of a number of diagnostic instruments for assessing patients with co-occurring psychosis and substance use problems, including The Addiction Severity Index, The Michigan Alcohol Screening Test, and diagnostic interviews such as the Schedule for Affective Disorders and Schizophrenia and the Structured Clinical Interview for DSM. They then discuss the Psychiatric Research Interview for Substance and Mental Disorders (PRISM), an instrument that has been developed to address the lack of a diagnostic interview that is suitable for assessing the comorbidity of substance use and psychiatric disorders. The article concludes with a discussion of the importance of an appropriate match between diagnosis and treatment and the current state of our knowledge concerning the most appropriate types of treatment interventions for patients with substance-induced psychosis and those with dual diagnoses. *(Journal of Psychiatric Practice* 2000;6:256-266)

KEY WORDS: substance use, substance-induced psychosis, primary psychotic disorders, schizophrenia, dual diagnosis, Addiction Severity Index, Michigan Alcoholism Screening Test, diagnostic interviews, Psychiatric Research Interview for Substance and Mental Disorders (PRISM)

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The widespread abuse of substances with psychotomimetic properties has produced neuropsychiatric disorders that place new demands on the substance abuse and mental health service systems. Substances such as alcohol,[1] cocaine,[2]"* amphetamine,[5-7] hallucinogens,*"[10] and cannabis[11-13] can produce psychotic reactions in individuals who are otherwise free of serious mental illness. Persons with primary psychotic disorders, such as schizophrenia and bipolar illness, who use these substances often present for treatment with signs and symptoms similar to those whose psychosis resulted from the use of drugs alone. Psychotic patients who use drugs have a need for treatment of their substance abuse problems. The diagnostic distinction between a substance-induced psychosis and a primary psychosis that co-occurs with drug use is relevant in planning for appropriate treatment. The issues of assessment and treatment planning are particularly important in the early stages of psychotic disorder, because this is a time when the symptom picture is often unclear and a proper match of diagnosis with treatment may be critically important for outcome. In this paper, we present an overview of psychotic disorders that co-occur

with substance use, review assessment procedures for differentiating substance-induced and primary psychotic disorders, and discuss the importance of the match between diagnosis and treatment.

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PSYCHOSIS AND COMORBID SUBSTANCE USE

Regardless of etiology, psychosis is a serious condition that carries with it a high risk of chronicity and social disability. However, follow-up studies of primary psychotic disorders have revealed considerable variability in course and outcome. The course and outcome of psychotic disorders have been conceptualized as multidimensional phenomena that include symptomatology, social disability, and service use.[14~16] The impairments associated with psychotic symptoms and with social disability are often weakly linked[15,17] and are affected differently by treatment and environmental factors.[16-18] Moreover, social disability encompasses many aspects of role function and social relations.[19,20] Substantial heterogeneity has been reported in studies of the short-term course and outcome of nonaffective psychoses.[15-21] Susser and Wanderling[22] have reported that 15%-20% of nonaffective psychosis remits within 6 months, while the majority of patients have a chronic course and are eventually diagnosed with schizophrenia. Data on course and outcome of affective psychoses are scant, but available data suggest that, like nonaffective psychoses, course and outcome are heterogeneous. Susser et al.[23] have reported that 25%-33% of affective psychoses remit within 6 months, while the remaining cases experience a chronic course and share many service needs with subjects who have diagnoses of nonaffective psychoses.

Little is known about the life course of psychosis when it is accompanied by substance use.[24,25] More information is needed concerning the long-term course of all types of psychotic disorders that co-occur with substance use, starting from the time when the psychosis first occurs.

Most studies that have reported findings on the impact of substance abuse on schizophrenia have dealt with patients the chronicity of whose illness has been well established.[26] Ongoing prospective longitudinal studies of newly diagnosed psychotic illness[27,31] yield useful comparisons of subjects who do and do not abuse substances, but these investigations have deliberately excluded patients whose symptoms appear to be substance-induced at the index admission.[21,32~36] They have also not focused on the onset and course of the substance use disorder. More inclusive studies of all types of psychotic disorders that co-occur with substance use will clarify the course of the illness and identify unmet needs for mental health and substance abuse treatment services.[37]

Substance Abuse in People with Serious Mental Illness

Substance abuse is common among patients with primary psychotic disorders living in the community. Studies of the comorbidity of severe mental illness and substance use have employed different methods of assessment, making comparisons of findings difficult. Generally, greater emphasis has been placed on descriptions of the psychotic disorder than of the substance use disorder. Although estimates cover a wide range due to variability in the methods used to determine the psychiatric diagnosis and the diagnosis of substance use disorder, the degree of chronicity of the psychotic disorder in the subjects studied, and differing sample selection procedures and subject characteristics,[38] rates of substance abuse among persons with serious mental illness typically exceed that found in the general population.[25,39] The Epidemiologic Catchment Area Study[39] revealed a lifetime rate of substance use disorder among persons with schizophrenia of 47% (33.7% for alcohol use disorder; 27.5% for drug use disorder). The findings of other investigations have been in the same range[40] or higher. Clinical studies of mixed diagnostic groups of young patients with chronic, serious mental illness have yielded substance abuse rates as high as 50%[41,44] to 60%.[45>46] The lifetime prevalence of substance use disorders in first-admission patients with primary psychotic disorders in the Suffolk County Study[36] was 58.5% for men and 31.8% for women.

Studies reveal that patients with schizophrenia abuse an array of substances, depending upon access and availability.[38,47,48] Findings from studies conducted in differing geographic areas reveal that the most common substances of abuse are alcohol,[39,42> 49,M] cocaine and other psychostimulants,[40,] "-M and cannabis.[42-] "•**•[M] Mueser et al.[61] have emphasized the importance of demographic variables (gender, age, race, education) in the exploration of types of substance use among individuals with severe mental illness, since these characteristics may be associated with the availability and patterns of use of various

drugs in different community environments. For example, polysubstance abuse has been found to occur more often among residents of inner city areas.[50,55]

There is no evidence that patients with primary psychotic disorders consistently prefer one substance over another in terms of drug effect.[38] Reasons found for drug use include amelioration of medication side effects,[56] self-treatment of non-psychotic symptoms such as depression, social anxiety, tension, and sleep difficulties,[57-M] boredom,[42] and resistance to the "patient role."[59] Studies have reported substantial concurrent substance use disorder among individuals with serious mental illness of both genders,[26-31-42-49] although men are more likely to abuse alcohol and drugs than women. Substance use comorbidity has been reported in geriatric populations,[60] but comorbidity is generally highest among younger patients. Mueser et al.[50] reported greater substance abuse comorbidity among patients with lower levels of education. It has also been reported that patients with schizophrenia who abuse substances (particularly cannabis) have superior premorbid social adjustment compared to patients with schizophrenia who do not abuse drugs,[50,53-61] suggesting that these patients' social skills may have exposed them to substance abusing peer subcultures. Rabinowitz et al.[31] found that women with first-admission psychosis who also had moderate to severe substance use disorder had experienced an earlier age of onset of psychosis compared to women in other groups. Other studies have found that patients with psychosis who abuse substances tend to have an earlier onset of substance use[53] and psychotic illness.[28-52>62]

Substance use concurrent with severe mental illness has been associated with a host of negative outcomes:

- More frequent use of the hospital[63,65]
- More frequent suicide attempts[29]
- A poor response to treatment[27,w]
- Clinical instability,[13-38-**•67] particularly among those with nonaffective psychoses[30]
- Poor overall adjustment[64-M]
- Greater risk of HIV infection[38-69-70]
- Treatment non-compliance[45,61-62-M]
- Hospital discharges against medical advice[71,73]
- Residential instability and homelessness[63-74~76]
- Violent behavior[77-78]
- Greater costs of care associated with more frequent use of crisis services[38-^]

Psychosis In People Who Use Drugs

Epidemiologic data on the prevalence of substance-induced psychosis based on nationally representative samples are not available, but clinical studies of people who use drugs reveal that the experience of psychotic symptoms following heavy drug use is not rare. Psychotic symptoms following the ingestion of cannabis alone are less common than with other drugs,[11-79>w] but they occur more often with the ingestion of greater amounts of the drug.[81-82] In a long-term follow-up of a large sample of Swedish conscripts, Andreasson et al.[81] found that the relative risk of schizophrenia was six times greater among heavy cannabis users compared to nonusers. Clinical studies of people treated for cocaine use disorder reveal that from one-third[83] to one-half or more[3,M] have psychotic symptoms following cocaine use. Psychotic experiences are more likely when cocaine is used heavily, particularly when free-based or used intravenously.[84-85] Susceptibility to substance-induced psychosis and a subsequent chronic course of illness has been related to a positive family history of psychiatric disorders,[9-10-86] but these findings are based on unclear diagnostic methods. There are no comparative data on the family histories of patients with primary psychoses who also use drugs.

Mitchell and Vierkant[87] compared the symptoms of 100 individuals who abused cocaine and 100 individuals with paranoid schizophrenia who did not abuse substances. While subjects in both groups had paranoid symptoms (they feared that individuals or organized groups might harm them), the delusions of the patients with schizophrenia were more often bizarre and grandiose. In contrast to the patients with schizophrenia, the individuals who abused cocaine were more likely to have experienced tactile hallucinations ("cocaine bugs" or parasitosis) and visual hallucinations of shadows or flashing light ("snow lights"). Studies comparing the phenomenology of psychosis in substance-induced psychosis and primary psychosis that co-occurs with drug use are needed.

Substance-induced psychoses can be serious illnesses that put patients at considerable risk for chronicity and disability.[7-85,88] It has been reported that episodes of psychosis can become more frequent even with ingestion of smaller amounts of drugs[84] or can occur even without subsequent drug use.[89] Based on a comprehensive review, Boutros and Bowers[88] concluded that the literature strongly suggests that a number of drugs of abuse, specifically psychostimulants, hallucinogens, and cannabis, alone or in combination, can cause or enhance susceptibility for a state of chronic psychosis.

Substance-induced psychoses have been associated with violent behavior, suicidality, the need for hospitalization,[85] and arrests,[90] and thus can be as dangerous as a primary psychotic disorder. The association of drug-induced psychoses with freebase and intravenous drug use suggests that such persons may also be at greater risk for exposure to HIV infection.[91,93] Substance abuse is a common condition antecedent to a first psychotic episode, suggesting that that it may be a risk factor for the onset of a primary psychosis.[27-81-**•9S]

A 1-year follow-up of secondary versus primary mental disorders in persons with comorbid substance use disorders underscores the impact of substance-induced psychotic disorder on the service delivery system. Dixon et

al.[96] found that patients with diagnoses of substance-induced disorders at intake were more likely to have been rehospitalized, to have used more substance abuse treatment services, and to have had more severe alcohol and drug problems compared to patients with primary disorders at 1-year follow-up.

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ISSUES IN THE ASSESSMENT OF COMORBIDITY

Substance Use and the Onset of Psychosis

Current rates of substance use disorder in samples of patients with a first episode of a primary psychotic disorder, although not as high as the *lifetime* prevalence rates reported previously, exceed that found in the general population. Hambrecht and Hafher[97] found alcohol abuse in 24% and drug abuse in 14% of patients with a first admission for psychosis—twice the rates in the general population. Rabinowitz et al.[31] found that 17.4% of males and 6.2% of females had moderate or severe current substance abuse on the Structured Clinical Interview for DSM-III-R (SCID)[98] rating when first admitted for psychosis. In nearly all of these cases, the substance disorder preceded the onset of psychosis. Nevertheless, findings concerning the temporal relationship between substance use and the onset of psychotic symptoms in schizophrenia are inconsistent. In a retrospective study of the association between first episode schizophrenia and substance use, Hambrecht and Hafher[97] found no unidirectional causality. Alcohol abuse more often followed than preceded the onset of the first psychotic symptom. In contrast, drug abuse preceded the first symptom in 27.5% of subjects, followed the first psychotic symptom in 37.9% of subjects, and occurred within the same month in 34.6% of subjects. Nevertheless, the temporal relationship between substance use and the onset of psychotic symptoms is a key issue in distinguishing a substance-induced from a primary psychosis.

Differential Diagnosis

The differential diagnosis between a primary psychotic disorder that co-occurs with substance use and a substance-induced psychosis is critically important for treatment. In a study of 33 patients with schizophrenia and substance abuse, Addington and Addington[62] reported that at least half had received one or more diagnoses of substance-induced psychosis on an earlier clinical evaluation. Shaner et al.[99] studied sources of diagnostic uncertainty in a cohort of 165 cocaine abusers with chronic psychosis. The all-male sample, in which the mean age was 40 years, was initially studied during a re-hospitalization episode (the mean number of prior hospitalizations was 10) and then 18 months later. Sources of diagnostic data included the SCID,[98] urine tests, hospital records, and interviews with collateral sources. At the end of the study period, the researchers were able to make definitive diagnoses in only 25% of the cases. The most common reasons for the inability to distinguish schizophrenia from chronic substance-induced psychoses were an insufficient period of abstinence, followed by poor memory and inconsistent reporting. This study illustrates the difficulty of obtaining needed anamnestic data on substance use and onset of psychotic symptoms when many years and multiple episodes separate the index event from the time of its investigation. Unfortunately, the prospective follow-up procedure in this study did not involve frequent contacts with study subjects to document periods of abstinence and the presence or absence of psychotic symptoms. Rosenthal and Miner[100] have devised a statistical model that discriminates between substance-induced psychosis and schizophrenia in patients who have both psychoactive substance use disorders and prominent delusions or hallucinations. Formal thought disorder and bizarre delusions were found to be key predictors of schizophrenia, while suicidal ideation, intravenous cocaine abuse, and a history of drug detoxification or methadone maintenance showed an inverse relationship with schizophrenia. This model, based on cross-sectional data, deserves further study and evaluation.

To overcome earlier problems with the definition of organic mental disorders, DSM-IV[101] introduced the term "substance-induced disorder." Substance-induced disorders are syndromes of behavioral, physiological, and psychological changes that occur during periods of substance use that are "greater than the expected effects" of intoxication or withdrawal. The DSM-IV criteria for the different substance-induced disorders (e.g., substance- induced psychotic disorder) are not as specific as those for primary disorders.

The assessment of psychotic symptoms that occur during a period of substance use requires the following:

- Knowledge about the etiological relationship between specific substances and specific psychotic symptoms (i.e., what substances cause physiological changes that can result in hallucinations or delusions)
- The ability to differentiate the expected effects of intoxication and withdrawal from psychotic symptoms that are greater than the expected effects

Table 1. Assessment of comorbid psychosis and substance use

A *Routine mental status examinations should include:*

- Thorough description of presenting symptoms
- Description of onset of psychotic symptoms
- History of lifetime and current alcohol/drug use
- Probe of timing of current substance use and psy chosis

B. Data sources

- Patient self-report
- Observations of clinical staff
- Family/collateral reports of patterns of substance use and onset of psychosis
- Urine toxicology screen
- Information about the timing and course of substance use and psychotic symptoms.

As a practical guide to the clinician, the assessment of comorbid psychosis and substance use should include the elements shown in Table 1.

RESEARCH DIAGNOSTIC AND ASSESSMENT INSTRUMENTS

A number of research instruments have been developed to assess substance use disorders and Axis I psychiatric disorders. Their strengths and weaknesses in assessing comorbid psychosis and substance use are discussed below.

The Addiction Severity Index

The Addiction Severity Index (ASI)[102]-[103] is a widely used semi-structured interview that was developed in the early 1980s, prior to current concepts of substance dependence as found in DSM-IV and ICD-10.[104] The ASI assesses seven problem areas that are often affected by substance use: medical, employment, legal, alcohol, drug, family-social functioning, and psychological status. Each section contains 7-30 items that include both objective data and subjective ratings by the client and interviewer. In each area, clients estimate the seriousness of the problem and their need for treatment. In addition, the interviewer provides a severity rating for each problem area by considering the objective data presented by the client and the need for treatment. The time frame for the ASI is the past 30 days. Composite scores ranging from 0-1.0 represent a linear composite of items within each section, which can be used to assess change over time. Note that while the ASI is a measure of functioning in these different areas, it is not a direct measure of dependence severity. The measure of psychological status is similar to a psychological distress score. It does not directly address the issue of psychosis at all, although any patient with an acute or chronic psychotic disorder would probably score in the very impaired range of the ASI psychological status scale.

The Michigan Alcoholism Screening Test

The Michigan Alcoholism Screening Rest (MAST)[105] is a screening scale that was developed in the 1960s. It is a scale that is frequently used when an indicator of potential alcoholism is needed. The full version of the MAST contains 25 questions. The more frequently used version, the Short MAST (SMAST),[106] has only 13 questions. The questions are a mix of social and physical health problems, as well as questions on treatment, legal problems, and subjective assessment of oneself as having an alcohol problem. The MAST includes one question on treatment in a psychiatric hospital or the psychiatric ward of a general hospital due to drinking problems. However, the reason for hospitalization is not obtained. The MAST is not designed to measure complex psychiatric states such as psychosis.

Diagnostic Interviews

Several general purpose diagnostic instruments have been developed to assess the main adult axis I psychiatric disorders as defined in DSM-III-R[107] and DSM-IV. However, the diagnosis of psychiatric disorders in individuals with heavy alcohol or drug use has been problematic.[108] Clinician-administered instruments, such as the Schedule for Affective Disorders and Schizophrenia (SADS),[109] the Structured Clinical Interview for DSM-W (SCID),[110] and the Schedules for Clinical Assessment in Neuropsychiatry (SCAN),[111] leave the differentiation of "organic" versus "non-organic" to clinical judgment. Interviews designed for lay interviewers, such as the Diagnostic Interview Schedule (DIS)[112] and the Composite International Diagnostic Interview (CIDI),[113] rely on the subject's attribution of the etiology (primary versus substance-induced, for example) to make this differentiation. Both the clinical and the fully structured methods of assessment are conducive to diagnostic unreliability because they rely on individual judgment rather than a built-in, systematic method of differentiation.

Evidence concerning the reliability and validity of psychiatric diagnosis among heavy drinkers or drug users has been disappointing. For example, in a sample of substance abusers in treatment, the SADS-L (Lifetime Version) was administered 1 week and 4 weeks after admission. In this study, the reliability of lifetime diagnoses was poor.[114] In a large test-retest study of the SCID,

the reliability of diagnoses of current psychotic disorders and current mood disorders in a group of current substance abusers was just barely fair (psychotic disorders, 0.49; mood disorders, 0.42).[115] Research on the SCID's differentiation of substance-induced and primary psychiatric diagnoses in patients with substance abuse has found little cross-sectional or predictive validity.[116]

The PRISM

The Psychiatric Research Interview for Substance and Mental Disorders (PRISM)[117] was developed to address the lack of a diagnostic interview that is suitable for comorbidity research on the conjunction of substance use and psychiatric disorders. A test-retest reliability study of the PRISM was conducted with 172 patients being treated in dual-diagnosis or substance abuse settings. Reliabilities for current, past, and lifetime psychotic symptoms were good to excellent (current, 0.63; past, 0.76; lifetime, 0.79). Kappas for current and past major depression were 0.81 and 0.64, respectively. This test-retest study showed that substantial progress was made towards the goal of achieving reliable diagnoses of psychiatric disorders in subjects who abuse alcohol and drugs.

Features of the PRISM. The PRISM is designed to assess 20 Axis I and 2 Axis II psychiatric disorders in heavy users of alcohol and/or drugs. The PRISM includes the following features that are relevant to the assessment of comorbidity:

- Periods of drug and alcohol use and abstinence that are explored in detail prior to other diagnostic sections of the interview. Thus, when the interviewer administers the sections on psychotic disorders, the history of drug and alcohol use is known.
- Interviewer instructions and guidelines that assist in differentiating substance-induced from primary symptoms.
- Interviewer instructions and guidelines that assist in determining the timing of psychiatric symptoms and substance use.

In the PRISM, primary psychiatric disorders are defined as disorders that occur in the absence of heavy alcohol or drug use, which is defined as use four or more times a week. Primary episodes can occur entirely during a period of abstinence, begin prior to a period of heavy use, or begin during heavy use and continue for more than 4 weeks after cessation of use, that is, beyond the withdrawal period.

In the PRISM, the absence of a symptom is represented by a "1" code. If a symptom is mild, indistinct, or fleeting, it is considered sub-threshold in the PRISM and is coded "2". A "3" code indicates that the symptom is experienced at the required level of severity, frequency, or duration and is counted in the diagnosis of a psychiatric disorder. If the symptom occurs entirely during a period of chronic intoxication or withdrawal, and the patient meets full DSM-IV criteria for the disorder, the PRISM diagnoses a substance-induced disorder. A "4" code indicates that the symptom is experienced at the required level of severity, frequency, or duration but is considered to be the expected effect of intoxication or withdrawal and is therefore not counted in the diagnosis of a psychiatric disorder.

The PRISM-L (longitudinal) interview covers the same diagnostic information as the baseline PRISM, but is designed to cover the period between the previous and present interview. The PRISM-L provides timeline grids for charting the course and severity of multiple separate conditions, by week, after entry into a study. The frequency and quantity of alcohol or drug use and the occurrence of full-syndrome and subthreshold psychotic disorders are charted on the timeline grids.

Diagnosing primary and substance-induced psychotic disorders using the PRISM. In the PRISM, substances that can cause symptoms of a psychiatric disorder are considered "relevant" to the disorder. The PRISM includes specific guidelines that indicate which substances are relevant to a psychotic episode. For example, alcohol and most drugs of abuse, including cocaine and stimulants, heroin and opiates, cannabis, sedatives, hallucinogens, and inhalants, can cause hallucinations and delusions during intoxication. Alcohol and sedative withdrawal can also cause hallucinations and delusions (see Figure 1).

In the PRISM, the coding of delusions is not influenced by the subject's report of chronic intoxication. If the erroneous belief persists and is held with conviction and meets other DSM-IV symptom criteria for a delusion, the interviewer is instructed to assign a threshold ("3") code regardless of substance use. Delusions that are vague or

Table 2. Differentiating substance-induced and primary psychotic disorders

- Remission of psychotic symptoms ***following acute intoxication and withdrawal*** suggests that the psychosis is substance-induced.
- Persistence of psychotic symptoms during a period of clean time in excess of 4 weeks suggests that the psychosis is ***not related to withdrawal and is therefore primary.***
- An insufficient period of clean time will result in a ***provisional*** diagnosis.
- In all cases, continued observation of the patient is warranted to confirm the diagnosis.

21. At any of those times, were you drug- and alcohol-free when you ***began*** [ACTIVE PHASE SYMPTOMS]?	**Abstinence or occasional use *at onset* of active phase**	1 NO-SKIPTOQ.23, PAGE 162
IF NO: At any of those times, were you drinking or using drugs only occasionally when those things ***began*** happening? By occasionally, I mean less than 4 days a week.	• relevant substance was used less than 4 days a week, when active phase began = "3" • drank 4(+) days a week but only small amounts of alcohol (up to 4 drinks) = "3" • all periods of active phase occurred with onset during heavy use = "1" • relevant substances: alcohol, heroin, cocaine, cannabis, hallucinogens, sedatives, stimulants, opioids, inhalants • refer to substance timeline	3 YES
IF USED OCCASIONALLY: What were you using? How often did you (drink/use DRUG)?	SPECIFY OCCASIONAL USE:	CHECK ONE: D ABSTINENCE D OCCASIONAL USE

Figure 1. Example of Guidelines Concerning Substances Relevant to a Psychotic Episode on the Prism Version 5.0

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Guidelines

- ideas considered normal by other members of subject's subculture = "1"
- persistent but vague ideas = "2"
- ideas lasting less than 1 hour = "2"
- unclear, undecided, insufficient information = "2"

2. Did you ever think...	***Penecutory delusions*, i.e., delusions that one (or someone to whom one *is* close) is being followed, tormented, spied on, ridiculed, attacked, cheated, etc.**	1 NO
...that anyone was going out of their way to give you a hard time or harm you? ...that people were following you or spying on you? ...that you were being secretly tested or experimented on?	• anticipation of punishment for wrongdoing = "1" • belief that partner is having an affair to hurt subject = "3" • if delusion involves something that could not possibly occur, check box	3 YES D BIZARRE DELUSIONS
	SPECIFY DELUSION(S):	

Figure 2. Example of Delusions Guidelines and Probe on the PRISM Version 5.0

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Guideline*

- perceptions considered normal by other members of subject's subculture = "1"
- vivid, distinct but fleeting *(under 1 hour)* = "2"
- persistent or repetitive but indistinct = "2"
- only when awakening or falling asleep = "1"
- unclear, undecided, insufficient information = "2"
- acted on hallucinations = "3"

10. Did you ever have visions or see things that other people couldn't see?	***Visual hallucinations, i.e.*, visual perceptions occurring in the absence of relevant external stimuli**	1 NO
IF YES AND NOT KNOWN: When you were seeing those things, how did you explain them to yourself?	• recognized that perceptions were caused by substance use and acted on it = "3" • recognized that perceptions were caused by substance use and did not act on it = "4"	2 3 YES
IF EXPLAINED BY DRUG USE: Did you do anything because of those visions?	SPECIFY HALLUCINATIONS):	4 AWARENESS OF DRUG EFFECT

Figure 3. Example of Hallucinations Guidelines and Probe on the PRISM Version 5.0

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fleeting are coded as subthreshold ("2") and would not be included in the diagnosis of a psychotic disorder. Delusions coded as subthreshold may be vague or fleeting beliefs that are expected effects of intoxication or withdrawal (see Figure 2).

Hallucinations are assessed based on clarity, persistence, presence of other DSM-IV symptom criteria, and the person's awareness of the drug effect. Hallucinations are coded as subthreshold or threshold based on DSM-IV symptom criteria. The DSM-IV includes the specifier "with perceptual disturbances" for substance-related disorders. This specifier is used when the person is aware at the time of the hallucination that it is caused by a substance. A "4" code in the PRISM Version 5.0 (unpublished) identifies these hallucinations, which are often the expected effects of intoxication and withdrawal. Hallucinations that are coded "4" are not included in the diagnosis of a psychotic disorder (see Figure 3).

The PRISM places particular emphasis on the relative timing of substance use and psychotic symptoms. Once the interviewer establishes the presence of psychotic symptoms, the differentiation of a primary and substance-induced active phase is made. When the timing is close, questions are provided to probe this distinction very carefully. If symptoms that meet full criteria for a psychotic disorder begin and remit during a period of heavy use or withdrawal, the episode is diagnosed as substance-induced. If psychotic symptoms begin before heavy use or persist for more than 4 weeks after cessation of use, the episode is diagnosed as primary.

A critical factor in distinguishing a substance-induced psychosis from a primary psychotic disorder is the ability to observe the patient during a substance-free period ("clean time"). As a practical guide for the clinician, Table 2 summarizes the significance of findings during this time period.

THE MATCH OF DIAGNOSIS WITH TREATMENT

Early assessment and treatment of comorbid psychosis and substance use is important. Regardless of diagnostic subtype, psychotic patients who use drugs need treatment for their substance abuse problem. Treatment of substance abuse in general has been found to be effective in reducing drug consumption, improving social and occupational functioning, and lessening criminal activity.[118,120] Although there is variability among treated individuals in the degree of improvement and the extent of symptom remission, greater length of time in treatment has been found to be an important predictor of clinical and functional improvement.[121,123]

Although there is limited information about how patients with primary psychoses who also use drugs utilize substance abuse treatment services, investigations of patients with mental illness and substance abuse reveal that noncompliance with treatment is widespread.[38-64,66] Moreover, such patients tend to overuse crisis services.[38-es, 124] These findings underscore the need to learn more about the use of services in the early phases of psychotic disorder that is concurrent with alcohol or drug use and to study the correlates of successful engagement in treatment.[125]

Among clinicians, there is an emerging consensus that a proper match of subtype of psychosis and treatment services for substance use is essential for treatment success, highlighting the importance of the diagnostic assessment when psychosis and drug use co-occur. Cohen[126] has contended that schizophrenia is often misdiagnosed in patients suffering from substance-induced psychoses, leading to improper treatment. Bacon et al.[127] have noted that a misdiagnosed psychotic illness in the presence of substance abuse can have long-lasting and harmful consequences. It is widely recognized that treatment of psychotic patients who use drugs must often be initiated before the definitive diagnosis is clear.[62-" The management of such patients requires that treatment for both the psychotic disorder and the substance use disorder be provided,[99] including mental health services.[38]

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Many clinical researchers believe that patients with severe mental illness who also abuse substances require a unique set of treatment interventions apart from traditional mental health and substance abuse treatment programs.[42-49-M-128,130] It has been suggested that such patients cannot benefit from the standard treatment of addiction[131] and that failure to address both mental health and substance abuse problems will lead to an undesirable outcome.[132] There is also a well articulated perspective that patients with primary substance abuse problems, such as substance-induced psychoses, should be referred to the substance abuse service system.[133] It has also been suggested that programs designed to treat patients with mental illness are inappropriate for the needs of those with dual diagnoses and may lead to treatment failure.[133] Although the match between diagnostic subtype and service type is thought to be critically important for treatment success, this assertion has yet to be established empirically.

Longitudinal data on diagnosis, course of illness, and service use in all types of psychotic disorders that co-occur with substance use are needed in order to enhance our understanding of substance-induced psychoses and primary psychotic disorders that co-occur with the abuse of alcohol or drugs. In the meantime, state-of-the-art assessment methods can be used to ensure the best possible match of diagnosis with mental health and substance abuse treatment services.

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