

## The need for close monitoring of early psychosis and co-occurring substance misuse

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**Summary** Substance misuse is widespread among individuals with early-phase psychotic disorders and is associated with a worse illness course. Thorough assessment of patterns of substance misuse at admission for psychiatric care is often lacking and can compromise the accuracy of a diagnostic assessment that distinguishes between a primary psychosis and one that is substance induced. Given the risk to recovery from psychosis posed by substance misuse, close monitoring of the course and treatment of early-phase psychosis that is accompanied by substance misuse is indicated and could inform the development of more effective dual-diagnosis treatments.

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When individuals with recent-onset psychotic symptoms present for treatment, the clinical picture often includes substance misuse. Widespread among those with psychotic disorders,<sup>1,2</sup> lifetime substance use disorder among individuals presenting with a first episode of psychosis has been observed in about a third to a half of those admitted for treatment,<sup>3–7</sup> a rate that is significantly higher than that found in the general population.<sup>8,9</sup> It has been well documented that comorbid substance misuse compromises recovery in psychosis and is associated with a host of negative outcomes,<sup>10</sup> including increased risk of relapse of positive symptoms,<sup>11</sup> in-patient readmission,<sup>7</sup> non-adherence to treatment,<sup>12</sup> and poorer functional outcome.<sup>13</sup> If this dim outlook is not enough to warrant close scrutiny of this patient group, recent studies have identified issues that underscore the importance of evaluating patterns of substance use and misuse and monitoring the relationship of substance use to psychiatric symptomatology.

### The association of substance misuse and psychosis

The most common substances of misuse such as alcohol,<sup>14</sup> cocaine,<sup>15</sup> amphetamine,<sup>16,17</sup> hallucinogens<sup>18</sup> and cannabis<sup>19</sup> have psychotomimetic properties that can produce psychotic reactions in individuals who are otherwise free of severe mental illness. Use of these drugs by individuals with primary psychotic disorders, such as schizophrenia and bipolar disorder, often results in presenting symptoms that are similar to those seen in individuals showing psychotic reactions due to drugs alone.

Cannabis ranks high among the world's popular recreational drugs and is the most extensively used illicit substance by people with psychotic disorders.<sup>20</sup> Tetrahydrocannabinol (THC) is an active psychopharmacological

ingredient in cannabis which, when used to intoxication, can lead to acute and transient psychotic symptoms in some people and recurrences of psychotic symptoms among certain individuals with known psychotic disorders.<sup>21</sup> Cannabis is also the most comprehensively researched drug in relation to psychosis. Systematic reviews of cannabis and psychosis repeatedly confirm an association between exposure to cannabis and psychosis.<sup>21–25</sup> Although it has been suggested that cannabis may play a role in the aetiology of psychosis, the contention that cannabis use can cause a long-term psychosis remains controversial.

The rapidly developing work in this field has, however, yielded findings that can guide clinicians in their treatment of individuals with early symptoms of psychosis. Early cannabis use and a longer duration of use have been found to be associated with psychosis-related outcomes in young adults,<sup>26</sup> whereas lifetime cannabis use has been found to be associated with an earlier onset of psychosis.<sup>11</sup> Importantly, it has been revealed that patients with first-episode psychosis were more likely to use high-potency cannabis (sensemilla, 'skunk') for longer periods and with greater frequency compared with a non-patient control group.<sup>27</sup> High-potency cannabis is growing in popularity in some parts of Europe, and its use among people admitted for psychiatric treatment should be assessed. It is important to keep in mind, however, that availability and trends in use of alcohol and illicit substances vary considerably by region. More information on the relationship of other substances of misuse, including polydrug use, to the onset and course of psychotic disorders is needed.

### Documenting patterns of substance use and misuse

Underdetection of comorbid substance use at admission for psychiatric care has been reported. *Ley et al*<sup>28</sup> compared the

results of urinalysis with information on drug use taken from patient records, and found that of cases positively identified through urinalysis, 54% were not identified in case notes. This study underscores the need for a thorough drug use history that elicits information on age at first drug use (specific to drug of use, including alcohol), type and amount of drugs used, including high-potency cannabis and use of drugs in combination, route of administration (oral, smoked, injected), and whether drug use was either prompted or followed by any psychiatric symptom, including psychosis. Urine toxicology screens at treatment admission, obtained with consent, and efforts to obtain collateral reports on drug use from family members and significant others can complement patient self-reports. Patterns of lifetime use should be distinguished from use in the immediate period preceding admission, to determine whether drug use might be related to the onset of psychosis. Finally, an assessment of whether the person meets diagnostic criteria for misuse or dependence should be determined, as this signals a need for substance misuse treatment.

### Determining the diagnostic distinction between primary and substance-induced psychotic disorders

Primary psychotic disorders and substance-induced psychotic disorders are distinct diagnostic entities with fundamentally different treatment needs.<sup>29</sup> A diagnostic assessment that thoroughly differentiates these disorders is particularly important in the early stages of psychotic disorder, when an appropriate match of diagnosis and treatment has critical implications for outcome. However, in the initial stages of a first psychotic episode diagnostic certainty can be elusive. Under all circumstances, minimising the risk of harm to self or others and prompt treatment of psychotic symptoms are warranted. Although there remains a lack of information on the course and outcome for the management of substance-induced psychosis,<sup>30</sup> current diagnostic criteria specify that remission of psychotic symptoms following acute intoxication and withdrawal suggests that the psychosis is substance induced. If psychotic symptoms persist during a period of drug abstinence in excess of 4 weeks, it is likely that the psychosis is not related to withdrawal and is therefore primary.<sup>31,32</sup>

A common denominator in both conditions is the presence of psychotic symptoms, which often fluctuate in the early stages of illness. Given the mounting evidence that a longer duration of untreated psychosis is associated with a worse clinical outcome,<sup>33</sup> treatment of psychotic symptoms should not be delayed, regardless of psychosis diagnosis or the extent of substance misuse. In all circumstances, frequent follow-up visits, including outreach, are warranted to confirm diagnostic accuracy<sup>10</sup> and treatment efficacy.

Thorough follow-up of individuals with an initial diagnosis of substance-induced psychosis is particularly important,<sup>34</sup> since findings suggest that those with poorer premorbid functioning, less insight into psychosis, and greater prevalence of family mental illness are at risk of being re-diagnosed with primary psychotic disorder in a future

episode.<sup>29</sup> Treatment guidelines for the management of early-phase substance-induced psychosis, including the optimal duration of antipsychotic treatment, are not well established compared with those for primary psychotic disorder.<sup>35</sup> Even so, minimal treatment recommendations would address the substance use problem and the need to monitor persistent or recurrent psychotic symptoms.<sup>36</sup> Just as there are risks to the inadequate detection and treatment of psychotic symptoms in the early phase of primary psychotic disorders, there are also risks to the under-detection of substance-induced psychotic disorders. Schanzer *et al*<sup>37</sup> compared emergency department diagnoses with research diagnoses made by psychiatrists and found that patients given an emergency department diagnosis of primary psychosis but found by the research diagnosis to have substance-induced psychosis were significantly more likely to be treated for a primary psychotic disorder rather than for substance-induced psychosis. An incorrect diagnosis of primary psychotic disorder when the symptoms are substance induced is of particular concern because of the long-term consequences, which can include unnecessary hospital admissions, inappropriate treatment with antipsychotic medication with their potential for serious side-effects, and failure to receive appropriate treatment for substance misuse.

### Implications for care

Recognition of the extent of comorbid substance misuse among individuals with psychotic disorders has stimulated research that expands our understanding of the effect of substance misuse on psychosis, its course and outcome. Evidence to date suggests the wisdom of informing young adults seeking psychiatric treatment and members of their families about the risks that substance misuse, including cannabis use, may pose to their future mental health and well-being.<sup>25,38</sup> Further, interventions such as motivational interviewing,<sup>39</sup> cognitive-behavioural therapy<sup>40</sup> and assertive outreach<sup>41</sup> may prove useful in engaging poorly motivated individuals misusing substances who are in need of substance-misuse treatment.<sup>34</sup> A thorough assessment of patterns of substance misuse and close monitoring of the course and treatment of early-phase psychosis that is accompanied by substance misuse is indicated and could inform the development of more effective dual-diagnosis treatments for this complex comorbidity.<sup>42,43</sup>

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### References

- 1 Phillips P, Johnson S. Drug and alcohol misuse among in-patients with psychotic illnesses in three inner-London psychiatric units. *Psychiatr Bull* 2003; **27**: 217–20.
- 2 Weaver T, Madden P, Charles V, Stimson G, Renton A, Tyrer P, et al. Comorbidity of substance misuse and mental illness in community mental health and substance misuse services. *Br J Psychiatry* 2003; **183**: 304–13.

- 3 VanMastrigt S, Addington J, Addington D. Substance misuse at presentation to an early psychosis program. *Soc Psychiatry Psychiatr Epidemiol* 2004; **39**: 69–72.
- 4 Barnes TRE, Mutsatsa SH, Hutton SB, Watt HC, Joyce EM. Comorbid substance use and age at onset of schizophrenia. *Br J Psychiatry* 2006; **188**: 237–42.
- 5 Mauri MC, Vovonteri LS, DeGaspari IF. Substance abuse in first episode schizophrenic patients: a retrospective study. *Clin Pract Epidemiol Ment Health* 2006; **2**: 4–11.
- 6 Barnett JH, Werners U, Secher SM, Hill KE, Brazil R, Masson K, et al. Substance use in a population-based clinic sample of people with first-episode psychosis. *Br J Psychiatry* 2007; **190**: 515–20.
- 7 Wade D, Harrigan S, Edwards J, Burgess PM, Whelan G, McGorry PD. Substance misuse in first-episode psychosis: 15-month prospective follow-up study. *Br J Psychiatry* 2006; **189**: 229–43.
- 8 Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry* 2005; **62**: 593–602.
- 9 Volkov ND. Substance use disorders in schizophrenia – clinical implications of comorbidity. *Schizophr Bull* 2009; **35**: 469–72.
- 10 Caton CLM, Samet S, Hasin DH. When acute-stage psychosis and substance use co-occur: differentiating substance-induced and primary psychotic disorders. *J Psychiatr Pract* 2000; **6**: 256–66.
- 11 Foti DJ, Kotov R, Guey LT, Bromet EJ. Cannabis use and the course of schizophrenia: 10-year follow-up after first hospitalization. *Am J Psychiatry* 2010; **167**: 987–93.
- 12 Addington J, Addington D. Effect of substance misuse in early psychosis. *Br J Psychiatry* 1998; **172** (suppl 33): s134–6.
- 13 Turkington A, Mulholland CC, Rushe TM, Anderson R, McCaul R, Barrett SL, et al. Impact of persistent substance misuse on 1-year outcome in first-episode psychosis. *Br J Psychiatry* 2009; **195**: 242–8.
- 14 Schuckit MA. *Drug and Alcohol Abuse, 3rd edn*. Plenum Publishing, 1989.
- 15 Satel SL, Edell WS. Cocaine-induced paranoia and psychosis proneness. *Am J Psychiatry* 1991; **148**: 1708–11.
- 16 McLellan AT, Woody GE, O'Brien CP. Development of psychiatric illness in drug abusers: possible role of drug preference. *N Engl J Med* 1979; **301**: 1310–4.
- 17 Angrist B. Amphetamine psychosis: clinical variations of a syndrome. In *Amphetamine and its Analogs* (eds AK Cho, DS Segal): 387–414. Academic Press, 1994.
- 18 Bowers MB, Swigar ME. Vulnerability to psychosis associated with hallucinogen use. *Psychiatry Res* 1983; **9**: 91–7.
- 19 D'Souza DC, Perry E, MacDougall L, Ammerman Y, Cooper T, Wu YT, et al. The psychotomimetic effect of intravenous delta-9-tetrahydrocannabinol in healthy individuals: implications for psychosis. *Neuropsychopharmacol* 2004; **29**: 1558–72.
- 20 Koskinen J, Lohonen J, Koponen H, Isohanni M, Miettunen J. Rate of cannabis use disorders in clinical samples of patients with schizophrenia: a meta-analysis. *Schizophr Bull* 2010; **36**: 1115–30.
- 21 Minozzi S, Davoli M, Bargagli AM, Amato L, Vecchi S, Perucci CA. An overview of systematic reviews on cannabis and psychosis: discussing apparently conflicting results. *Drug Alcohol Rev* 2010; **29**: 304–17.
- 22 Arseneault L, Cannon M, Witton J, Murray RM. Causal association between cannabis and psychosis: examination of the evidence. *Br J Psychiatry* 2004; **184**: 110–7.
- 23 Semple DM, McIntosh AM, Lawrie SM. Cannabis as a risk factor for psychosis; systematic review. *J Psychopharmacol* 2005; **19**: 187–94.
- 24 Henquet C, Murry R, Linszen D, van Os J. The environment and schizophrenia: the role of cannabis use. *Schizophr Bull* 2005; **31**: 608–12.
- 25 Moore TH, Zammit S, Lingford-Hughes A, Barnes TR, Jones PB, Burke M, et al. Cannabis use and the risk of psychotic or affective mental health outcomes: a systematic review. *Lancet* 2007; **370**: 319–28.
- 26 McGrath J, Welham J, Scott J, Varghese D, Degenhardt L, Hayatbakhsh MR, et al. Association between cannabis use and psychosis-related outcomes using sibling pair analysis in a cohort of young adults. *Arch Gen Psychiatry* 2010; **67**: 440–7.
- 27 Di Forti M, Morgan C, Dazzan P, Pariante C, Mondelli V, Marques TR, et al. High-potency cannabis and the risk of psychosis. *Br J Psychiatry* 2009; **195**: 448–91.
- 28 Ley A, Jeffery D, Ruiz J, McLaren S, Gillespie C. Underdetection of comorbid drug use at acute psychiatric admission. *Psychiatr Bull* 2002; **26**: 248–51.
- 29 Caton CLM, Hasin DS, Shrout PE, Drake RE, Dominguez B, First MB, et al. Stability of early-phase primary psychotic disorders with concurrent substance use and substance-induced psychosis. *Br J Psychiatry* 2007; **190**: 105–11.
- 30 Mathias S, Lubman DI, Hides L. Substance-induced psychosis: a diagnostic conundrum. *J Clin Psychiatry* 2008; **69**: 358–67.
- 31 American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, 4th edn, Text Revision (DSM-IV-TR)*. APA, 2000.
- 32 World Health Organization. *International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Version for 2007*. Ch. 5, F00–F99. WHO, 2007 (<http://apps.who.int/classification/apps/icd/icd10online>).
- 33 Marshall M, Lewis S, Lockwood A, Drake R, Jones P, Croudace T. Association between duration of untreated psychosis and outcome in cohorts of first-episode patients: a systematic review. *Arch Gen Psychiatry* 2005; **62**: 975–83.
- 34 Crebbin K, Mitford E, Paxton R, Turkington D. First episode drug-induced psychosis: a medium term follow up study reveals a high-risk group. *Soc Psychiatry Psychiatr Epidemiol* 2009; **44**: 710–5.
- 35 Dawson R, Green AI, Drake RE, Lavori PW, McGlashan TH, Schanzer B. An adaptive treatment strategy paradigm for longitudinal treatment research using substance-induced psychosis as an example. *Psychopharmacol Bull* 2008; **41**: 51–67.
- 36 Drake RE, Caton CLM, Xie H, Hsu E, Gorroochurn P, Samet S, et al. A prospective 2-year study of emergency department patients with early-phase primary psychosis or substance-induced psychosis. *Am J Psychiatry* 2011; 31 Mar (doi: 10.1176/appi.ajp.2011.10071051).
- 37 Schanzer MB, First MB, Dominguez B, Hasin DS, Caton CLM. Diagnosing psychotic disorders in the emergency department in the context of substance use. *Psychiatr Serv* 2006; **57**: 1468–73.
- 38 Hall W, Degenhardt L. What are the policy implications of the evidence on cannabis and psychosis? *Can J Psychiatry* 2006; **51**: 566–74.
- 39 Miller WR, Rollnick S. *Motivational Interviewing: Preparing People for Change*. Guilford Press, 2002.
- 40 National Institute on Drug Abuse. *A Cognitive Behavioral Approach: Treating Cocaine Addiction*. NIDA (<http://archives.drugabuse.gov/txmanuals/cbt/cbt3.html>).
- 41 Burns T, Firn M. *Assertive Outreach in Mental Health: A Manual for Practitioners*. Oxford University Press, 2002.
- 42 Tyrer P, Weaver T. Desperately seeking solutions: the search for appropriate treatment for comorbid substance misuse and psychosis. *Psychiatr Bull* 2004; **28**: 1–2.
- 43 Johnson S, Thornicroft G, Afuwape S, Leese M, White IR, Hughes E, et al. Effects of training community staff in interventions for substance misuse in dual diagnosis patients with psychosis (COMO study). Cluster randomised trial. *Br J Psychiatry* 2007; **191**: 451–2.