Co-occurring schizophrenia and substance use disorder: Psychosocial interventions

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INTRODUCTION

Schizophrenia and addiction are both chronic disorders with serious complications, consequences, and costs for individuals and society. These conditions, which are also known as “dual diagnoses,” are associated with poor adherence to treatment and poorer outcomes when the co-occurring disorder is present.

Some of the symptoms of schizophrenia overlap with symptoms of intoxication, chronic use, or withdrawal from alcohol or other drugs. Family history and the temporal relationship of symptoms can help to distinguish patients with a substance use disorder (SUD) alone from co-occurring schizophrenia and SUD.

The psychiatric diagnoses in the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), substance abuse and substance dependence, were replaced by one diagnosis, SUD, in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) [1]. Although the crosswalk between DSM-IV and DSM-5 disorders is imprecise, substance dependence is approximately comparable to SUD, moderate to severe subtype, while substance abuse is similar to the mild subtype.

Psychosocial interventions for patients with co-occurring schizophrenia and SUD are described here. The epidemiology, pathogenesis, clinical manifestations, course, assessment, diagnosis, and pharmacotherapy for co-occurring schizophrenia and SUD are described separately.

Psychosocial interventions for schizophrenia occurring alone and specific substance use disorders occurring alone are also discussed separately.

- (See "Co-occurring schizophrenia and substance use disorder: Epidemiology, pathogenesis, clinical manifestations, course, assessment and diagnosis".)
- (See "Pharmacotherapy for co-occurring schizophrenia and substance use disorder".)
- (See "Schizophrenia in adults: Psychosocial management".)
- (See "Opioid use disorder: Psychosocial management".)
- (See "Alcohol use disorder: Psychosocial management".)
- (See "Stimulant use disorder: Psychosocial management".)

OVERVIEW

Treatment for co-occurring schizophrenia and substance use disorder (SUD) typically involves a combination of psychosocial intervention(s), described here, and pharmacotherapy, described separately. There is wide variability across the United States and internationally in the availability and content of psychosocial interventions for these disorders. In addition to the psychosocial interventions described here, treatment of SUD generally includes addiction counseling or psychotherapy. (See "Pharmacotherapy for co-occurring schizophrenia and substance use disorder" and "Continuing care for addiction: Implementation".)

In patients with the co-occurring disorders, an intervention that reduces substance use can have secondary benefits on symptoms of schizophrenia (and vice versa). As examples, a patient with SUD who maintains abstinence may have better adherence to antipsychotic medication and thus fewer exacerbations. A patient with schizophrenia who is experiencing fewer psychotic symptoms may be better able to focus on and maintain abstinence.

Interventions described in this topic are organized by the primary disorder they were developed to address; those that are used principally to treat schizophrenia include (see 'Schizophrenia' below):

- Skills training
- Family-based educational interventions

Interventions used principally to treat SUD include (see 'Substance use disorders' below):

- Motivational interviewing
- Mutual help groups such as 12-step programs
- Contingency management

Cognitive-behavioral therapy (CBT) has been modified and applied effectively to treat schizophrenia individually and SUD individually. Assertive community treatment (ACT) is used for patients with serious mental illness at risk of hospitalization or homelessness; a co-occurring SUD places individuals at increased risk and is an indication for ACT. (See 'Modified CBT' below and "Assertive community treatment for patients with severe mental illness".)

We suggest an integrated, multimodal approach to treatment of patients with co-occurring schizophrenia and SUD, using psychosocial interventions described here and pharmacotherapy, described separately [2]. (See "Pharmacotherapy for co-occurring schizophrenia and substance use disorder", section on 'Integrated treatment'.)

Psychosocial strategies for these patients should be selected and individualized based on patients' deficits and needs, and the treatment foci of the interventions described below. They should be delivered to this population with a low-stress and harm reduction approach that enhances motivation and effective interpersonal and coping skills, and enlists social supports [3].

Clinicians should seek to understand the personal experiences of health and lifestyle of schizophrenia patients, for whom dignity, relationships, acceptance of their illness, and fear of losing control of psychotic symptoms may play a role in persistence of substance use and lack of motivation for abstinence [4]. All individuals with schizophrenia should be offered psychosocial interventions that include educational discussion of reasons to change and training in cognitive-behavioral strategies to reduce use, manage cravings and stress, and avoid relapse [5].

Principles of continuing care for SUD describe patient indications for adding additional treatment modalities to SUD care as including greater SUD severity, risk of relapse, response to prior treatment, and willingness to engage in additional treatment.

SPECIFIC INTERVENTIONS

Rationale for interventions — In our clinical experience, the specific interventions described below can be effective in patients with schizophrenia and co-occurring substance use disorder (SUD).

However, systematic reviews and meta-analyses have not found clear evidence of the efficacy of psychosocial interventions [6,7]. As an example, a Cochrane systematic review and meta-analysis of 41 clinical trials including 4024 individuals with co-occurring severe mental illness (schizophrenia, bipolar disorder, and psychosis) and substance use or SUD did not find evidence

that any one psychosocial treatment improved outcomes related to remaining in treatment, reduction in substance use, or mental or global state compared with standard care [6]. Although limited support for motivational interviewing, cognitive-behavioral therapy (CBT), and contingency management on selected outcomes was reported in single studies, there was little evidence suggesting that integrated, nonintegrated, or skills-based training programs is superior to standard care. The quality of the clinical trials was rated poor due to sources of potential bias and methodologic limitations, including high attrition rates and varying interventions, outcome measures, treatment settings, and sample characteristics. However, these interventions have shown efficacy in noncomorbid schizophrenia and noncomorbid SUD.

The absence of a robust evidence base for any one psychosocial treatment does not mean that particular treatments do not help on an individualized basis, but rather that the limited evidence found in currently available controlled trials needs further study to support their use. A strong consensus among clinicians and researchers with expertise in the subject supports the use of psychosocial interventions in addition to pharmacotherapy for patients with co-occurring schizophrenia and SUD with clinical needs/deficits targeted by the intervention [2,8].

Schizophrenia

Skills training — Skills training has been found to reduce deficits in social interactions and independent living skills in patients with noncomorbid schizophrenia [9]. However, data supporting the use of skills training in individuals with serious mental illness (SMI) and comorbid SUD are limited. Nevertheless, despite these limited data, our clinical experience supports the use of skills training in individuals with schizophrenia and comorbid SUD.

Remediable skill deficits include difficulties with personal care, cooking, laundry, paying bills, and use of public transportation [9].

An analysis of pooled data from two trials including 94 individuals with SMI and SUD treated with skills training versus usual treatment did not find a difference in outcomes as measured by global assessment of functioning [7].

Other studies investigating skills training for individuals with SUD and SMI have shown some benefits; however, the sample sizes are small and the quality of the evidence is low. As examples:

- A study of 31 outpatients with schizophrenia who met criteria for alcohol and/or cannabis use disorder were randomized to 18 months of cognitive enhancement therapy or usual care [10]. Cognitive enhancement therapy is a form of cognitive remediation combining computer-based individual and social-educational group therapy. Among patients who

were able to engage, intent-to-treat efficacy analyses showed improvements in neurocognition, social cognition, and social adjustment with cognitive enhancement therapy. Further, individuals treated with cognitive enhancement therapy were more likely to reduce alcohol (but not cannabis) use. However, while participants reported high levels of satisfaction with the therapy, there were significant challenges with recruitment, retention, attrition and engagement in this comorbid population.

- In a study of vulnerability to victimization and criminal abuse, 250 individuals with dual diagnosis were randomly assigned to usual care plus a manual-based skills program designed to develop skills in emotional regulation, conflict resolution, and street-wise safety (Self-wise, Other-wise, Streetwise [SOS] training) versus usual care [11]. SOS training resulted in greater response rate (defined as at least a 50 percent reduction in the number of past year victimization incidents at 14-month follow-up) versus control group (68 versus 54 percent; odds ratio 1.78, 95% CI 1.02-3.11).

Social skills training, which has shown efficacy in patients with noncomorbid schizophrenia, is described in detail separately. (See "Schizophrenia in adults: Psychosocial management", section on 'Social skills training'.)

Family-based educational intervention — Family-based educational treatment is focused on teaching family members and patients about co-occurring disorders and their treatment in order to help them make informed treatment decisions and to access clinical or community services. The education also seeks to strengthen family empathy, understanding, and support.

Clinical trials have found that patients receiving multimodal family interventions experience improvement in schizophrenia symptoms and reduction in substance use compared with control conditions [12-14] (see 'Multimodal interventions' below):

As examples:

- A clinical trial of 36 patients with co-occurring schizophrenia and SUD compared an intervention that combined motivational interviewing, CBT, and family education with routine care [12]. Patients receiving the combined program had more days abstinent from alcohol and drugs, as well as a reduction in positive symptoms and symptom exacerbations over a 12-month period.

- A clinical trial of 108 patients with serious mental illness (77 percent schizophrenia spectrum disorders) and their families compared treatment as usual with treatment with a brief family educational program, and with a longer and more intensive family program (Family Intervention for Dual Disorders [FIDD]) [13]. FIDD combined education with

teaching communication, stress reduction, and problem solving skills, in addition to family education and usual care. Patients assigned to each of the enhanced treatment groups experienced reduced psychiatric symptoms and substance use, and improved functional outcomes compared with treatment as usual. Family members who received FIDD showed improvement in knowledge and mental health functioning compared with either brief family treatment or standard care.

Family-based educational interventions, which have shown efficacy in reducing relapse rates in patients with noncomorbid schizophrenia [15], are described in detail separately. (See "Schizophrenia in adults: Psychosocial management", section on 'Family-based Interventions'.)

Assertive community treatment — Assertive community treatment (ACT) is a high-intensity, integrated model for delivering clinical and social services to patients in the community rather than in traditional clinical settings. ACT is intended for individuals with SMI at risk of hospitalization or homelessness. A co-occurring SUD, which often places schizophrenia patients at an elevated risk, is a clinical indication for ACT.

ACT has been found to reduce hospitalization and homelessness in patients with co-occurring SMI and SUD [16]. However, clinical trials have shown mixed results for substance use outcomes. As an example, a clinical trial randomly assigned 149 patients to receive ACT with integrated care for schizophrenia and SUD, ACT alone, or standard care [17]. After 24 months, patients receiving either form of ACT reported more days in stable housing, compared with the standard-care group, but no difference in psychiatric symptoms or substance use.

ACT has been shown in clinical trials of homeless SMI patients (not limited to patients with SUD) to reduce homelessness and lead to improvement in psychiatric symptoms [12]. ACT is described in greater detail separately. (See "Assertive community treatment for patients with severe mental illness".)

Alternatives — In our clinical experience, traditional case management, which provides assistance from a specific case manager in planning, coordinating and/or monitoring of care [18,19], can be helpful for patients with schizophrenia and SUD when a more-intensive ACT program is not available or not warranted. As an example, case managers may help patients with management of their finances, particularly those who binge heavily on substances after a monthly government disability check arrives, and suffer consequences of insufficient funds for the remainder of the month. Fiduciary assistance ensures that funds are applied to meet essential needs, such as rent and food, before money is released to the patient for discretionary spending.

Substance use disorders

Motivational interviewing — Motivational interviewing is a directive, patient-centered counseling approach that aims to help people change problem behaviors, principally substance use [20]. Motivational enhancement therapy (MET), a variant of motivational interviewing, includes a structured assessment of the patient's substance use and personalized risk feedback. A manual-guided brief treatment program has been developed for MET by the National Institute on Alcohol Abuse and Alcoholism [20,21]. Principles and techniques include establishing a working alliance and working with the patient to:

- Weigh the pros and cons of the patient's substance use
- Set individualized goals
- Create an environment that supports sobriety
- Develop skills to handle crises

Motivational interviewing has been modified to address SUD in patients with schizophrenia [22]. More directive, repetitive, and concrete language may be useful with schizophrenia patients, particularly with patients with cognitive impairment. Individual sessions may need to be shorter in duration for schizophrenia patients to tolerate them, though a treatment course may need to be longer to reinforce skills [22].

Our clinical experience supports the use of motivational interviewing in individuals with schizophrenia and comorbid SUD who lack readiness to participate actively in substance-related treatment for the SUD. Clinical trials have found motivational interviewing in patients with co-occurring severe mental illness and SUD to be effective on several measurements; however, the trials were of low quality, with small sample sizes, brief interventions, and short follow-up [7,23]. In one trial of 28 schizophrenia patients with co-occurring alcohol use disorder, patients were randomly assigned to receive motivational interviewing or educational intervention. Individuals in the motivational interviewing group had increased abstinence rates and fewer drinking days at six months compared with patients receiving an educational intervention (relative risk 0.36, 95% CI 0.17-0.75) [24].

Motivational interviewing, which is efficacious in reducing substance use in patients with noncomorbid SUD [20], is described in detail separately. (See "Substance use disorders: Motivational interviewing".)

Mutual help groups — Mutual help groups such as 12-step programs (eg, Alcohol Anonymous [AA]) provide peer support in identifying triggers for relapse, coping with negative emotions, and providing emotional, cognitive, and social tools for preventing relapse and maintaining sobriety.

We typically encourage individuals with schizophrenia and SUD to participate in mutual help groups after their psychotic symptoms are reasonably well stabilized. Participation would not be recommended for patients with prominent paranoid or persecutory delusions. Many psychiatric facilities and community mental health programs offer specialized dual focus 12-step groups for patients with co-occurring disorders. These programs offer a similar peer group and often address psychiatric and substance use symptoms [25-28].

In our clinical experience, many patients report benefiting from participation in mutual help groups. This is also supported by limited evidence from clinical studies.

In a comprehensive meta-analysis of the effect of attending AA meetings within integrated programs on alcohol abstinence, four studies enrolling schizophrenia subjects were included [29]. Overall, AA attendance was associated with increased abstinence among seriously mentally ill patients at 6- and 12-month follow-up. In subgroup analyses, the effect size of attending AA for schizophrenia subjects was similar to those with depression or other disorders.

Rigorous testing of mutual help groups in patients with noncomorbid SUD is limited and inconclusive [30]. (See "Continuing care for addiction: Components and efficacy".)

Contingency management — Contingency management, typically an augmentation to addiction counseling or psychotherapy, uses incentives to encourage abstinence from alcohol/drug use. Contingency management interventions can be customized to some extent to address patient preferences or program needs, such as the resources available for the intervention.

Clinical trials have found mixed results for contingency management in individuals with serious mental illness and SUD [31,32]. In one trial, 176 outpatients with a serious mental illness (approximately 40 percent schizophrenia or schizoaffective disorder) were randomized to treatment as usual plus contingency management or treatment as usual alone [31]. While fewer participants in the contingency management group were retained through treatment than those in the control group (42 versus 65 percent), the addition of contingency management resulted in a higher percentage of stimulant negative urine tests than individuals in the control group (46 versus 35 percent; odds ratio 1.4, 95% CI 1-1.9) and fewer days of alcohol use during the treatment period. Additionally, individuals in the contingency management group reported lower levels of psychiatric symptoms as measured by the Brief Symptom Inventory and fewer psychiatric hospitalizations during six-month follow-up compared with treatment as usual alone.

Contingency management, which has shown efficacy in increasing abstinence in patients with noncomorbid SUD [33], is described in detail separately. (See "Substance use disorders:

Principles, components, and monitoring during treatment with contingency management" and "Substance use disorders: Training, implementation, and efficacy of treatment with contingency management".)

Technology-assisted management — An emerging area of research facilitated by coronavirus disease 2019 (COVID-19) pandemic-era restrictions concerns application of digital technology-assisted communications to support therapeutic contact and as a cognitive enhancing tool. Evidence-based smartphone recovery applications have been introduced in addiction recovery models but evidence in comorbid schizophrenia and SUD populations is limited. In one observational study, 73.4 percent of 79 patients with alcohol and other drug disorders/mental disorders used a smartphone application to assist with their recovery, continuing their access to resources, case management, and quality information after leaving residential treatment over a four-month period [34].

Schizophrenia and substance use disorder

Modified CBT — Cognitive-behavioral therapy (CBT) has been modified to treat both schizophrenia and SUD. Primary goals of CBT for these co-occurring disorders are to:

- Reduce the intensity of delusions and hallucinations
- Promote active participation of affected individuals in reducing their risk of schizophrenia relapse
- Achieve abstinence or reduce substance use

Techniques of CBT for these disorders include [35]:

- Engaging patients in a logical examination of the contents of their psychotic symptoms to help them develop a more rational understanding of them and more adaptive behaviors
- Identify triggers for substance use and associated thoughts, feelings, and actions
- Modify behaviors to prevent relapses
- Problem solving

In our clinical experience, CBT can be efficacious in reducing substance use and schizophrenia symptoms in patients with co-occurring schizophrenia and SUD; however, CBT has not been found to be efficacious in clinical trials of patients with these co-occurring disorders. For example, two randomized trials including 152 individuals with schizophrenia and cannabis use disorder did not find differences in psychiatric or SUD outcomes (eg, loss to treatment by three

months, use of cannabis in last four weeks at three or six months) between patients receiving CBT plus usual treatment versus usual treatment alone [36,37].

CBT has been found to be efficacious in patients with noncomorbid SUD individually [38] and noncomorbid schizophrenia individually [39]. (See "Schizophrenia in adults: Psychosocial management", section on 'Cognitive-behavioral therapy' and "Alcohol use disorder: Psychosocial management", section on 'Cognitive-behavioral therapy'.)

MULTIMODAL INTERVENTIONS

We favor a multimodal approach to treatment of patients with co-occurring schizophrenia and substance use disorder (SUD). Patients with these dual diagnoses often have multiple clinical needs/deficits that psychosocial interventions address. Evidence from clinical trials is insufficient to favor specific sequences or combinations of interventions.

Principles of continuing care for addiction, described separately, suggest increasing the intensity and/or number of interventions (such as motivational interviewing, contingency management, mutual help groups, and cognitive-behavioral therapy [CBT]) when lesser treatment fails to reduce substance use or prevent relapse. The overall complexity of the patient's treatment plan, however, must be weighed against the patient's cognitive and self-care capacities, willingness to participate, and capacity for adherence. More intensive protocols may require external support from family, friends, or professional caregivers. (See "Continuing care for addiction: Components and efficacy" and "Continuing care for addiction: Implementation".)

Clinical trials of integrated, multimodal interventions incorporating various combinations of skills training, motivational enhancement therapy, CBT, mutual help groups, and other strategies have shown mixed evidence of effectiveness in patients with co-occurring schizophrenia and SUD [12,22,40-45]. (See 'Skills training' above and 'Motivational interviewing' above and 'Modified CBT' above and 'Mutual help groups' above.)

For example, the following studies showed no differences between groups on measures of psychiatric symptoms or substance use:

- A meta-analysis included seven clinical trials with 878 patients, the majority of whom had schizophrenia or psychotic illness, that compared combined motivational interviewing and CBT with standard care [7]. No differences between groups were found in reducing substance use, psychotic symptoms, or psychiatric relapse. A subsequent trial similarly found no benefit to a health promotion intervention that combined manual-based

motivational interviewing with cognitive therapy and was implemented by the patient's usual care coordinator [46].

- In another randomized trial of 404 patients with first-episode psychosis, 52 percent of whom met criteria for SUD, NAVIGATE (a team-based early intervention service comprising personalized medication management, psychoeducation, resilience-focused therapy, and education and employment support) did not reduce self-reported substance use over two years [47].

However, other studies have shown some benefit to multimodal interventions. For example:

- A six-month trial of 129 outpatients with substance use and serious mental illness (39.5 percent with schizophrenia or schizoaffective disorder) randomly assigned patients to a multimodal intervention, the Behavioral Treatment for Substance Abuse in Severe and Persistent Mental Illness program, which included motivational interviewing, contingency management, social skills training, psychoeducation, collaborative goal setting, and relapse prevention or a manualized control condition [41]. Patients receiving the intervention reported decreased substance use, a greater proportion of negative urine tests (59 versus 25 percent), better treatment adherence, and better quality of life compared with controls. [48,49].

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Opioid use disorder and withdrawal" and "Society guideline links: Benzodiazepine use disorder and withdrawal" and "Society guideline links: Alcohol use disorders and withdrawal" and "Society guideline links: Stimulant use disorder and withdrawal" and "Society guideline links: Cannabis use disorder and withdrawal".)

SUMMARY AND RECOMMENDATIONS

- We suggest multimodal, integrated care for patients with co-occurring schizophrenia and substance use disorder (SUD) rather than traditional, parallel treatment (ie, where schizophrenia is treated by mental health clinicians and SUD is treated by clinicians in the addictions sector) (**Grade 2C**).

Multimodal care generally includes pharmacotherapy and one or more psychosocial interventions. When integrated treatment is not available, clinicians treating the co-occurring disorders and using different modalities should closely coordinate care. (See "Pharmacotherapy for co-occurring schizophrenia and substance use disorder", section on 'Integrated treatment'.)

- Psychosocial interventions for co-occurring schizophrenia and SUD are indicated for patients with clinical needs/deficits described below (see 'Specific interventions' above):
  - Modified cognitive-behavioral therapy – Aims to reduce antipsychotic-resistant hallucinations and delusions in schizophrenia and to promote abstinence in SUD. (See 'Modified CBT' above.)
  - Motivational interviewing – Aims to address a lack of readiness to participate actively in treatment for the SUD. (See 'Motivational interviewing' above.)
  - Skills training – Aims to reduce deficits in social interactions and independent living skills. (See 'Skills training' above.)
  - Assertive community treatment – Aims to improve treatment adherence and address patient needs/deficits by providing community-based care and social services. (See 'Assertive community treatment' above.)
  - Mutual help groups – Aims to provide peer support in identifying triggers for relapse, coping with negative emotions, and providing tools for preventing relapse and maintaining sobriety. (See 'Mutual help groups' above.)
  - Contingency management – Aims to encourage SUD-treatment attendance and abstinence by adding incentives to addiction counseling or psychotherapy. (See 'Contingency management' above.)
  - Family-based educational intervention – Aims to strengthen family support and cohesion and to teach patients and family members about co-occurring illness to help them make informed treatment decisions and to access desired services. (See 'Family-based educational intervention' above.)
- Despite the absence of compelling support from clinical trials, these interventions are strongly supported by a consensus among clinicians and researchers with expertise on the subject. Clinical trials do not provide adequate information to guide the sequencing or combinations of interventions that would lead to superior clinical outcomes. (See 'Specific interventions' above and 'Multimodal interventions' above.)

- Selection among psychosocial interventions is based on the patient's clinical needs and deficits, the clinician and patient's prioritization among them, and response to prior interventions. A higher severity of illness and and/or risk of relapse favor more intensive treatment (eg, more sessions, additional interventions); however, the overall complexity of the patient's treatment plan must be weighed against the patient's cognitive and self-care capacities, willingness to participate, and capacity for adherence. (See 'Overview' above and 'Multimodal interventions' above.)

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