

Psychosocial Approaches to Dual Diagnosis

by Robert E. Drake and Kim T. Mueser

Abstract

Recent research elucidates many aspects of the problem of co-occurring substance use disorder (SUD) in patients with severe mental illness, which is often termed dual diagnosis. This paper provides a brief overview of current research on the epidemiology, adverse consequences, and phenomenology of dual diagnosis, followed by a more extensive review of current approaches to services, assessment, and treatment. Accumulating evidence shows that comorbid SUD is quite common among individuals with severe mental illness and that these individuals suffer serious adverse consequences of SUD. The research further suggests that traditional, separate services for individuals with dual disorders are ineffective, and that integrated treatment programs, which combine mental health and substance abuse interventions, offer more promise. In addition to a comprehensive integration of services, successful programs include assessment, assertive case management, motivational interventions for patients who do not recognize the need for substance abuse treatment, behavioral interventions for those who are trying to attain or maintain abstinence, family interventions, housing, rehabilitation, and psychopharmacology. Further research is needed on the organization and financing of dual-diagnosis services and on specific components of the integrated treatment model, such as group treatments, family interventions, and housing approaches.

Keywords: Substance abuse, dual disorders, integrated treatment, dual diagnosis.

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Over the past two decades there has been a growing awareness of the problem of co-occurring substance use disorder in persons with severe mental illnesses such as schizophrenia, schizoaffective disorder, and bipolar disorder. In this article, the terms dual diagnosis, dual disorders, and SUD comorbidity are used interchangeably to

denote the problem of co-occurring SUD and severe mental illness. Following a brief overview of the epidemiology, phenomenology, and correlates of dual diagnosis, we review current approaches and research related to service organization, assessment, and treatment.

Epidemiology, Phenomenology, and Correlates of SUD

Numerous studies have shown that persons with severe mental illness are at increased risk for comorbid SUD (see Mueser et al. 1995a and Cuffel 1996 for reviews). For example, in the most comprehensive study of comorbidity in severe mental illness conducted to date, the Epidemiologic Catchment Area study, the rate of lifetime SUD in the general population was 17 percent, compared with 48 percent for persons with schizophrenia and 56 percent for persons with bipolar disorder (Regier et al. 1990). In addition to the high rate of lifetime SUD in persons with severe mental illness, rates of recent alcohol and drug use disorders are also high. Most studies suggest that between 25 and 35 percent of persons with a severe mental illness have manifested SUD over the past 6 months (Mueser et al. 1995a). Thus, SUD is common among persons with severe mental illness, with about half of all patients experiencing substance-related problems sufficient to warrant a diagnosis at some time in their lives, and about one-quarter to one-third of patients having a recently active SUD.

Dual diagnosis tends to be more common in those severely mentally ill patients who are young, male, single, and less educated (Mueser et al. 1995a; Cuffel 1996); in those with histories of conduct disorder (Mueser et al. 1999); and in those with family histories of SUD (Noordsy et al. 1994). Those who are homeless or in jail or who present to an emergency room or hospital setting

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are also more likely to have SUD than other patients (Galanter et al. 1988). To the extent that these characteristics pertain, patients are at especially high risk for SUD.

SUD in people with severe mental illness both resembles and differs from SUD in the general population. For both groups, alcohol is the most common substance of abuse, followed by cannabis and cocaine (e.g., Mueser et al. 1992; Barry et al. 1995; Lehman et al. 1996). Other similarities are that SUD tends to be a social behavior for both groups and is associated with problems of disinhibition and psychosocial instability (for reviews, see Dixon et al. 1990; Drake and Brunette 1998). Further, despite considerable speculation that patients with psychiatric illness may be "self-medicating" symptoms of illness or side effects of medications through their use of substances (Khantzian 1997), the evidence shows that psychiatric patients' self-reported reasons for use tend to be very similar to the reasons cited by others with SUD (reviewed in Mueser et al. 1998b). In other words, patients with severe mental illness typically report that they use alcohol and other substances to combat loneliness, social anxiety, boredom, and insomnia rather than specific symptoms of mental illness or side effects of medications. Finally, as with SUD in the general population, the available evidence indicates that SUD in persons with severe mental illness tends to be a chronic, relapsing disorder with persistence over many years for most dual-disorder patients (Drake et al. 1996).

How then does SUD manifest differently in people with severe mental illness? The central difference appears to be that people with severe mental illness have a heightened sensitivity to the effects of psychoactive substances (see Mueser et al. 1998b for a recent review of this issue). Several consistent observations are accounted for by the phenomenon of heightened sensitivity. First, numerous case reports and surveys indicate that the use of relatively small amounts of alcohol and other drugs by persons with severe mental illness adversely affects their psychiatric stability (exacerbations of illness) and psychosocial adjustment (problems of behavior, relationships, finances, and housing) (see Drake and Brunette 1998 for a review). Second, people with severe mental illness are relatively unlikely to develop the physiological syndrome of dependence (Drake et al. 1990) or to develop medical sequelae of SUD (Wolford et al. 1999), both of which require sustained heavy use. Third, few persons with severe mental illness (probably less than 5%) are able to sustain moderate use of alcohol or other drugs without negative consequences, and a high proportion, approximately 50 percent, choose abstinence (Drake and Wallach 1993). Both of these percentages are quite different from general population figures (Hilton 1987). Finally, individuals with severe mental illness and SUD comorbidity are unlikely to be

able to return to social or recreational use of alcohol or other drugs (Drake et al., in preparation). This last observation may be more similar in the general population, although long-term followup studies consistently show that a significant percentage of individuals with SUD are able to return to moderate use of substances without impairment (Vaillant 1995).

People with severe mental illness are not only more sensitive to the effects of psychoactive substances, but are also more likely to encounter such substances (Drake et al. 1998a). As a result of deinstitutionalization and other risk factors such as poverty, poor education, poor social skills, lack of vocational skills and opportunities, and residence in drug-infested neighborhoods, they experience a high rate of regular exposure to psychoactive substances and of social pressures to use them.

Another way in which SUD is distinctive in individuals with severe mental illness is that they predictably suffer adverse consequences that are somewhat different from those encountered by others in the general population (see review by Drake and Brunette 1998). More than 100 studies indicate that dual diagnosis is associated with higher rates of specific negative outcomes: severe financial problems resulting from poor money management; unstable housing and homelessness; medication noncompliance, relapse, and rehospitalization; violence, legal problems, and incarceration; depression and suicide; family burden; and high rates of sexually transmitted diseases. Many common problems related to SUD in the general population, such as marital and vocational difficulties, are less frequent in persons with severe mental illness. One important consequence of the clinical and social effects of SUD in this population is that dually diagnosed patients tend to use more psychiatric services than singly diagnosed patients, particularly costly services such as emergency room visits and inpatient hospitalizations (Bartels et al. 1993; Dickey and Azeni 1996).

Because of the high prevalence and chronicity of SUD in persons with severe mental illness, the serious negative effects of dual diagnosis on the course of illness and on social problems, and the high cost of treatment, the development of more effective interventions for dual diagnosis has been a high priority since the mid-1980s. Current approaches to the care of persons with dual disorders involve substantive changes in traditional methods of service organization and clinical intervention.

Service Issues

Early reviews of dual-diagnosis services (e.g., Ridgely et al. 1987) identified two fundamental problems. First, most patients with dual diagnosis received no SUD treatment, largely because of difficulties in accessing services.

Second, when they did receive SUD treatment, it was not tailored to the needs of persons with a comorbid mental illness. Poor access and inadequate treatment were attributed to the historical split between mental health and substance abuse treatment services.

Traditional Services. In the United States and many other countries, mental health and substance abuse treatment services have been separated for years. Different organizations provide mental health and substance abuse services; financing mechanisms are separate and often compete for scarce public health funds; education, training, and credentialing procedures differ between the two systems; and eligibility criteria for receipt of services differ as well. As a consequence of these factors, two general approaches to the treatment of patients with dual diagnosis predominated until recently. In the sequential treatment approach, patients were directed to obtain definitive treatment in one system before entering treatment in the other system. For example, a person with a mental illness might have been told that his or her SUD should be completely in remission before mental health treatment would be appropriate. In the parallel treatment approach, patients were directed to pursue independent treatments in each of the two systems. In other words, a patient in treatment in one system might be referred for an evaluation at a separate agency in the other treatment system. Both approaches placed the burden of integrating services entirely on patients rather than on providers, and ignored the need to modify mental health and SUD services for persons with comorbid disorders.

In practice, most patients with severe mental illness were quickly extruded from substance abuse treatment programs if they sought services. On the other hand, they experienced poor outcomes in the mental health system because their SUD was undetected or untreated. Even worse, patients with dual diagnosis were sometimes excluded from both systems because of having comorbid disorders. For example, the dually diagnosed individual could be determined ineligible for mental health hospitalization or housing because of SUD and simultaneously ineligible for SUD hospitalization or housing because of psychosis. Thus, sequential and parallel approaches deflected providers' professional and financing boundaries but did not serve patients well.

By the end of the 1980s, several reviews had documented these problems with traditional dual-diagnosis treatment services and called for the formation of integrated programs that combined mental health and substance abuse services (e.g., Ridgely et al. 1990). Consequently, new models with a primary aim of integrating services have rapidly developed and evolved since the mid-1980s (e.g., Minkoff 1989; Osher and Koford 1989;

Dailey et al. 1993; Solomon et al. 1993; Miller 1994; Ziedonis and Fisher 1994; Lehman and Dixon 1995; Carey 1996; Mercer-McFadden et al. 1997).

Integrated Treatment. The essence of integration is that the same clinicians or teams of clinicians, working in one setting, provide coordinated mental health and substance abuse interventions. Clinicians take responsibility for combining the interventions so that they are tailored for the presence of comorbidity. Integration is often accomplished through the use of multidisciplinary teams that include both mental health and substance abuse specialists who share responsibility for treatment and cross-training. Integration must be supported and sustained by a common administrative structure and confluent funding streams (Mercer et al. 1998). For the dually diagnosed individual, the services appear seamless, with a consistent approach, philosophy, and set of recommendations; the need to negotiate with separate systems, providers, or payers disappears.

Integration involves modifications of traditional approaches to both mental health and substance abuse treatment (Mueser et al. 1998a). For example, skills training focuses on the need to develop meaningful relationships and the need to deal with social situations involving substance use. Pharmacotherapy takes into account not only the need to control symptoms but also the potential of some medications for abuse. SUD interventions are modified in accordance with the vulnerability of patients with severe mental illness to confrontational interventions, their need for support, and their typical lack of motivation to pursue abstinence.

Numerous models for providing integrated treatment have evolved. Although the models vary, programs that have demonstrated positive outcomes have several common service features, beyond the basic commitment to integration of organization and financing mechanisms (Drake et al. 1998b). First, they are almost always developed within outpatient mental health programs, primarily because adding substance abuse treatment to the existing array of community support services already available for persons with severe mental illness is more feasible than reproducing all of these services within a substance abuse treatment context (Mercer-McFadden et al. 1997).

Second, awareness of SUD is insinuated into all aspects of the existing mental health program rather than isolated as a discrete substance abuse treatment intervention (Drake et al. 1993a). As described below, components such as case management, assessment, individual counseling, group interventions, family psychoeducation, medication management, money management, housing, and vocational rehabilitation incorporate special features that reflect awareness of dual diagnosis.

Third, successful programs address the difficulty that dually diagnosed patients have in linking with services and maintaining treatment adherence by providing continuous outreach and close monitoring techniques, which are described below (Mercer-McFadden et al. 1997). These approaches enable patients to access services and to maintain needed relationships with a consistent program over months and years. Without such efforts, noncompliance and dropouts are high (Hellerstein et al. 1995).

Fourth, integrated programs recognize that recovery tends to occur over months or years in the community (Drake et al. 1996). People with severe mental illness and SUD do not develop stable remission quickly, even in intensive treatment programs (Drake et al. 1998c). Rather, they seem to develop stable remission over longer periods, with a cumulative percentage of approximately 10 to 15 percent attaining stable remissions per year, in conjunction with a consistent dual-diagnosis program. Successful programs therefore take a long-term, outpatient perspective.

Fifth, most dual-diagnosis programs recognize that the majority of psychiatric patients have little readiness for abstinence-oriented SUD treatments (Test et al. 1989; Carey 1996; Mercer-McFadden et al. 1997; Ziedonis and Trudeau 1997). Rather than just treat the highly motivated patients, these programs incorporate motivational interventions designed to help patients who either do not recognize their SUD or do not desire substance abuse treatment become ready for more definitive interventions aimed at abstinence. Motivational interventions involve helping the individual to identify his or her own goals and then to recognize that using psychoactive substances interferes with attaining those goals (Miller and Rollnick 1991).

Research evidence for the effectiveness of integrated treatments continues to mount. Ten recently completed studies support the effectiveness of integrated treatments (Drake et al. 1998c). The basic findings of these studies are that integrated programs are consistently able to engage dually diagnosed patients in services and to help them to reduce SUD behaviors and attain stable remission. Other outcomes related to hospital use, psychiatric symptoms, and quality of life are positive but less consistent.

Despite the encouraging findings regarding integrated treatment programs and the widespread acceptance that integrated treatment is superior to nonintegrated treatment for this population (e.g., Smith and Burns 1994), implementation continues to be slow because of problems related to the organization and financing of programs. Organizational guidelines have been developed for dual-diagnosis programs (Mercer et al. 1998), but few large systems have successfully integrated services. Further services research is needed to clarify and resolve barriers.

Assessment

Several interlocking steps compose the standard approach to assessment of SUD: detection, classification, specialized (or functional) assessment, and treatment planning (Donovan 1988). Each of these requires some modification for patients with schizophrenia.

Detection. Screening is critical because SUD tends to be covert and treatment depends on detection. SUD frequently goes undetected in psychiatric care settings (Ananth et al. 1989; Shaner et al. 1993; Stone et al. 1993), mainly because many mental health programs do not screen at all. When screening is attempted, other problems emerge. Acutely ill psychiatric patients are frequently unable to complete lengthy structured interviews (Barbee et al. 1989). Many psychiatric patients deny, minimize, or fail to perceive the consequences of SUD when responding to interviews (Test et al. 1989). Available screening instruments sometimes focus on amounts of use or on consequences that are inappropriate for this population (Wolford et al. 1999). Medical exams also have poor detection rates in psychiatric patients, possibly because these patients do not have the long histories of heavy drinking that produce medical sequelae (Wolford et al. 1999).

Research suggests three helpful approaches to the problem of detection. First, clinicians in mental health settings should ask all clients about their substance use and related problems. The basic step of establishing formal screening procedures increases detection (Appleby et al. 1997). Perhaps the most efficient method is with a new screening instrument, the Dartmouth Assessment of Lifestyle Instrument (DALI), which has been developed specifically for persons with severe mental illness. Initial studies show that the DALI performs much better than traditional SUD screening instruments for this population (Rosenberg et al. 1998).

Second, clinicians should maintain a high index of suspicion for SUD, even in the face of denial, particularly among young male patients with other characteristics that suggest SUD (Mueser et al. 1999). Denial of SUD in situations of symptomatic or psychosocial instability should lead to multimodal assessment, such as urine drug screens, interviews with collaterals, and longitudinal observations in the community. Laboratory tests may yield false negatives and are ineffective when there are delays between drug use and testing, but they often detect current use that is denied by patients (Shaner et al. 1993; Stone et al. 1993). Similarly, several studies indicate that collateral reports from trained case managers are an effective way of identifying SUD in psychiatric patients (Drake et al. 1990; Barry et al. 1995; Carey et al. 1996).

Case managers have the opportunity to synthesize medical information from various assessment contacts, direct observations of the patient in the community, collateral reports from relatives, and self-reports over multiple occasions, leading to higher sensitivity to SUD.

Finally, all patients who have a past history of SUD or a current self-report of any regular use of alcohol or other substances should be followed carefully. Several pieces of evidence support this approach. SUD tends to be a chronic, relapsing disorder so that currently nonabusing patients with a history of SUD may be highly vulnerable (Drake et al. 1996). Psychiatric patients may be more likely to acknowledge past rather than current SUD (Barry et al. 1995). Moreover, they often acknowledge use but do not perceive or acknowledge the effects of their use (Test et al. 1989). Thus, their reports of recent use may indicate need for treatment better than their satisfaction of diagnostic criteria (Dixon et al. 1993). Also, patients with severe mental illness are unlikely to sustain substance use without developing related impairments (Drake and Wallach 1993).

Classification. The classification of SUD is relatively straightforward. If a person repeatedly uses a psychoactive substance that results in medical, emotional, social, or vocational impairments or physical danger, a diagnosis of SUD should be made (American Psychiatric Association 1994). Clinical opinion suggests that substance abuse, as opposed to substance dependence, is common in persons with severe mental illness and that the distinction may have important treatment implications (Minkoff 1997). Furthermore, we also recommend using the classification of “use without impairment” as a marker for potential problems (Drake et al. 1990).

Few longitudinal data bear on these issues. As described above, the threshold for entertaining a SUD diagnosis in this population is low because considerable evidence indicates that small amounts of use may lead to atypical consequences, which are not perceived by the patient but should nevertheless qualify for a diagnosis. There is also some research evidence that schizophrenia patients who use alcohol without impairment are likely to develop SUD over time (Drake and Wallach 1993), that patients with substance abuse rather than substance dependence have a better long-term course (Bartels et al. 1995), and that those with less severe alcohol dependence are more likely to respond to dual-diagnosis treatment (Drake et al., in preparation).

Although diagnosing SUD is relatively straightforward, comorbid psychiatric symptoms, syndromes, and diagnoses are often difficult to sort out because psychiatric symptoms of all kinds can occur as a result of SUD (Rounsaville 1989). *DSM-IV* criteria specify making a

diagnosis only after observing the patient for 1 month without substance use and without medications (American Psychiatric Association 1994). Although standardized and simple, this recommendation has little empirical basis and is unrealistic for patients who have psychotic symptoms because they usually require immediate medications and are often not abstinent for sufficient time to observe them. Rather than the simple *DSM* rule, Weiss et al. (1992) recommend using more specific abstinence criteria based on the known effects of particular substances of abuse in relation to the disorders being classified. They also recognize that longitudinal evaluation, corroborating data from collaterals, and multiple data sources are often necessary to make accurate diagnoses.

Attempts to classify individuals with SUD and co-occurring psychotic symptoms have been fraught with difficulties and have found that many patients fall into an uncertain category (Rosenthal et al. 1992; Lehman et al. 1996; Shaner et al. 1998). Moreover, longitudinal data suggest that patients with persistent psychosis in the face of chronic SUD more closely resemble schizophrenia patients than primary SUD patients in terms of course of illness and functioning (Turner and Tsuang 1990). In practice, many clinicians treat these patients as though they have severe mental illness, withdraw medications when feasible, and reassess the diagnosis if and when they attain stable abstinence (Shaner et al. 1998).

Specialized Assessment. A specialized, or functional, assessment of substance use behavior is the cornerstone upon which dual-diagnosis treatment planning is based (Carey and Teitelbaum 1996; Carey and Correia 1998). Specialized assessment entails a detailed evaluation of the patient's SUD, including motives for use, expectancies related to specific substances, and motivation for change; of how the patient's SUD interacts with adjustment in different domains of functioning, including housing, relationships, illness management, and work; and of the patient's personal goals. All of these factors help the clinician to develop an individualized treatment plan, consistent with the patient's personal strengths and goals, that identifies specific targets and intervention approaches.

This type of behavioral analysis assumes that motivating factors sustain continued substance use and that addressing these factors will facilitate substance use reduction and abstinence. For example, dual diagnosis patients often report that substance use enhances social opportunities, helps them deal with boredom, anxiety, and dysphoria, and is an important source of recreation (Noordsy et al. 1991; Baigent et al. 1995; Carey and Carey 1995; Mueser et al. 1995*b*; Addington and Duchak 1997). Substance abuse treatment addresses specific, individual problems of this type.

While the details of specialized assessment are beyond the scope of this article, it should be clear that the assessment covers areas such as social relationships with family and friends, leisure and recreational activities, work and education, financial matters, legal involvement, and spirituality. One goal is to evaluate the patient's strengths and potential resources. For example, if the patient expresses a strong desire to work, treatment can focus on securing competitive work and developing strategies for reducing the impact of substance use on getting or maintaining employment.

Another goal is to assess the patient's awareness of negative consequences associated with substance use, insight into having a substance abuse problem, motivation for change, and preferences for treatment. Many patients need interventions specifically designed to help them develop motivation. Moreover, other interventions are keyed to the patient's stage of treatment participation (McHugo et al. 1995; Mueser et al. 1998a). The concept of stage of treatment is based on the four-stage model developed by Osher and Kofoed (1989): engagement (no regular contact with dual-diagnosis clinician), persuasion (contact with clinician but no reduction in substance abuse), active treatment (significant reduction in substance abuse), and relapse prevention (no problems with substance abuse in past 6 months). Treatment goals are determined partly by the patient's stage of treatment. In the *engagement* stage, patients have no working relationship with a clinician and are not motivated to change their substance use behavior, and therefore treatment goals primarily focus on establishing regular contact and helping patients get their basic needs met. At the *persuasion* stage, patients have regular contact with their clinicians, but are minimally invested in changing their substance use behavior. In this stage of treatment, patients are often motivated to learn more and talk about their substance use behavior, and to work on other goals that are personally relevant. In *active treatment* patients have begun to reduce their substance use and are motivated to achieve further reduction or abstinence. In *relapse prevention* patients have not recently had problems related to substance use, and there is motivation to keep the substance abuse in remission and to work on other areas.

Although there is a growing consensus regarding the importance of conducting a specialized assessment of substance use behavior in dual-diagnosis patients, little research has evaluated the benefits of such assessment. Since specialized assessment is part of the treatment process, evaluation will need to focus on intermediate goals, such as the development of specific, individualized treatment plans.

Treatment Planning. The final step in assessment, treatment planning, involves combining and integrating infor-

mation obtained during the first three steps of assessment into a coherent set of actions to be taken by the clinicians. Treatment plans may involve interventions that either directly address SUD (e.g., developing motivation to reduce or cease substance use) or address other areas that impact on SUD (e.g., helping the patient find competitive work in order to decrease opportunities for using substances and improve self-esteem).

The treatment plan must of course address pressing needs, such as a grave risk to the patient or others; problems with housing, food, or clothing; untreated medical conditions; social network crises; and lack of psychiatric stabilization. More important, however, is the long-term plan to target behaviors for change based on the specialized assessment. Long-term goals might include, for example, changing the patient's social network, finding a job, and learning behavioral techniques to handle social anxiety. A wide variety of treatment strategies are available for achieving changes in target behaviors (Mueser et al. 1998a).

The research base for specific treatment plans includes studies showing that dual-diagnosis patients report specific expectancies and motives (Noordsy et al. 1991; Baigent et al. 1995; Carey and Carey 1995; Mueser et al. 1995b; Addington and Duchak 1997) and that they tend to recover from SUD in a stagewise fashion (McHugo et al. 1995; Drake et al., in preparation). We are aware of no studies of outcomes in relation to individualized treatment plans.

Treatment

As described above, the integration of mental health and substance abuse services involves organization and financing. Within the integrated treatment paradigm, however, a variety of specific components have been developed and are currently being refined. Individual components have different targets and are therefore often designed to be used in combination. For example, within a dual-diagnosis program, case management and close monitoring are used to link dually diagnosed individuals with treatment, substance abuse treatments to address SUD behaviors, family psychoeducation and housing supports to ensure that the environment supports stability and abstinence, rehabilitation to promote functioning in meaningful roles, and medications to target symptoms of mental illness and to inhibit SUD behaviors.

Before discussing individual components, we reiterate that dual-diagnosis programs are primarily focused on the outpatient setting. Inpatient care is reserved for stabilization, assessment, and linkage with the outpatient program (Drake and Noordsy 1995; Greenfield et al. 1995). The research base for this focus is twofold. First, there is

little evidence that hospital-based treatment is, by itself, effective in helping dual-diagnosis patients to achieve stable remission (Ribisl et al. 1996; Bachman et al. 1997). Patients who attain abstinence and participate in inpatient substance abuse treatment tend to relapse soon after discharge, suggesting that SUD is an environmentally sensitive condition and that patients need to learn to be abstinent in their long-term living setting. Second, the longitudinal evidence on recovery suggests that dual-diagnosis patients attain stable remission of SUD over months and years while living in the community (Drake et al. 1996; Drake et al., in preparation). Furthermore, since inpatient treatment is expensive, its overuse (for example, keeping patients in the hospital to prevent their access to substances) inevitably diminishes needed resources for outpatient care, even when costs are not capitated and individual programs are able to shift costs.

We have described the process of clinical care elsewhere (Mueser et al. 1998a). Here we will briefly describe the common components of integrated treatment and summarize the relevant research.

Case Management. The most common approach to integrating mental health and substance abuse treatments and to linking dual-diagnosis patients with outpatient services is through the use of multidisciplinary case management teams (Fariello and Scheidt 1989; Drake and Noordsy 1994). To integrate services, mental health and substance abuse specialists on the same team blend their respective skills into common procedures by sharing training experiences, responsibility for care, and the onus of developing a melded philosophy. To link dually diagnosed patients with services and maintain treatment relationships, teams rely heavily on outreach, practical assistance, and sharing decision making with the patient (Mercer-McFadden et al. 1997). After multidisciplinary teams are created, they require about 1 year of training to mature. Specific criteria for assessing the quality of dual-diagnosis treatment can be used to guide and monitor implementation (Teague et al. 1998).

The centrality of case management in dual-diagnosis programs is based on several pieces of evidence. When substance abuse treatment is integrated into mental health care without case management, the majority of patients drop out of the program (Hellerstein et al. 1995). In contrast, intensive case management has repeatedly demonstrated its capacity to engage and retain dual-diagnosis patients in outpatient services and to reduce their use of the hospital (Morse et al. 1992; Mercer-McFadden et al. 1997). Further, when dual-diagnosis treatments are delivered in the context of intensive case management, patients also reduce their SUD behaviors and develop stable remissions (Detrick and Stieppock 1992; Drake et al.

1993b, 1997, 1998b; Durell et al. 1993; Godley et al. 1994; Meisler et al. 1997). There is also emerging evidence that the quality of dual-diagnosis services predicts substance abuse treatment outcomes (Jerrell and Ridgely 1999; McHugo et al. 1999).

Close Monitoring. In addition to outreach and direct substance abuse treatment, dual-diagnosis teams often provide a variety of interventions that can be described by the rubric "close monitoring" (Drake et al. 1993a). Close monitoring techniques include medication supervision, protective payeeships, guardianships for medications, urine drug screens, supported housing staff, and outpatient commitments. Many of these approaches rely on the patient's cooperation, while others assume some degree of coerciveness based on the patient's incapacity to manage his or her own affairs or on the need to protect the patient and others from dangerousness (Noordsy et al., in press).

The evidence on specific approaches to close monitoring is meager because, although common, these interventions are rarely studied. The evidence on outpatient commitment is mixed (O'Keefe et al. 1997; Policy Research Associates 1998). The most common close monitoring intervention, representative payeeship, has received little or no empirical study (Rosen and Rosenheck 1999).

Substance Abuse Treatment. Once patients are engaged in outpatient services, all dual-diagnosis programs provide some form of substance abuse treatment. Because the patients are often unmotivated to pursue abstinence, most programs focus initially on education, harm reduction, and increasing motivation rather than on abstinence (Drake et al. 1993a; Carey 1996; Mercer-McFadden et al. 1997; Ziedonis and Trudeau 1997). As described above, motivational approaches are designed to help the patient to recognize that SUD is interfering with his or her own goals and thereby to nurture the patient's desire to reduce and then eliminate substance use. The other common approach to substance abuse treatment involves some form of cognitive-behavioral counseling. The two approaches are often combined or offered in stages so that skills for achieving and maintaining abstinence are taught after motivation is developed (e.g., Bellack and DiClemente 1999).

Substance abuse interventions can be provided in individual, group, or family formats. Clinicians on multidisciplinary teams often use all of these approaches based on the patient's preference and a shared decision-making model (Mueser et al. 1998a). In practice, most dual-diagnosis programs assume that the peer-oriented group is a powerful vehicle and address substance-abusing behaviors in one or more types of professionally led groups. The groups vary in orientation from 12-step to educa-

tional-supportive to social skills training to stage based (Mueser and Noordsy 1996).

An adjunctive approach to substance abuse treatment is linkage with self-help groups in the community such as Alcoholics Anonymous (Osher and Kofoed 1989) or with self-help groups specifically for dual-diagnosis patients such as Double Trouble (Bricker 1994). Clinical experience suggests that these linkages require some preparation and debriefing by mental health staff and that they are more effective once patients are actively pursuing abstinence (Noordsy et al. 1996).

The research on specific substance abuse treatments for dual-diagnosis patients is in its infancy. Early studies were limited by difficulties measuring SUD in this population, the lack of motivational interventions, and failure to tailor substance abuse treatments for people with severe mental illness (Mercer-McFadden et al. 1997). In addition, substance abuse treatment components are typically embedded in an overall dual-diagnosis program and are not assessed as independent interventions.

Nevertheless, the research base for substance abuse treatment of dual-diagnosis patients contains several relevant findings. First, case management by itself without a specific component of substance abuse treatment has little or no effect on SUD (Bond et al. 1991; Morse et al. 1992). Second, when substance abuse treatment is provided in the context of assertive case management, rates of stable remission improve steadily over at least 3 years (Drake et al. 1998b). Third, patients who attend dual-diagnosis groups tend to have good outcomes (Kofoed et al. 1986; Hellerstein and Meehan 1987; Nigam et al. 1992). Fourth, there is no evidence that one type of group is more effective than another (Mueser and Noordsy 1996). Although one study suggested that patients who participated in cognitive-behavioral skills training groups had better outcomes than those in case management and 12-step programs (Jerrell and Ridgely 1995), the results were probably best explained by quality of implementation (Jerrell and Ridgely 1999).

Thus far there has been no research on individual or family interventions for dual-diagnosis patients. Minimal research on linking dual-diagnosis patients with self-help groups in the community suggests that only a minority (approximately 20%) sustain their involvement with the groups and that patients with mood disorders are more able to do so than those with schizophrenia (Noordsy et al. 1996). As far as we know there are no studies of Double Trouble groups.

Rehabilitation. Recovery from SUD involves building a new life rather than just avoiding substances (Vaillant 1995). Stable abstinence usually requires major alterations in how one handles internal and external stress,

social networks, habits, self-perceptions, and vocational activities. Because most dual-diagnosis patients have become entangled in the social scene of substance abuse over years, their recovery from SUD also takes years (Drake et al. 1998b). Many dual-diagnosis programs attempt to substitute day treatment, rehabilitation groups, or sheltered work for previous activities and relationships. The weakness of these approaches is that mental health activities are difficult to sustain over time and, more important, patients do not value them and often find them demeaning (Estroff 1981; Alverson et al. 1995; Quimby et al., submitted). A more promising approach is community-based rehabilitation, such as supported education or supported employment, which helps patients to succeed in normal roles in the community. For example, standard approaches to supported employment can support the patient's movement toward abstinence (Becker and Drake 1994).

There are currently no controlled studies of supported employment or any other approach to rehabilitation for dual-diagnosis patients. However, six independent studies of vocational or dual-diagnosis programs have shown that patients with dual disorders are as likely to succeed in working as those without SUD or those with remitted SUD (Sengupta et al. 1998). Moreover, many patients report that working is an important motivational step in their SUD recovery program (Alverson et al. 1995).

Housing. Since dual-diagnosis patients commonly have difficulties maintaining housing and since living in drug-infested housing settings often sustains their SUD, housing has been a specific focus of dual-diagnosis interventions, particularly for the homeless (Osher and Dixon 1996). Patients, even those who are homeless, tend to prefer independent housing (Schutt and Goldfinger 1996). Some housing specialists have argued on ideological grounds that independent housing is preferable, while others have argued that the special vulnerabilities of dual diagnosis can be addressed only in structured living situations that include close monitoring by professional staff. One well-known program has created a housing continuum that allows dual-diagnosis patients to enter housing while they are still actively abusing substances but also provides a range of staffed and supported housing arrangements for those who are in varying stages of recovery (Bebout 1999).

The research on housing for dual-diagnosis patients is inchoate. Relevant findings include the following: First, dual-diagnosis patients are prone to be extruded from independent and congregate housing situations because of the behaviors attendant to their SUD (Center for Mental Health Services 1994). Second, the great majority of dual-diagnosis patients are not able to participate in residential

treatment or do not make the transition from residential treatment to independent housing (Blankertz and Cnaan 1994; Burnam et al. 1995; Rahav et al. 1995; Bartels and Drake 1996). Third, in one study, for those who gained access to decent housing, making some progress in substance abuse treatment was a critical mediating step toward maintaining stable housing (Bebout et al. 1997). Fourth, the same study found that a housing continuum connected to integrated dual-diagnosis services resulted in better housing outcomes when compared with a nonintegrated system of housing, mental health, and substance abuse services (Drake et al. 1997).

Pharmacological Approaches. Although this review emphasizes psychosocial approaches, psychopharmacology is also a critical component of dual-diagnosis programs. Relevant topics include medication adherence, antipsychotic medications, mood stabilizers, antianxiety medications, abuse of prescribed medications, and antidipsomaniac medications.

Medication nonadherence correlates with comorbid SUD (Miner et al. 1997; Swartz et al. 1998), perhaps in part because dually diagnosed individuals are often told that using alcohol or street drugs in addition to their prescribed medications poses a grave health risk. On the other hand, clinical experience suggests that medication adherence and symptom control are often prerequisites to successful SUD treatment. Most programs therefore adopt efforts to improve compliance by providing education, medication management skills training, medication supervision, use of depot forms of antipsychotic medications, and coercive means such as outpatient commitment and guardianship. There are, however, almost no data on whether these techniques actually improve medication adherence, symptom control, or outcomes among dual-diagnosis patients.

For patients with schizophrenia or psychotic symptoms, antipsychotic medications are the mainstay of pharmacological treatment. Typical antipsychotic medications, per se, probably do not decrease SUD behaviors and, according to several clinical opinions, may actually precipitate or worsen SUD (Siris 1990; Voruganti et al. 1997). Few relevant data exist, although one study showed that patients starting a traditional antipsychotic drug increased nicotine use (McEvoy et al. 1995). On the other hand, there is emerging evidence that the atypical antipsychotic drug clozapine may reduce SUD in dual-diagnosis patients (Drake et al., in press; Zimmet et al., in press). We are aware of no data on other atypical antipsychotic medications in relation to SUD.

Mood stabilizers are also a mainstay of treatment of severe mental illness and are frequently prescribed for dually disordered patients. Studies of adjunctive antidepressants for patients with comorbid schizophrenia and

SUD have produced mixed results (Ziedonis et al. 1992; Siris et al. 1993). We are unaware of studies of mood stabilizers or newer antidepressants in dual-diagnosis patients.

Another critical issue in dual-diagnosis treatment concerns the effectiveness of antianxiety medications and their potential for abuse (Center for Substance Abuse Treatment 1994). Clinical discussions of pharmacology for dual diagnosis inevitably produce strong but mixed opinions about whether long-acting benzodiazepines are helpful or harmful. There is also concern about the potential for abuse of antiparkinsonian medications. We are unaware of any data on these topics.

Finally, many psychiatrists prescribe antidipsomaniac medications to help dual-diagnosis patients achieve stable remission. Kofoed et al. (1986) reported the usefulness of adjunctive disulfiram in an open clinical trial, but no controlled studies have examined disulfiram, naltrexone, or other medications that reduce psychoactive substance use or craving.

Conclusions

Comorbid SUD is a common complication of severe mental illness and is associated with serious adverse consequences. Over the past two decades the health care field has recognized the ineffectiveness of providing care in two separate service systems and has rapidly developed service models that integrate mental health and substance abuse treatments. Recent evidence regarding the general integrated treatment approach is consistent and positive, but much work remains to be done on the organization and financing of integrated programs. Furthermore, the basic components of integrated treatment—case management, close monitoring, substance abuse treatment, family psychoeducation, rehabilitation, housing, and medications—are still being developed and refined. Research is needed to address the effectiveness and proper combinations of these components.

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