



ARTICLE

Co-occurring mental disorder and substance use disorder in young people: aetiology, assessment and treatment

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SUMMARY

Dual diagnosis is one of several terms used to identify individuals diagnosed with a co-occurring mental disorder and substance use disorder. The existence of a dual diagnosis in adolescents is often associated with functional impairment in various life domains, causing physical health problems, relational conflicts, educational/vocational underachievement and legal problems. Dual diagnosis is difficult to treat and can result in tremendous economic burden on healthcare, education and justice systems. It is essential for clinicians caring for young people to be knowledgeable about dual diagnosis to ensure that it is identified early and treated. This article aims to provide an overview of dual diagnosis, increase its awareness and promote a realistic treatment approach.

LEARNING OBJECTIVES

After reading this article you will be able to:

- recognise the signs, symptoms and risk factors for young people with co-occurring mental disorder and substance use disorder (dual diagnosis)
- understand the treatment approaches used in the management of these co-occurring disorders
- understand the principles of screening for dual diagnosis and monitoring treatment progress.

KEYWORDS

Concurrent disorder; dual diagnosis; substance use disorder; adolescent and youth mental health; co-occurring disorder.

Dual diagnosis, also known as co-occurring disorder or concurrent disorder, is a term used to describe the simultaneous existence of a mental disorder and a substance use disorder (SUD) in an individual. Evidence from clinical practice shows that in most young people with SUD, dual diagnosis is the norm rather than the exception and many present with more than one comorbid mental disorder

(Erskine 2015). The transition periods from childhood to adolescence and from adolescence to adulthood can be precarious, as they correlate with onset of several mental disorders. These transitions are also critical turning-points when occasional substance users may progress to regular use and potentially may become dependent if not promptly treated (Jordan 2017). For the purposes of this article, a young person is an individual aged 12–24 years.

In young people with a dual diagnosis, the relationship between SUD and mental disorder is multi-layered and often infused with complexities that make assessment and treatment difficult to achieve. When compared with young people with mental disorder only, or with SUD only, young people with a dual diagnosis are at higher risk for a variety of detrimental outcomes, including multiple hospital visits, increased risk of suicide attempts, interpersonal relationship difficulties, homelessness, poorer treatment outcomes, involvement with the criminal justice system and premature death (Erskine 2015). Unfortunately, many clinicians, particularly those who have not received adequate training in addictions, feel helpless when required to provide support for young people with a dual diagnosis (Blumenthal 2001).

For these patients, accessing treatment can be exceedingly difficult, as most mental health services are not commissioned to treat young people with SUDs and, conversely, most programmes for SUDs are not well prepared to treat mental disorders (Sterling 2010). Even when offered access to treatment services, young people with a dual diagnosis often struggle to engage with treatment, owing to their low motivation and poor insight (Ramchand 2015). This inevitably leads to further deterioration in their mental health and psychosocial functioning and increases the levels of tension and frustration within the family unit, as the patient may seem oblivious to dangers associated with continued substance use. The fictitious case vignette in [Box 1](#) illustrates this problem.

BOX 1 Case vignette: systemic barriers that hinder access to treatment

Bobby, a 16-year-old male, presented to his family doctor, Dr Smith, with complaints of poor sleep, irritability and aggressive outbursts. Recently, Bobby has been spending a significant amount of time in his bedroom and only goes out to the local park to meet with peers, whom his parents refer to as 'deadbeats'. His room is unkempt, his personal hygiene continues to deteriorate and he seems withdrawn.

Bobby admitted to using various substances, including cannabis, alcohol, ecstasy and opioids, with his mates at the park. He endorsed symptoms of major depressive disorder and suicidal ideation. Bobby's mother and his 23-year-old sister have a history of depression. Dr Smith felt that, in addition to Bobby's substance use problems, he was also depressed. He was referred to the local child and

adolescent mental health service (CAMHS) for further assessment and treatment.

Bobby was not accepted by the CAMHS, as it was felt that his substance use was responsible for his depression and suicidality. The CAMHS referred him to the drugs and alcohol team (DAT) to get help for his substance use and advised that he could be re-referred to the CAMHS if he was still depressed after being abstinent from drugs. Bobby did not actively engage with the DAT but did learn a great deal about neural pathways of different psychoactive substances.

Bobby increased his use of substances and his mental health continued to deteriorate. His family feared him, as he could be very volatile and destructive when things were not going his own

way. His behaviour had become more erratic and explosive. He threatened to burn down the house when his parents refused to pay the drug dealers the money he owed them. Following a distress call, the police took him for a psychiatric assessment.

Having been screened for dual diagnosis using clinical interview and screening tools such as the CRAFFT, Bobby was appropriately diagnosed and referred to a youth dual diagnosis service. The service operated on the integrated model, so Bobby received treatment within one coherent package. He was assigned a care coordinator, who worked collaboratively with him and his family to address his needs, including facilitating appointments with the psychiatrist/therapist and liaising with social care and school.

The literature on dual diagnosis is both extensive and complicated. Yet it is rather sparse on controlled well-researched treatment protocols for dual diagnosis in the adolescent population, despite the fact that they are the usual presentation in many treatment settings. Given the significant impact of dual diagnosis on the affected young person, their families and society, it is crucial for practitioners who may be the first point of contact to have an informed understanding of the condition, to ensure that this vulnerable patient group is effectively supported.

Risk factors for dual diagnosis

Like most complex psychiatric disorders, the risk factors for the development of a dual diagnosis are multifactorial and include overlapping genetic vulnerabilities and environmental factors (Hawkins 1992). There is no clear directional pattern indicating whether mental disorders or SUDs come first. However, in most adolescents with a dual diagnosis, a mental disorder typically precedes problematic substance use, and small subsets of young people develop a SUD before experiencing a mental disorder (Merikangas 2010). Earlier onset of substance use tends to confer worse outcomes. Understanding the reasons why young people use substances can be a helpful way to understand their risks.

Developmental pathways

There are at least four hypotheses that can explain the developmental pathways for the coexistence of SUD and mental disorder in young people, and several mechanisms may be occurring at once. These include (a) common aetiological factors (risk

factors common to both disorders), (b) bidirectional feedback (presence of mental disorder can contribute to the development of SUD and *vice versa*), (c) secondary mental disorder (substance use precipitates mental disorder) and (d) 'self-medication' or secondary substance use (using substances as a form of coping mechanism for the symptoms associated with mental disorder). I will briefly consider each of these in turn.

Common aetiological factors

The common factors hypothesis has been used to explain the coexistence of substance use disorder with conditions such as attention-deficit hyperactivity disorder or schizophrenia. For instance, the hypothesis suggests that there is a common genetic determinant of risk for schizophrenia within neural systems (dopaminergic and glutamatergic), that contributes to the risk for both psychosis and addiction to substances (Khokhar 2018). Most substances of misuse increase dopaminergic activity in the brain and can mimic or exacerbate psychotic symptoms.

Bidirectional feedback

Since neurocircuitry vulnerability may arise prior to the appearance of psychotic symptoms, an increased use of substances in adolescence may both increase the risk for developing a later SUD and serve as an additional risk factor for the appearance of psychotic symptoms (bidirectional hypothesis). Through a positive feedback loop, one of the components of the coexisting disorders serves to sustain or worsen the other in reciprocal fashion (Khokhar 2018).

Secondary mental disorder

The secondary mental disorder hypothesis proposes that substance misuse precipitates mental disorder. Several meta-analyses and prospective studies have demonstrated that adolescent cannabis use is associated with increased risk of psychosis even after adjustment for baseline prodromal symptoms, parental psychosis and other substance use (Mustonen 2018).

Self-medication

The 'self-medication hypothesis' posits that substance misuse in people with mental disorders is the resultant effect of the desire to ameliorate their psychiatric symptoms (Khantzian 1997). For instance, someone who has experienced childhood adversity or witnessed domestic violence may develop depression or anxiety disorder and may be inclined to use cannabis to alleviate their symptoms. Although the self-medication hypothesis is plausible and attractive to patients and clinicians, empirical studies have not reported any strong relationship between symptoms of mental disorders and substance use (DeQuardo 1994). Furthermore, adolescents with a dual diagnosis seldom report that specific substances alleviate specific symptoms of a particular mental disorder.

Environmental risk factors

Research findings have identified several environmental factors relevant to the cumulative risk of development of a dual diagnosis in young people. These include prenatal exposure to alcohol and psychoactive substances, low birth weight, anoxia and brain damage at birth, childhood temperament, high levels of emotional reactivity and impulsivity, and parental attitudes of permissiveness towards use of substances by young people (Hawkins 1992). Intellectual disability, school exclusion, family conflict, adverse childhood experiences and witnessing domestic violence are also significantly associated with increased substance use and development of a mental disorder. Association with regular drug-using peers increases the likelihood of substance use in adolescents. Dual diagnosis is also overrepresented in the homeless population, prisons and the lesbian, gay, bisexual and transgender (LGBT) community (Catchpole 2016).

Protective factors

Some of the commonly recognised protective factors that enable successful outcomes in young people with a dual diagnosis include resilience, positive social orientation, being of above average intelligence, living in a safe and nurturing social environment that offers strong ties to family and school,

having supportive adults to talk to and ability to excel at something (Youngblade 2007). One of the most important aspects of the management of dual diagnosis involves working in collaboration with the individual to develop strategies that strengthen these protective factors.

Epidemiology

Research studies estimate that the 12-month prevalence rate of dual diagnosis in adolescents ranges from 1.7 to 3.4% (Winstanley 2012). This is a conservative estimate as it is likely to be higher when those with mild symptoms of mental disorders are considered. Rates of co-occurring mental disorders among adolescents with SUDs in community samples range from 55 to 80% (Merikangas 2010) and clinical samples have even higher comorbidity, as young people in substance use treatment settings are more likely to have greater severity of psychiatric impairment (Chan 2008). Given the high rates of mental disorders and the high rates of substance use during adolescence, it is not surprising that there is significant risk for young people to develop a dual diagnosis. Problems that commonly co-occur with SUDs include conduct disorder, with reported rates ranging from 50 to 80%, attention-deficit hyperactivity disorder (ADHD), with rates ranging from 13 to 77%, and mood disorders, with rates ranging from 14 to 50%. Other co-occurring disorders include emerging borderline personality disorder, eating disorder and trauma-related disorders (Chan 2008).

The relationship between mental disorder and SUD varies depending on the type and severity of the mental disorder, the substance used and the severity of the SUD. Research suggests that female adolescents may be at greater risk for comorbidity between SUDs and internalising disorders (depression, anxiety and post-traumatic stress disorder) compared with males. Conversely, males with SUDs are at greater risk for co-occurring externalising disorders such as conduct disorder, oppositional defiant disorder and ADHD (Wu 2011). Alcohol and cannabis are the substances most used by young people in the UK and North America (Marshall 2014; Levy 2016).

Signs and symptoms of dual diagnosis

The signs and symptoms of a dual diagnosis are diverse and depend on the nature of the substance and its physiological effects, the interaction between the co-occurring conditions, the developmental age of the patient and age at onset of the mental disorder. The co-occurrence of SUDs with affective disorders is the most prevalent presentation in both the general population and clinical samples

of several countries. Most young people with SUDs often use multiple substances and may present with multiple co-occurring mental disorders, thus increasing the severity of illness and resulting in poor outcomes.

Noticeable behavioural changes may include appearing anxious or fearful for no apparent reason, changes in sleep patterns or appetite, sudden mood swings, irritability or angry outbursts, periods of unusual silliness or hyperactivity, and drop in performance and attendance at school or work. Physical changes may include sudden weight loss or weight gain, deterioration of physical appearance, bloodshot eyes, unusual smells on breath or body, tremors and impaired coordination. Social changes may include unexplained need for money or financial problems, and sudden change in interpersonal relationships. It is noteworthy that, owing to the variable combination of mental illness and substance use problems, there is no single symptom or group of symptoms common to all combinations. The symptoms of one problem can resemble, mask or exacerbate the symptoms of the other. The presence of a dual diagnosis increases severity and complicates recovery.

Screening

Clinicians often cite time constraints and concerns about upsetting patients by bringing up sensitive issues such as alcohol and drug use as partly responsible for their reluctance to screen young people. These concerns are understandable, but when screening is implemented properly, the demonstrated success in identifying individuals requiring referral for treatment makes the process worthwhile. The advantage of screening is that it opens the possibility of providing early intervention for the most prevalent co-occurring psychiatric disorders, such as cannabis use disorder and anxiety or alcohol-use disorders and depression, as well as the early detection of emerging mental disorders that may not reach a diagnostic threshold.

Screening tools are those that can be quickly and easily administered in any setting. Generally, such tools take no longer than 10 min to complete and their primary purpose is to identify which individual will need more comprehensive assessment. Examples include the CRAFFT (Car, Relax, Alone, Family/Friends, Trouble) (Knight 1999) and GAIN (Global Appraisal of Individual Needs) Short Screener (Dennis 2006). The CRAFFT serves as an adolescent-validated analogue to the adult CAGE questionnaire. The GAIN assesses for both SUDs and potentially associated mental disorders, and it includes four subscales assessing substance use, internalising disorders, externalising disorders and crime/violence. The choice of the assessment instrument will depend

on the assessment objectives, the time available to conduct the assessment and the expertise of the clinician.

As the features of dual diagnosis tend to escalate in adolescence and cause significant impairment in psychosocial functioning, routine screening should be conducted early to identify young people in need of support and to prevent progressive deterioration (Winters 2014). Given that adolescents seldom seek health advice, it is essential that care providers capitalise on every opportunity to enquire about their mental health and substance use. The purpose of screening is to connect the young person with the appropriate level of service, based on the symptom severity and level of need. Adolescents' concerns about confidentiality can limit their willingness to seek help for sensitive problems such as substance misuse and altered mental state. Clarity regarding confidentiality policies and practices needs to be established during assessment and reviews.

Urine drug screening can be useful in the initial psychiatric evaluation for diagnostic validity, for monitoring substance use in young people receiving controlled substances for co-occurring disorders, for ascertaining adherence to treatment regimens, in detecting possible medication diversion and in a contingency management programme. The samples must be obtained in a controlled setting and it is good practice to seek age-appropriate consent before conducting a urine drug screen. It is also important to be familiar with the pharmacokinetics and pharmacodynamics of the drugs being used that can affect the usefulness of the test. For example, in a recreational user of cannabis, the drug may be detected in their urine sample for up to 4 days after use, whereas it may be detected for up to 1 month in a daily user. Although a positive result can be quite telling, a negative result does not always help in understanding the current situation.

Assessment and diagnosis

Studies show that community-based mental health services and substance misuse services often do not adequately assess for dual diagnosis, and they seldom use evidence-based treatment protocols for adolescents with a dual diagnosis (Lichtenstein 2010). Assessment and diagnosis should be ongoing and evolve throughout treatment sessions. It is essential to screen for and address problems relating to trauma, given its high prevalence in young people with a dual diagnosis (Hawkins 1992). The complex link between mental disorder and SUD can make identifying dual diagnosis difficult, especially given the multiple aetiological

pathways that lead to the problem. Adolescents with a dual diagnosis are vulnerable individuals who are typically involved with multiple services, including the juvenile justice system, thus highlighting the need for collaboration and coordination of services (Levy 2016), i.e. the ‘no wrong door’ approach. The principle of the ‘no wrong door’ approach ensures that the patient is supported or linked to appropriate services regardless of where they enter the system of care. Some of these patients may not have access to suitable accommodation or a family doctor and may be socially isolated. They may be at risk of exploitation and may have safeguarding needs that require professional attention. This should form part of the comprehensive assessment.

Differential diagnosis

It is important to distinguish dual diagnosis from substance-induced disorders in a longitudinal assessment, because different treatment strategies may be required and the outcomes may be different. The key aspect of the assessment lies in ascertaining the temporal association between the disorders. Thus, if the symptoms of a mental disorder occur before the substance use or after a long period of abstinence, a dual diagnosis is considered (American Psychiatric Association 2013). Conversely, if the symptoms occur during or shortly after substance use, then the diagnosis of substance-induced disorder is entertained. In addition to the timing of the presentations, other aspects of the assessment that may help to distinguish substance-induced disorders from dual diagnosis include positive family history for mental disorders or SUDs, purpose of substance use, response to treatment and symptoms specific to the psychoactive substance.

However, it is important to note that dual diagnosis can be identified during treatment of either mental disorder or SUD. In clinical practice, it is often difficult to differentiate substance-induced disorders from dual diagnosis because most adolescents are usually not able to achieve the lengthy abstinence from substances that is required for a formal diagnosis. For this reason, diagnosis of mental disorder needs to be flexible. Symptoms may change with maturity, a decrease in substance use, prolonged abstinence or level of environmental stress.

SBIRT

Young people with a dual diagnosis can have complex needs, and this can lead to a care provider feeling overwhelmed and helpless to support positive change. As part of routine healthcare, the US Substance Abuse and Mental Health Services Administration (SAMHSA) guidelines (Levy 2016) recommend

universal substance use screening, brief intervention and/or referral to treatment (SBIRT) for young people attending a healthcare facility. The theory behind SBIRT is that even in a time-limited setting, ‘change talk’ can be elicited and young people can be engaged in taking steps towards recovery. SBIRT uses information gathered from a quick evaluation of substance use patterns and how the substance use is affecting the young person’s life. This is done to provide feedback and elicit a single measurable behavioural change to allow the young person to experience a small incremental success.

SBIRT, when delivered by a physician or other qualified health professional, has been demonstrated to be effective for harmful alcohol use. However, the effectiveness of SBIRT in reducing risky illicit drug use in adolescents, although promising, has been inconsistent. The results vary by the specific setting and the patient population that is targeted for SBIRT implementation (Saitz 2010).

Treatment

Adolescents with SUDs differ from their adult counterparts in many ways. During adolescence, the brain undergoes neuronal pruning that affects decision-making and impulse control. As a result, the young person has a decreased ability to think before acting, to delay gratification or to consider future consequences, compared with an adult (Casey 2010). Additionally, the developing brain is more vulnerable to the long-term harmful effects of SUDs. These factors should be taken to account when treating young people with a dual diagnosis.

Dual diagnosis is particularly challenging to treat, and relapse is common, leading to disappointment for the patient, family and clinician. The treatment requires a biopsychosocial–spiritual approach that addresses safety, suicidality, abuse and relapse prevention by involving the support of families and community. The spiritual component highlights concepts such as wholeness, balance, and the importance of relationships with family, community, ancestors and the natural environment. The choice of therapeutic approach used in any particular case will depend on the psychosocial circumstances, the nature of the mental illness and substance use problem the individual is living with and how these interact. It may also depend on the severity of the condition, the availability of resources and the outcome of the patient’s risk assessment. Following completion of screening, the young person is matched with a service model that meets their level of need (Winters 2014).

Service delivery models

There are currently three models of service delivery for the treatment of dual diagnosis available in

BOX 2 Models of service delivery for co-occurring mental disorder and substance use disorder (dual diagnosis)**Sequential/serial treatment**

First, the patient is offered treatment for either the mental disorder or the substance use disorder. After successfully completing treatment for one disorder, they are offered treatment for the other.

Simultaneous/parallel treatment

The patient receives treatment for both the mental disorder and the substance use disorder at the same time, but the treatment is offered by different services, primarily in isolation from each other.

Integrated service

The patient benefits from the coordinated use of a single treatment plan that focuses on the two conditions simultaneously and uses multiple treatments, such as the combination of psychotherapy and pharmacotherapy.

Australia, Canada and Europe: sequential/serial treatment, simultaneous/parallel treatment and an integrated service (Box 2).

One of the demerits of sequential treatment is that it delays treatment, decreases motivation and leads to a poorer outcome. The simultaneous treatment model is often fraught with difficulties in communication and cooperation between services, particularly on matters relating to patient privacy and confidentiality, in addition to confusion that may arise from different treatment philosophies. Though the integrated model is currently regarded as the gold standard, it is certainly not perfect. It requires proactive collaboration within the multidisciplinary team to address potential conflicts that can arise from funding streams or commissioning (Kelly 2012).

Psychoeducation about mental health and substance use problems is a pivotal aspect of the treatment package; for people who have milder problems, psychoeducation alone may be the only treatment they need. Ideally, integrated care should be available by means of in-patient admission, out-patient clinic or an assertive outreach team that offers support in places that the patient considers most comfortable for their engagement (Kelly 2012). As with most chronic conditions, relapse is common in people with a dual diagnosis and does not imply personal failure or treatment failure. It is important to discuss relapse prevention strategies and the need for continuing care with the adolescent and their family. Self-help groups for peer support could be beneficial (Winters 2014).

Psychological and pharmacological therapy

When meeting with a young person with a dual diagnosis, practitioners should be aware of the guilt, shame, stigma and fear that the patient may be experiencing. More than half of young people with a dual diagnosis may have experienced some form of trauma in their lives and may have problems with trust. Clinicians should maintain professionalism and avoid confrontation, labelling and lecturing. Since use of non-prescribed substances is illegal for

minors, some young people will be reluctant to divulge personal use history or engage with services. The initial focus of treatment should be to engage the individual by establishing a strong therapeutic alliance and collaboratively developing goals to address substance misuse and begin to address comorbid disorders as well as other psychosocial problems. A discussion on consent and confidentiality is key to engagement of young people into treatment.

Psychological interventions

Commonly used therapeutic paradigms for treatment of SUDs include cognitive-behavioural therapy (CBT), dialectical behaviour therapy (DBT), motivational interviewing, family therapy, the 12-steps programme, the contingency programme, trauma-informed therapy or a combination of these, tailored to the needs of the individual. In principle, CBT helps to increase self-monitoring behaviour, awareness and coping strategies; DBT helps to decrease emotional dysregulation, teach mindfulness skills, enhance distress tolerance and improve interpersonal effectiveness; motivational interviewing aims to increase the patient's motivation to change; family-based therapy helps to reduce adolescent substance use by addressing the mediating family risk factors; the 12-steps programme offers a supportive approach; the contingency programme encourages healthy changes in behaviour by providing adolescents with immediate rewards for positive changes in behaviour, such as negative urine tests or meeting treatment goals; trauma-informed therapy offers the young person skills and strategies to assist them in better understanding, coping with and processing emotions tied to their traumatic experiences.

Psychological interventions have been demonstrated to be effective in young people with SUDs as they broadly reduce substance use, decrease relapse rates and improve quality of life (Winters 2014). Psychological therapies have also been shown to be effective in the treatment of mental

disorders such as mood disorders and externalising disorders. Although there is robust evidence that these therapies can be effective in people with SUDs or mental disorders, their effectiveness as a stand-alone treatment approach in dual diagnosis is limited (Kelly 2012). The quality of evidence for single therapy in dual diagnosis is mixed, amid heterogeneity of methodology and conflicting outcomes between studies. Given the complex nature of dual diagnosis, it is not so surprising that various studies have yielded mixed results. Several factors account for the low quality of evidence; these include weaknesses in the research methodology, multiple substance use, and severe and multiple co-occurring mental disorders (Bender 2006). It is also plausible that co-occurring internalising disorders operate differently from co-occurring externalising disorders in their relationships to the development of SUDs.

Pharmacological interventions

In addition to other psychosocial supports, medications are commonly used in the management of dual diagnosis. These may be used to treat withdrawal symptoms, decrease craving and promote abstinence, and to treat comorbid psychiatric disorders. The safety, efficacy and tolerability of psychotropic medication use in young people with a dual diagnosis have not been sufficiently studied; evidence extrapolated from adult literature is often applied when treating adolescents. When prescribed, medications should be used cautiously and judiciously. Ideally, any medication used should have low misuse liability, have few side-effects and be well tolerated to ensure concordance. Fixed-dose regimens are preferable to enhance adherence. It is important to record the level and type of substance misuse and to warn the patient about the potential interactions between the substance of addiction and the prescribed psychotropic medication.

In some instances, medication-assisted treatment has been shown to reduce opioid misuse in patients 16 years and older and can be considered in conjunction with other psychosocial interventions (Kampman 2015). Buprenorphine, a partial opioid agonist, and naltrexone, an opioid antagonist, prevent relapse and overdose in older adolescents with opioid use disorder. Naltrexone has been shown to decrease alcohol use in adolescent problem drinkers (Miranda 2014). A pilot randomised controlled trial that evaluated *N*-acetylcysteine for treating adolescent cannabis dependence demonstrated that treatment was associated with decreased cannabis use, but it did not significantly decrease cravings compared with placebo (Roten 2013). The US federal regulations strictly limit

methadone treatment of patients who are younger than 18. There are currently no approved medications to treat cannabis, cocaine or methamphetamine misuse.

Adolescents with SUDs have higher rates of depression than their counterparts in the general population. A meta-analysis by Zhou et al (2015) showed that antidepressant medication has a small overall effect in reducing depression in young patients with co-existing depression and SUD but does not appear to improve substance use outcomes. Nonetheless, the presence of a SUD should not be a barrier for the use of antidepressants in young people with comorbid depression, as these medications have been shown to be effective in reducing the risk of suicidality and impairment in functioning (Cornelius 2005). In those with ADHD and a SUD, there is no evidence that prescribed stimulants predispose them to future substance use. In a systematic review of pharmacological treatments for ADHD and comorbid SUDs, Cunill et al (2015) found a small to moderate reduction of ADHD symptoms but did not find any effect in reducing substance use or improving retention in treatment.

Combined treatments and integrated service delivery

Much of the evidence shows that, separately, treatments for both SUDs and other psychiatric disorders are effective in reducing substance use and in improving behavioural, familial and psychosocial outcomes (Kelly 2012). In clinical practice, use of a single therapeutic approach for the management of dual diagnosis is rarely effective. Indeed, research evidence suggests that combinations of psychotherapies, behavioural and pharmacological interventions offer the most effective treatment for dual diagnosis (Kelly 2012). To maximise successful treatment outcome, these treatment modalities are integrated within a treatment programme (Bukstein 2010).

As already mentioned, adolescents with a dual diagnosis are more likely to have experienced childhood adversity and significant family problems and to have developed a mental disorder such as an intellectual disability, ADHD or conduct disorder. These behavioural, psychosocial and mental disorders often hinder their adjustment to educational settings and may lead to school exclusion and increased risk of associating with peers with similar vulnerabilities. The complexity of these problems underscores the need to involve education, family and crime prevention services in the multimodal approaches that address a broad range of mental and psychosocial problems in an integrated service for dual diagnosis.

Integrated treatment refers to the focus of treatment on two or more conditions and to the use of multiple treatments, such as the combination of psychological therapy and pharmacotherapy. There is robust evidence demonstrating the superiority of integrated programmes over single-focus treatments (Asarnow 2015) and that integrated programmes improve treatment retention and are more cost-effective (Kalina 2013). The National Institute for Health and Care Excellence (NICE) guideline (2016) recommends integrated care for young people with a dual diagnosis, as it reduces fragmentation and enhances continuity of support. The care should include standardised screening, assessment, treatment planning, treatment delivery and continuing care that is evidence-based and tailored to the needs of the young person and their family. Members of integrated treatment teams may include psychiatrists or mental health practitioners, substance misuse counsellors, probation officers, social workers, education specialists and family therapists. Given the skill mix within the team, the programme is able to provide a broad spectrum of services, not only to address substance use and mental health problems directly, but also to address issues that might indirectly affect outcomes (e.g. problems related to physical health, housing, employment and education).

Progress monitoring

Given the challenge of keeping patients engaged in treatment, it is important to obtain regular feedback and to monitor treatment progress. Routine outcome measures such as urine drug screening, clinic attendance rate and the Partners for Change Outcomes Management System (PCOMS) (Miller 2005) form an essential means of ensuring the quality and effectiveness of treatment. PCOMS uses two scales: the Outcome Rating Scale (ORS) (Miller 2003) and the Session Rating Scale (SRS) (Duncan 2003). The ORS and SRS are four-item patient-rated measures designed to track treatment progress and therapeutic alliance respectively. The ORS is administered at the beginning of each therapy session and is scored and reviewed with the patient in the session; the SRS is given at the end of each session and is reviewed as any concerns arise. Treatment intensity may be increased or type of intervention may be adjusted if the patient does not respond satisfactorily. For example, positive drug screens, missed sessions or a rupture in therapeutic alliance would indicate lack of progress in treatment, and should influence a decision to change the treatment approach. Research evidence supports the beneficial role of continuing care in sustaining treatment gains (Kelly 2012).

Conclusions

Dual diagnosis is a major cause of morbidity among young people, as substance use typically starts in adolescence, a period when the first signs of mental health problems commonly appear. Young people with a dual diagnosis often encounter structural and systemic barriers to treatment and they may struggle to engage with services. To ensure a better outcome, their contact with any service should be an opportunity to screen for substance use and mental health problems, as opportunistic brief interventions have been shown to improve outcome of dual diagnosis. Early recognition, prompt intervention and relapse prevention should be embedded in the management of young people with a dual diagnosis.

Partly owing to methodological difficulties, randomised controlled trials, systematic reviews and meta-analyses have not identified clear and specific evidence-based (gold standard) therapy associated with superior outcomes in young people with a dual diagnosis. Multiple or a combination of therapeutic approaches (psychological, pharmacological and psychosocial) are used simultaneously to achieve good outcome. When the care is integrated and well coordinated, young people with a dual diagnosis will engage and do better. The most important variable for success is forming a good therapeutic relationship; this is achieved through active listening and being flexible, respectful and empathetic. Problems related to risks, suitable housing, education/vocation, access to a family doctor and financial support should be addressed during treatment.

Declaration of interest

None.

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References

- American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Disorders* (5th edn) (DSM-5). American Psychiatric Publishing.
- Asarnow JR, Rozenman M, Wiblin J, et al (2015) Integrated medical-behavioral care compared with usual primary care for child and adolescent behavioral health: a meta-analysis. *JAMA Pediatrics*, **169**: 929–37.
- Bender K, Springer DW, Kim JS (2006) Treatment effectiveness with dually diagnosed adolescents: a systematic review. *Brief Treatments and Crisis Intervention*, **6**: 177–205.
- Blumenthal D, Gokhale M, Campbell EG, et al (2001) Preparedness for clinical practice: reports of graduating residents at academic health centers. *JAMA*, **286**: 1027–34.
- Bukstein OG, Horner MS (2010) Management of the adolescent with substance use disorders and comorbid psychopathology. *Child and Adolescent Psychiatric Clinics of North America*, **19**: 609–23.
- Casey BJ, Jones RM (2010) Neurobiology of the adolescent brain and behavior: implications for substance use disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, **49**: 1189–201.

MCQ answers

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- Catchpole RE, Brownlie EB (2016) Characteristics of youth presenting to a Canadian youth concurrent disorders program: clinical complexity, trauma, adaptive functioning and treatment priorities. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, **25**: 106–15.
- Chan Y-F, Dennis ML, Funk RR (2008) Prevalence and comorbidity of major internalizing and externalizing problems among adolescents and adults presenting to substance abuse treatment. *Journal of Substance Abuse Treatment*, **34**: 14–24.
- Cornelius JR, Clark DB, Bukstein OG, et al (2005) Acute phase and five-year follow-up study of fluoxetine in adolescents with major depression and a comorbid substance use disorder: a review. *Addictive Behaviors*, **30**: 1824–33.
- Cunill R, Castells X, Tobias A, et al (2015) Pharmacological treatment of attention deficit hyperactivity disorder with co-morbid drug dependence. *Journal of Psychopharmacology*, **29**: 15–23.
- Dennis ML, Chan YF, Funk RR (2006) Development and validation of the GAIN Short Screener (GSS) for internalizing, externalizing and substance use disorders and crime/violence problems among adolescents and adults. *American Journal on Addictions*, **15**: 80–91.
- DeQuardo JR, Carpenter CF, Tandon R (1994) Patterns of substance abuse in schizophrenia: nature and significance. *Journal of Psychiatric Research*, **28**: 267–75.
- Duncan BL, Miller SD, Sparks JA, et al (2003) The Session Rating Scale: preliminary psychometric properties of a “working” alliance measure. *Journal of Brief Therapy*, **3**: 3–12.
- Erskine HE, Moffitt TE, Copeland WE, et al (2015) A heavy burden on young minds: the global burden of mental and substance use disorders in children and youth. *Psychological Medicine*, **45**: 1551–63.
- Hawkins JD, Catalano RF, Miller JY (1992) Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. *Psychological Bulletin*, **112**: 64–105.
- Jordan CJ, Andersen SL (2017) Sensitive periods of substance abuse: early risk for the transition to dependence. *Developmental Cognitive Neuroscience*, **25**: 29–44.
- Kalina K, Vácha P (2013) Dual diagnoses in therapeutic communities for addicts – possibilities and limits of integrated treatment. *Adiktologie/Addictology*, **13**: 144–65.
- Kampman K, Jarvis M (2015) American Society of Addiction Medicine (ASAM) national practice guideline for the use of medications in the treatment of addiction involving opioid use. *Journal of Addiction Medicine*, **9**: 358–67.
- Kelly TM, Daley DC, Doualhy AB (2012) Treatment of substance abusing patients with comorbid psychiatric disorders. *Addictive Behaviors*, **37**: 11–24.
- Khantzian EJ (1997) The self-medication hypothesis of substance use disorders: a reconsideration and recent applications. *Harvard Review of Psychiatry*, **4**: 231–44.
- Khokhar JY, Dwiel LL, Henricks AM, et al (2018) The link between schizophrenia and substance use disorder: a unifying hypothesis. *Schizophrenia Research*, **194**: 78–85.
- Knight JR, Shrier LA, Bravender TD, et al (1999) A new brief screen for adolescent substance abuse. *Archives of Pediatric and Adolescent Medicine*, **153**: 591–6.
- Levy S, Williams JF, Committee on Substance Abuse (2016) Substance use screening, brief intervention, and referral to treatment. *Pediatrics*, **138**(1): e20161211.
- Lichtenstein DP, Spirito A, Zimmermann RP (2010) Assessing and treating co-occurring disorders in adolescents: examining typical practice of community-based mental health and substance abuse treatment providers. *Community Mental Health Journal*, **46**: 252–7.
- Marshall EJ (2014) Adolescent alcohol use: risks and consequences. *Alcohol and Alcoholism*, **49**: 160–4.
- Merikangas KR, He J, Burstein M, et al (2010) Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication – Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*, **49**: 980–9.
- Miller SD, Duncan BL, Brown J, et al (2003) The Outcome Rating Scale: a preliminary study of the reliability, validity, and feasibility of a brief visual analog measure. *Journal of Brief Therapy*, **2**: 91–100.
- Miller SD, Duncan BL, Sorrell R, et al (2005) The partners for change outcome management system. *Journal of Clinical Psychology*, **61**: 199–208.
- Miranda R, Ray L, Blanchard A, et al (2014) Effects of naltrexone on adolescent alcohol cue reactivity and sensitivity: an initial randomized trial. *Addiction Biology*, **19**: 941–54.
- Mustonen A, Niemelä S, Nordström T, et al (2018) Adolescent cannabis use, baseline prodromal symptoms and the risk of psychosis. *British Journal of Psychiatry*, **212**: 227–33.
- National Institute for Health and Care Excellence (2016) *Coexisting Severe Mental Illness and Substance Misuse: Community Health and Social Care Services* (NICE Guideline NG58). NICE.
- Ramchand R, Griffin BA, Hunter SB, et al (2015) Provision of mental health services as a quality indicator for adolescent substance abuse treatment facilities. *Psychiatric Services*, **66**: 41–8.
- Roten AT, Baker NL, Gray KM (2013) Marijuana craving trajectories in an adolescent marijuana cessation pharmacotherapy trial. *Addictive Behaviors*, **38**: 1788–91.
- Saitz R (2010) Alcohol screening and brief intervention in primary care: absence of evidence for efficacy in people with dependence or very heavy drinking. *Drug and Alcohol Review*, **29**: 631–40.
- Sterling S, Weisner C, Hinman A, et al (2010) Access to treatment for adolescents with substance use and co-occurring disorders: challenges and opportunities. *Journal of the American Academy of Child & Adolescent Psychiatry*, **49**: 637–46.
- Winstanley EL, Steinwachs DM, Stitzer ML, et al (2012) Adolescents substance abuse and mental health: problem co-occurrence and access to services. *Journal of Child & Adolescent Substance Abuse*, **21**: 310–22.
- Winters KC, Tanner-Smith EE, Bresani E, et al (2014) Current advances in the treatment of adolescent drug use. *Adolescent Health, Medicine and Therapeutics*, **5**: 199–210.
- Wu L-T, Gersing K, Burchett B, et al (2011) Substance use disorders and comorbid Axis I and II psychiatric disorders among young psychiatric patients: findings from a large electronic health records database. *Journal of Psychiatric Research*, **45**: 1453–62.
- Youngblade LM, Theokas C, Schulenberg J, et al (2007) Risk and promotive factors in families, school, and communities: a contextual model of positive youth development in adolescence. *Pediatrics*, **119**(suppl 1): s47–S53.
- Zhou X, Qin B, Del Giovane C, et al (2015) Efficacy and tolerability of antidepressants in the treatment of adolescents and young adults with depression and substance use disorders: a systematic review and meta-analysis. *Addiction*, **110**: 38–48.

MCQs

Select the single best option for each question stem

1 In co-occurring mental disorder and substance use disorder (dual diagnosis):

- a the presence of the co-occurring conditions increases severity and complicates recovery
- b adolescents are more adherent to treatment and have lower rates of relapse
- c there is no role for cognitive-behavioural therapy
- d both conditions should be treated separately to achieve the best outcome
- e dual diagnosis has a good prognosis when it presents in early adolescence.

2 Which of the following has not been posited as a possible hypothesis explaining dual diagnosis in young people?

- a common factors (risk factors common to both disorders)
- b moral weakness (lack of will, character or principle)
- c secondary substance use disorder ('self-medication')
- d secondary mental disorder (substance use precipitates mental disorder)
- e bidirectional model (a mental disorder can contribute to the development of a substance use disorder and *vice versa*).

3 As regards screening tools for young people with co-occurring mental disorder and substance use disorder:

- a the purpose is to connect the patient with the appropriate level of service based on the level of need
- b the main purpose is to make a definitive diagnosis
- c the purpose is to identify problem substance users in order to alert the police
- d the screening tool needs to be detailed or lengthy to address all potential difficulties that may arise
- e screening tools are completely unhelpful in busy clinics and should be reserved for research centres.

4 As regards progress monitoring in young people with co-occurring mental disorder and substance use disorder:

- a patient satisfaction is difficult to ascertain and should not be included in progress monitoring
- b it should not be done regularly, as it can overwhelm the patient
- c obtaining patients' feedback should not be considered, as it can damage the therapeutic alliance
- d it serves as a means of ensuring the quality as well as effectiveness of treatment
- e outcome measures should only be used in complex cases.

5 As regards management of co-occurring mental disorder and substance use disorder:

- a to achieve a better outcome, dual diagnosis should be managed on an in-patient unit
- b treatment drop-out is uncommon
- c an integrated treatment approach is largely preferred
- d the serial treatment model is superior to integrated care because it is better to treat substance use problems and mental health problems separately
- e psychoeducation is very unhelpful.