



Treatment of Substance Abuse in Dual Diagnosis

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Introduction

While for individuals with an (above) average IQ and adaptive skills who have substance use-related problems, numerous interventions are available for prevention, early intervention, treatment and aftercare, this is not the case for individuals with ID. In the reviews by Kerr, Lawrence, Darbyshire, Middleton, and Fitzsimmons (2013) and Van Duijvenbode et al. (2015), it was found that there is a limited number of substance use (disorder) interventions adapted to the needs and learning style of those with ID, and those that are available generally are predominantly aimed at reducing tobacco and alcohol use. Though the scarcity of interventions is understandable given the under-recognition of substance use and its related problems in individuals with ID, it is also problematic. First, individuals with ID are underserved with respect to their substance use-related issues, be it from questions with regard to “safe” substance use consumption to multidimensional treatment for complex addiction problems. For

them, the lack of suitable interventions can lead to substance use initiation without risk awareness, to progression of substance use into substance use disorder, and to poorer outcomes of treatment. Second, the lack of interventions also is problematic for those who work with individuals with ID and substance-related issues. Staff from both intellectual disability services and addiction treatment or other (e.g., forensic psychiatric) facilities lack resources on how to help substance-using individuals with ID, and may become discouraged from helping these persons. Moreover, lack of treatment progression may lead to stigmatization or blaming those with dual diagnosis or triple diagnosis.

Nevertheless, the number of studies assessing the feasibility and outcomes of interventions for substance (ab)use in individuals with ID has increased during the past decade. The aim of this chapter is to present a short overview of interventions that are adapted to individuals with dual diagnosis: ID and substance use abuse. Psychological and pharmacological interventions are summarized and attention will be given to how to adapt interventions to clients with ID. A distinction is made between dual diagnosis and triple diagnosis, the latter being a condition that is seldom addressed in the literature. Finally, developments regarding personalized treatments will be described and attention is paid to screening and assessment and collaboration between organizations.

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Psychological and Pharmacological Interventions

Psychoeducation and Prevention

Substance-related knowledge in individuals with ID is fragmented at best, and often full of misconceptions based on biased information from television and internet as well as from substance-using peers. While in mainstream education substance use prevention programs are often available, this generally is not the case in special education programs. Even though it is widely known that educational programs aimed at the general public are not (very) effective in substance use (disorder) prevention, the question is if some type of preventative programs tailored to the needs of individuals with ID are needed to increase risk awareness, ability to withstand offerings of substance use, and ability to ask for help when needed. Such programs need to be offered at an appropriate time (preferably before substance use initiation, but not prematurely as it may not yet be relevant), and in a way that is suitable for the needs of the individual.

There are very few studies published on prevention of substance use in young people with ID. A controlled study on a prevention program targeted at alcohol and tobacco use in 12–16-year-old children with ID was conducted by Kiewik, VanDerNagel, Engels, and De Jong (2017). Participants were students from three secondary special-needs schools who were assigned to an experimental or control condition. In the experimental condition, the students received a Dutch prevention program called *Prepared on time* that aims to delay initiation of use of alcohol and tobacco. It is an e-learning program including games, videos, and quizzes to increase students' substance knowledge, to provide appropriate samples of refusal skills, and to strengthen students' ability to make own choices. Students in the control condition followed their standard educational curriculum. Results of this study showed that a classroom-based e-learning program is feasible in students with mild to moderate ID, but had limited effect on their knowledge, attitude, and intention to use tobacco and alcohol.

This may be related to the fact that a large subgroup of individuals within this study had already initiated smoking and drinking. In addition, prevention programs may be more effective if they do not (only) target children and adolescents, but include their parents and caregivers. As with many issues in educating individuals, showing (modeling) rather than talking about healthy and responsible behavior may be the best way to prevent substance use-related problems.

Cognitive Behavioral Treatment

Most substance use disorder treatment programs are based on cognitive behavioral approaches. Individuals learn – either within a group or within individual treatment – to identify risky situations, behaviors, thoughts, and feelings, and learn self-control techniques to reduce risks and alter their behaviors. Cognitive behavioral treatment (CBT) is widely used in individuals with mild ID or borderline intellectual functioning (IQ 50–85). It has, for example, been shown to be effective in reducing anger and violence in individuals of this target group (see Didden, Nijman, Delforferie, & Keulen-De Vos, 2019). CBT is a composite treatment with several components – including, for example, cognitive restructuring, relaxation, understanding and regulation of emotions, and skill building – designed to reduce substance use-related problems. The assumptions underlying CBT are that behavior, thoughts, and emotions are interconnected, and that cognitive distortions and maladaptive coping strategies increase the risk for psychological and behavioral problems. These problems can be reduced by improving information processing and the learning of adaptive coping skills. Therapists use functional analyses and case formulations to understand the nature and cause of the problems and as a guide to develop treatment programs (Didden et al., 2019).

Examples of programs developed for individuals with ID and substance use disorders are as follows: *Cognitive Behavioural Treatment – Plus* (VanDerNagel & Kiewik, 2016; Kiewik, VanDerNagel, Engels, & De Jong, submitted;

available in Dutch through the Dutch Addiction Association), *Extended Brief Intervention for Alcohol Misuse – LD* (Kouimtsidis et al., 2017; available online in English), *Alcohol and Substance Abuse Programme – Intellectual Disability*, and *Take it Personal!* Kouimtsidis et al. assessed the feasibility of a manualized 8-week brief extended intervention (BEI) in 30 adults with moderate to mild ID who lived in the community and who reported alcohol-related problems. Participants were assigned to BEI or control group (care as usual and/or advice to stop drinking). The intervention consisted of motivational and cognitive behavioral techniques to affect change in motivation, cognitions, and behavior. Results show that after 12 weeks the proportion of participants with harmful drinking had decreased by 67% and 47% for the intervention and control group, respectively. Participants' and caregivers' feedback on their experience with BEI was positive. Kiewik et al. conducted a feasibility study on CBT – Plus, which is adapted to adults with mild ID or borderline intellectual functioning. Adaptation of the original CBT program which has been shown effective in individuals without ID consisted of the following: a workbook for clients was developed with easy language and visual cues, the number of sessions was increased from 9 to 18, and client's confidants were involved during alternate sessions. An important outcome measure was used that was developed for use in clients with mild ID: *Substance use and misuse in intellectual disability – Questionnaire* (SUMID-Q). Next to the SUMID-Q, experiences of clients, confidants, and therapists with the CBT Plus program were explored through interviews. Results showed that the users highly valued the CBT Plus intervention and that most clients (i.e., 70%) completed the treatment. These clients all showed a reduction in the use of alcohol, stimulants, and cannabis after the treatment as assessed with the SUMID-Q.

Many individuals with ID who are admitted to forensic facilities have a history of substance abuse, and in many cases there is a link between offending behavior or recidivism and abuse of alcohol and other substances (Lindsay, 2009).

Sakdalan, Kittner, and Judd (2017) explored the effectiveness of a program called *Alcohol and Substance Abuse Programme – Intellectual Disability* (ASAP-ID) developed for forensic clients with ID. ASAP-ID is a 27-week program with weekly sessions that last approximately 1.5 hours. The program is adapted to clients with ID including repetition, visual aids, role-play, and other techniques. Clients were given homework to complete with their support staff. Staff members were sometimes present during sessions to support their clients. The program incorporates procedures of motivational interviewing, psychoeducation, relapse prevention, and skill acquisition. The program was tested in 6 participants with moderate to mild ID who had a Maori background. During their stay in the facility, participants were prohibited from using substances. Data show differences between pre- and post-tests on several outcome measures. The findings show a marked improvement in participants' confidence to stay clean and sober in risky situation as well as an improvement in overall readiness for change.

Pharmacology

Substance use disorder treatment can be supported by pharmacological interventions. These include (a) interventions to reduce risks and symptoms during detoxification and withdrawal, (b) interventions to reduce relapse, (c) substitution therapy, and (d) treatment of co-occurring somatic and psychiatric conditions. All of these interventions require specialist knowledge that may be hard to find for individuals with ID. Regardless, assessment for the need of pharmacological treatment should not be omitted in those with substance use disorder, given the risks associated with both prolonged substance use, and those associated with the detoxification and withdrawal process.

To our knowledge, no studies are available regarding the pharmacology for substance use disorder in individuals with ID. Clinical experience shows that general guidelines for pharmacology in addiction medicine are appropriate,

with some remarks and issues that require special attention. During detoxification, pharmacological interventions may be required to reduce withdrawal symptoms. Contrary to common belief, this is not mainly for the patient's comfort, but also to avoid severe, potential debilitating, or even lethal complications of withdrawal. Alcohol withdrawal is especially associated with severe complications such as delirium and seizures. These can be avoided by prescribed benzodiazepines in a tapering schedule. In addition, individuals with alcohol use disorder should be prescribed intramuscular vitamin B1 (thiamine) to avoid Wernicke's encephalopathy. GHB (gamma hydroxybutyric acid) withdrawal is also known for its severe complications (including delirium, excited delirium, psychosis, aggression) during detoxification that often requires intensive monitoring and intervention in specialized inpatient wards. Prescribed benzodiazepines in a tapering schedule are also often needed in case of benzodiazepine dependency to avoid severe side effects. Withdrawal from other substances – though temporarily debilitating – from a medical point of view is generally less risky or complicated. Nevertheless, often these patients can benefit from medical interventions to reduce withdrawal symptoms, and increase the likelihood of a successful detoxification. Individuals with ID may require more intensive medical supervision during detoxification, especially if they have co-occurring medical issues, such as epilepsy, a lack of support and monitoring from their social environment, or limited abilities to seek medical support when needed. In addition, in some patients with ID, symptom relief is especially important to complete the detoxification process.

Pharmacological interventions to reduce the risk of relapse can generally be divided into two groups: (a) medication to reduce craving and (b) aversive medication. Pharmacotherapy to reduce craving include, for instance, acamprosate or baclofen for alcohol use disorder, naltrexone for alcohol or opiate use disorder, and bupropion for tobacco use disorder. In individuals with ID (and

their caregivers), it is important to explain in detail that these medications do not take away all cravings; they provide some support, but are not a cure from addiction. In addition, these medications should be taken regularly as prescribed (i.e., not on a "take-as-needed" basis). Aversive medication is available for alcohol use disorders, with medications such as disulfiram. It intervenes with the normal alcohol metabolism, resulting in the accumulation of toxic by-products if taken together with alcohol. Patients who take this drug and use alcohol experience side effects, such as severe nausea, hot sweats, and palpitations that should discourage them from drinking. Though these effects are generally not severe, prescribing this type of medication for individuals with ID should be done with great precaution.

Maintenance therapy or "replacement therapy" may be needed in some patients with prolonged substance use disorder. Strategies are mainly available for tobacco use disorder (e.g., use of nicotine plasters or lozenges) and opiate use disorder (e.g., within methadone clinics). While the patients within these programs are still taking psychoactive substances, they do so in a more regulated and safe manner, thus reducing the risks and complication associated with substance use. For some patients, replacement or maintenance therapy is a short-term intervention, but others benefit from long-term support by these programs. Regular monitoring of effects and side effects and general health of patients within these programs remains necessary.

Last but not least, as substance use disorders are associated with a number of co-occurring illnesses (including malnutrition and vitamin/mineral deficiencies, infectious diseases, liver disease, and psychiatric disorders), treatment of these disorders may also require pharmacological interventions. Addiction treatment centers often have screening programs to assess the need for such treatment. In individuals with ID such screening is even more important, given the increased likelihood of untreated physical or mental disorders within this group.

Adapting Treatments to Individuals with ID

Treatment of substance use disorder is not fundamentally different for individuals with ID than for others. Inpatient or outpatient and pharmacological or psychological interventions can all be suitable for patients regardless on their intellectual and adaptive abilities. Thus, based on a multidisciplinary assessment, each individual with substance use disorder should be offered a tailor-made program to meet their individual treatment requirements (Kiewik, 2018). However, treating individuals with ID will require some adaptation (Van Duijvenbode et al., 2015). Several authors have shown that these adaptations are feasible in a wide range of programs, namely, motivational interviewing (e.g., Frielink & Embregts, 2013), cognitive behavioral therapy (e.g., Kouimtsidis et al., 2017; VanDerNagel & Kiewik, 2016), and the 12-step program (e.g., Jurewicz, 2017). Adaptations of treatment programs include reduction of language complexity, inclusion of real-life exercises, and using a less information dense program with more repetition. Treatment procedures may need to be adapted with tailoring the number and length of appointments to the needs of the individual patient, collaboration with a mentor or confidant from the patient's social environment, length of treatment and follow-up, and – in group therapy – more homogeneous groups (i.e., with patients with similar intellectual and adaptive abilities). Generally, individuals with ID will need more support to be able to apply new information and skills in daily life. Welcoming a confidant within the intake and assessment procedure, and within each or alternating therapy sessions, can provide an important bridge to daily life (VanDerNagel, Kemna, Barendregt, & Wits, submitted; Kiewik, 2018). However, working within the therapist-patient-confidant triade requires specific therapist skills, especially when patient and confidant have different opinions as to the magnitude and scope of the problems, or with regard to the preferred solutions.

Lindsay (2009) stated that psychological treatment requires adaptations for individuals

with ID especially with regard to communication. Adaptation requires, for example, adjustments of vocabulary and syntax in addition to continuing self-monitoring. He provides the following basic recommendations:

- Use short sentences that contain a single concept.
- Use words of fewer than three syllables.
- Ask clients to summarize the session in order to assess their understanding and retention.
- Use inductive methods (e.g., Socratic dialogue).
- Use role-play.
- Increase motivation to change.
- Work with significant others and relatives.

Hronis, Roberts, and Kneebone (2017) provided suggestions for adapting CBT to individuals with ID who present with cognitive skill deficits. Below are some examples:

- Attention: use shorter, more frequent sessions, reduce task length (smaller units), prevent distractions.
- Working memory: use memory aids (e.g., visual prompts), present one task at a time, use short, simple, subject-verb-object sentences.
- Executive functions: use structured sessions (e.g., visual schedule), minimize switching between tasks, redirect uninhibited responses.

Group and individual cognitive behavioral approaches are often used in the treatment of substance use-related problems in individuals with ID. However, participants may lack appropriate skills required for participating in such programs. They have difficulties understanding the cognitive components even if the program is adapted to their learning style and needs. It has been suggested that those who lack prerequisite skills may benefit from pre-therapy in which they are taught CBT basic concepts such as identifying, differentiating, and linking emotions, thoughts, and events (see Tsimopoulou, Stenfert Kroese, Unwin, Azmi, & Jones, 2018).

Inpatient treatment can both be helpful and unsettling for individuals with ID. Being away

from their day-to-day environment and intensive monitoring can be helpful to stop substance use, and this may be needed to provide medical treatment as well. However, homesickness may occur, and patients may be overburdened with social and intellectual requirements that come with living with other patients in a ward. This may lead to patients leaving treatment prematurely and to conflicts with other patients or staff (often resulting in patients being sent away as being unmotivated, aggressive, or obstinate). Proper preparation of inpatient treatment with both patient and his caregivers at home may reduce the risks of such unwanted outcome. A structured day program (when needed not (only) in words but with pictures), more one-on-one staff attention, scheduled calls or visits with caregivers or family, increased staff support during group interactions, as well as focus on the individuals abilities (i.e., rewarding and acknowledging them for helping staff setting the table) are needed to ensure a successful clinical stay during, for example, detoxification. While detoxification requires specialist knowledge and skills regarding substance use disorders that is generally found in addiction treatment centers, for long-term clinical treatment after detoxification, individuals with ID may be better off in specialized wards for individuals with ID. However, as substance use disorders generally require long-term follow-up, and are associated with relapses (even during clinical treatment), their treatment will require substantial knowledge of substance use disorders and its treatment. Preferably, during all treatment phases there is an intensive cross-system collaboration between addiction medicine and disability services.

Triple Diagnosis

Substance abuse in individuals with ID is often accompanied by other problems, such as financial problems, housing problems, or unemployment. Also mental health problems are common in individuals with substance abuse. For example, European research shows that approximately 50% of those diagnosed with SUD also have a

co-occurring mental disorder, although these percentages differ widely between studies depending on, for example, the sample and specific combination of SUD and mental disorder (European Monitoring Center for Drugs and Drug Addiction, 2015). If SUD and mental disorders co-occur in individuals with ID, this is called triple diagnosis.

Prevalence

There is little information about the prevalence of triple diagnosis. In most research articles on either SUD or mental disorders in individuals with ID, the prevalence rates suggest at least some overlap between SUD and mental disorders. For example, Hassiotis et al. (2011) report high prevalence rates of personality disorders (82%), neuroticism (53%), and psychotic disorders (11%) in a group of 170 detainees with ID. In addition, 61% was diagnosed with an alcohol use disorder and 56% with a drug use disorder. However, it remained unclear how many subjects had a mental disorder and SUD.

The results of the articles in which information about triple diagnosis can be found are difficult to compare due to differences in sample content, setting, methodology, and definitions of SUD, ID, and mental disorders. As a result, the prevalence rates of triple diagnosis vary between 11% (Holden & Neff, 2000) and 54% (Slyater, 2010). Especially among individuals receiving (long-term) residential care and among individuals receiving involuntary care (e.g., within the judicial domain), relatively high prevalence rates of triple diagnosis are found.

Recently, we conducted a study on the prevalence of triple diagnosis in 75 clients with ID who were receiving treatment and care from a forensic, addiction, or ID facility (Van Duijvenbode, VanDerNagel, Janssen van Raay, & Didden, 2019). Results revealed that almost half of the clients used different substances (poly users), and 90% were diagnosed with SUD. The three most often used substances were alcohol (57%), cannabis (47%), or cocaine (41%). Most prevalent mental disorders next to SUD were

personality disorder (32%) and developmental disorders (e.g., autism spectrum disorder, attention deficit hyperactive disorder; 36%). Trauma-related disorders (24%), mood disorders (17%), and anxiety disorders (5%) were less often classified. Aggressive and rule-breaking behavior were seen in 87% of the sample, and 75% of the clients were known to police and justice. The range of problems of clients with triple diagnosis is therefore diverse and involves different combinations of mental disorders and types of substances that are used. This means that individuals with triple diagnosis form a heterogeneous group. The common denominator is that the problems are complex and intertwined.

SUD, ID, and mental disorders are seldom separate disorders “accidentally” co-occurring in a specific individual. Instead, they often reinforce each other negatively. Indeed, research shows that individuals with a dual or triple diagnosis often experience more severe symptoms and have a worse treatment prognosis (e.g., Lambert, LePage, & Schmitt, 2003; Langas, Malt, & Opjordsmoen, 2011; VanDerNagel, Kiewik, & Didden, 2017). In addition, SUD, ID, and mental disorders often jointly lead to additional psychosocial problems, such as financial problems, unemployment, or delinquency. These social problems, in turn, have a negative influence on overall functioning, thereby creating a vicious circle or downwards spiral.

Referral

Because SUD, ID, and mental disorders are often intertwined and do not fit in one box, treatment of triple diagnosis is challenging. One of the questions that often immediately rises is: Where can a patient with triple diagnosis be referred to? Addiction medicine? Mental health care? ID care? A useful guideline in the referral of patients with dual or triple diagnosis is the four-quadrant model of Minkoff (2001). Minkoff described that individuals with dual diagnosis – in this case: the combination of SUD and mental disorder – can be subdivided into four groups, based on the severity of both the SUD and mental disorder.

VanDerNagel then transformed the two-dimensional quadrants into a three-dimensional cube to also take into account the possible influence of ID on referral and treatment (VanDerNagel et al., 2017).

The bottom four quadrants correspond to the original model. Although these individuals have ID, they are expected to benefit sufficiently from regular treatment. The first quadrant involves patients with a mild mental disorder and a mild to moderate SUD. These patients will often benefit from outpatient treatment in a primary health care setting. The second quadrant describes patients with a severe and/or persistent mental disorder and a mild to moderate SUD. These patients can best be referred to a mental health care facility for treatment. The third quadrant describes a group of patients with a mild mental disorder and a moderate to severe SUD. Because treatment of SUD will likely improve psychological functioning and well-being, these patients are usually referred to addiction medicine. The last quadrant involves patients with a severe and persistent mental disorder and moderate to severe SUD. In these cases, an integrated and specialized double-diagnosis treatment is necessary, either within mental health care or addiction medicine (Fig. 32.1).

In the upper four quadrants, the characteristics of ID must be taken into account to benefit from treatment. In other words, these individuals need tailored treatments, designed specifically for individuals with ID. The fifth quadrant contains individuals with ID, mild mental disorder, and mild to moderate SUD. Locus of treatment in these cases should be within ID care, complemented with consultation from professionals working in mental health care or addiction medicine if necessary. The sixth quadrant describes individuals with ID, a severe and/or persistent mental disorder, and a mild to moderate SUD. They are preferably treated by teams within mental health care specialized in the treatment of mental disorders in individuals with ID. Similarly, the seventh quadrant contains individuals with ID, a mild mental disorder, and a moderate to severe SUD. They are preferably treated by teams within addiction medicine specialized in the

		Severity of the addiction	
		Low	High
Severity of mental disorder	Low	A (mental health care/general practitioner)	B (addiction medicine)
	High	C (mental health care)	D (integrated treatment) Severe mental disorder and substance abuse

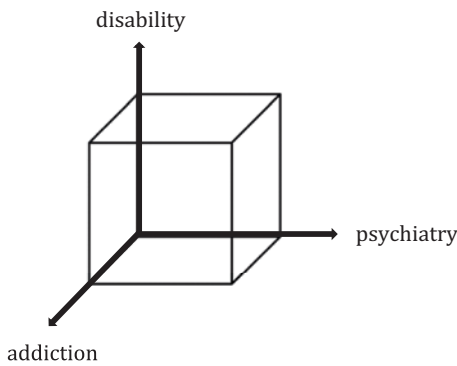


Fig. 32.1 Matrix by Minkoff (2001) and cube by VanderNagel et al. (2017)

treatment of SUD in individuals with ID. Last, the eighth quadrant describes individuals with IDD, a severe and persistent mental disorder, and a moderate to severe SUD. In these cases, an integrated and specialized triple-diagnosis treatment is necessary, where knowledge and expertise on (the treatment of) ID, SUD, and mental disorders are combined within one specialized team of professionals.

Treatment

Treatment protocols for individuals with triple diagnosis are scarce. In fact, we know of only one protocol that is currently being developed for use in individuals with ID. *Seeking Safety Plus* is a Dutch addendum for the original Seeking Safety treatment protocol (Najavits, 2002), designed for individuals with ID, SUD, and trauma-related disorders. It focuses on stabilization and creating a safe context by developing recovery and coping

skills. It is currently being pilot tested for applicability, usefulness, and effectiveness.

Despite the lack of treatment protocols for triple diagnosis, a number of suggestions can be made to improve the care and treatment for patients with triple diagnosis. First, it is vital to analyze the patient’s history of care. A case file study of 75 patients with triple diagnosis shows that they have often received care from multiple organizations (see Van Duijvenbode et al., 2019). Yet, information about why patients were in contact with health care professionals (either within ID care, mental health care or addiction medicine), what has been done, and how the progression was, was often not available in patient records. Requesting this information is important to be able to learn from what previously worked (and did not work) and thus direct future treatment decisions.

Second, a thorough screening and assessment is essential. Patient records should at the very least contain information about functioning (intellectual, adaptive, social-emotional), mental

health symptoms, substance use (types of substances, frequency, amount, severity of SUD, function), and additional psychosocial problems (such as information about social network, schooling/work, housing, finances) in order to arrive at an integrative theory and a hypothesis about how the elements of mental disorder, SUD, ID, and psychosocial problems are intertwined and related to each other.

Last, organizations within ID care, mental health care, and addiction medicine must collaborate (Van Duijvenbode et al., 2015). Having insufficient knowledge or expertise on a certain subject (e.g., the care for individuals with ID or treating SUD) should not be used as an “excuse” to leave problems untreated or refer patients. Individuals with triple diagnosis require specialized care from multidisciplinary teams in which knowledge and expertise regarding ID, SUD, and mental disorders is present. Collaboration and fertilization between ID care, addiction medicine, and mental health care are key factors in achieving this.

Personalized Treatments

Recently, the focus in mental health care moved from a “one size fits all” approach towards a more personalized approach. With regard to SUD treatment, the National Institute on Drug Abuse (2012) stated that SUD treatment should meet the characteristics of the client and should pay attention to specific problems associated with the SUD. Or in other words, treatment should be personalized. Traditionally, treatment effectiveness is determined based on a group approach, such as a randomized controlled trial, reducing individual scores to overall mean scores, and resulting in treatment-related products also aimed at groups. Not surprisingly, protocolled SUD treatment in individuals with ID is often aimed at a broad heterogeneous group of individuals using one general approach and leaving little room for targeted individualized intervention. First approaches to personalization of SUD treatment focus on identifying subgroups of clients defined by underlying psychological or biological mechanisms

(Insel & Cuthbert, 2015). To further improve SUD treatment in individuals with ID differentiation in this heterogeneous group is necessary, as one size does not fit all.

An effective personalized approach is personality-based treatment. This type of treatment is based on the personality dimensions such as anxiety sensitivity, negative thinking, impulsivity, and sensation seeking (Conrod et al., 2013). Ample research in samples of people with SUD has shown that people with SUD can generally be differentiated in these four personality profiles. In addition, these personality profiles have also been identified as an important risk factor for the development of SU(D) in individuals with average intelligence (e.g., Woicik, Stewart, Phil, & Conrod, 2009). More recently, there is also evidence for the role of these personality dimensions in SU(D) individuals with ID (Poelen, Schijven, Otten, & Didden, 2016).

The differentiation in four personality dimensions reflects the theoretical perspective that vulnerability to SU(D) can be explained by a sensitivity to either negative or positive reinforcement processes that maintain substance use (Woicik et al., 2009). The dimensions, namely, anxiety sensitivity and negative thinking are mainly related to substance use maintained by negative reinforcement, that is, substance use to cope with negative emotional states (Comeau, Stewart, & Loba, 2001; Cooper, Frone, Russell, & Mudar, 1995). However, the specific facets of the personality dimensions such as anxiety sensitivity and negative thinking determine the nature of negative reinforcement of substance use. Anxiety sensitivity is defined as the fear of symptoms of physical arousal and is related to self-medication of anxious symptoms through the use of alcohol and/or drugs (Comeau et al., 2001; Conrod, Pihl, & Vassileva, 1998; Woicik et al., 2009). Negative reinforcement related to negative thinking is characterized by substance use to relief negative affect (Hecimovic, Barrett, Darredeau, & Stewart, 2014; Woicik et al., 2009). The personality dimensions, namely, impulsivity and sensation seeking are associated with a vulnerability to positive reinforcement and positively rewarding effects of substances (Woicik

et al., 2009). Sensation seeking is characterized by the desire for intense and novel experiences and is specifically linked to substance use to attain positive affect (Castellanos-Ryan, Rubia, & Conrod, 2011; Woicik et al., 2009). Impulsivity, finally, is defined as the inability to control behavior when faced with immediate (positive) reinforcement (Castellanos-Ryan et al., 2011). From this theoretical perspective, it can be concluded that each personality dimension is related to specific risky or harmful motives for substance use that may lead to subsequent SUD.

Screening and assessment of clients' personality profile enables clinicians to provide personality-targeted treatment. This type of treatment aims at training competencies to clients to deal with specific personality dimensions and associated motives for substance use using motivational interviewing and cognitive behavioral therapy. By training personality-specific skills to improve management of personality risk, substance use linked to the specific personality profile will be reduced. Personality-targeted interventions do not result in changes in personality, but they change the relationship between personality dimensions and substance use. Personality-based treatment is more effective in reducing substance use in people with average intelligence than interventions not differentiating on individual factors (Conrod et al., 2013). As these personality dimensions are a proxy of behavioral and mental problems, personality-based treatment is also a promising strategy for effective treatment in individuals with ID as comorbid behavioral and mental health problems are highly prevalent in this group.

Examples of successful personalized treatments in individuals with ID are the treatment programs *Take it Personal!* and *Take it Personal!+*. These programs are specifically developed and adjusted to the needs and learning style of individuals with ID. Both programs integrate a personality-focused approach with elements of existing effective treatment protocols such as motivational interviewing and cognitive behavioral therapy. The programs consist of the following components that are crucial for successful treatment of SUD in individuals with ID:

(a) motivation to behavior change, (b) psycho-education regarding personality profile, (c) setting goals and make a plan to change, (d) recognition of personality profile and coherent signals of problematic behavior, (e) functional analysis, (f) increasing self-control, (g) behavioral coping training and cognitive coping training, and (h) relapse prevention. The *Take it Personal!* interventions focus on psycho-education about the participants' personality profile and related problematic coping behavior such as substance use or aggression. Clients become familiar with their personality profile and learn to deal with their personality through exercises. Daily life experiences and physical, cognitive, and behavioral reactions will be analyzed. In the intervention participants will set individual goals, which they will encounter during the training. Clients will identify personality-specific thoughts and cognitions that lead to problematic behavior. For example, the intervention aimed at persons with the personality profile "Impulsive" will focus on "thinking before taking action." Simultaneously, the participants will be trained to use cognitive restructuring techniques to counter such tendencies. Participants make a personalized "changing plan" aimed at changing their problematic behavior related to their personality profile. To meet the needs of people with ID, the interventions consist of two weekly A and B sessions paying attention to the same topic. In one of the sessions, a confidential person (i.e., a person from the social network of the client or a professional caregiver) will be present. This design provides in the needs of self-control and support of people with ID. Also, the content of the treatment will be repeated, which is essential in treatment for people with intellectual disabilities. In addition, the generalizability of the treatment to everyday life will be supported by the confidential person.

The next step in personalized care in treatment of SUD in individuals with ID could take into account the highly dynamic and idiosyncratic nature of treatment, which is often neglected in the traditional and more conventional approaches. Such treatment should target, time, and adapt effective intervention efforts to meet the personal

and dynamically changing needs of clients, especially if clients are immersed in highly volatile developmental processes, such as individuals who are recovering from addiction. The dynamic and idiosyncratic nature of treatment processes and how these processes affect treatment outcomes is currently not well understood. As a consequence, there are no reliable guidelines to help clinicians create adaptive, personalized treatments. Clinicians establish their treatment plans based on intuition and clinical experience, without any standardized assistance.

The personalized network approach is an approach that could offer an attractive client-centered alternative to more conventional ways of looking at treatment of SUD in individuals with ID (Borsboom & Cramer, 2013; Fried et al., 2017). From a Dynamic Systems perspective, mental disorders (among which SUDs) are not understood as entity-like categories caused by one underlying factor but as networks of self-organizing and self-maintaining components of cognition, behavior, emotion, and somatic functioning (Schiepek, Heinzl, Karch, Plöderl, & Strunk, 2016). Treatment can be seen as a perturbation to that network, potentially triggering a reorganization towards more healthy patterns of functioning (Hayes, Yasinski, Barnes, & Bockting, 2015).

The approach starts with the creation of Idiographic System Modelling (ISM) components, which requires a session in which the client and the clinician together try to describe the current situation or problem in terms of symptoms and problems over the last weeks or months. In the second step, the intercorrelations between the components are graphically mapped in a procedure that takes two to three sessions, ensuring that clients will find the ISMs meaningful. In a third step, the ISM components are translated into personalized assessments for daily process monitoring leading to a set of personalized questions, such as: "Did I sleep well today?" The fourth step consists of daily monitoring of these symptoms resulting in contextualized and personalized process data that should be accessible to the therapist and the client at all time.

We argue that conventional Routine Outcome Monitoring (ROM)-data should be expanded or replaced with more contextualized and personalized process data that provide insight in the variations in clients' daily life experiences in their real-life contexts. Enriching standardized ROM data will help to better understand long-term treatment outcomes in the context of short-term idiosyncratic variations. Combining standardized and personalized outcome data is essential for significantly enhancing treatment outcomes by allowing clinicians to tailor their interventions and provide more personalized care, and for clients to gain more insight into their conditions and control over their treatment process.

Conclusion

Although significant progress has been made during the last decade, the evidence base of treatment of substance abuse in individuals with ID is still small. The literature describes a small range of different intervention approaches (e.g., education, motivational interviewing, cognitive behavioral techniques) that have been used in different settings (e.g., secure unit in forensic facility, services for ID care). As can be expected, interventions were adapted to the needs and learning style of individuals who had moderate/mild ID to borderline intellectual functioning. Most studies were directed towards increasing motivation to prevent, reduce substance or stop substance (ab) use. However, educating individuals with ID about the (adverse) consequences of substance (ab)use did not lead to decrease in actual substance use. As far as we know, interventions targeting illicit drugs or prescribed medications in individuals with IDD have not been reported in the literature. Neither have studies on interventions for other types of addictions such as excessive gaming and internet use in individuals with ID. For example, Jenaro et al. (2018) found that many individuals among a sample of 216 youth with ID show excessive patterns of use of internet which was associated with increased levels of psychological distress.

Case Identification

Screening for and assessment of both ID and substance (ab)use are important when designing treatments. These include both identifying individuals with moderate/mild ID and borderline intellectual functioning in addiction medicine or forensic psychiatric hospitals and recognizing substance (ab)use in those with ID. The first is not routinely done yet, even though there are some promising developments in these settings. For example, Braatveit, Torsheim, and Hove (2018) used the WAIS-IV identifying ID in 84 inpatients of treatment facilities for substance use disorder. Results showed that mean full scale IQ was 87 (range 61–118); mean Vineland II score was 96 (range 50–120). Among this sample, 7% was classified with an ID, 25% had borderline intellectual functioning, and 68% had average intellectual functioning. It should be noted that prior to the study, none of the inpatients was diagnosed with an ID. The authors used the Hayes Ability Screening Index and found that the screener had good psychometric properties for screening for ID among inpatients with SUD.

Substance (ab)use may be especially high among individuals with ID who reside in forensic or mental health care settings. For example, in a retrospective file study, Salavert et al. (2018) assessed prevalence rates of different types of substances among 88 clients with ID who were admitted to a psychiatric hospital over a period of 10 years. Almost half of the sample had mild ID, 3% had moderate ID, 3% had severe ID, and in the remaining cases the ID was unspecified. More than 35% of the sample met criteria for a substance use disorder, and most often this was related to cannabis (25%), alcohol (22%), and cocaine (14%). Most clients (ab)used more than one type of substance. Triple diagnosis was common (also see “Triple Diagnosis”).

Assessment of substance (ab)use and substance use patterns on an individual basis is probably the most straightforward way to improve early detection and intervention in individuals with ID. There is a scarcity of instruments that have been shown reliable and valid in assessing substance use and abuse of individuals with ID

(also see Chap. 18). VanDerNagel, Kiewik, Buitelaar, and De Jong (2011) have developed the *Substance Use and Misuse in Intellectual Disability – Questionnaire* (SumID-Q). This instrument is adapted for use in individuals with mild ID or borderline intellectual functioning (IQ 50–85) and measures substance use, its risk factors, and consequences. In an interview format, substance use and abuse are discussed in an empathic, open, and non-confrontational manner with the client. If outcomes of the SumID-Q reveals that an individual uses one or more substances, further assessment is necessary to reveal whether DSM-5 criteria for a substance use disorder are met, and how substance use is related to biological, social, and psychological risk factors. The diagnostic process includes a clinical interview, retrieval of information from significant others (family or professional care givers), and a comprehensive health check. Special attention should be given to the possibility of polysubstance use, and co-occurring symptoms of a psychiatric disorder. The latter can be both result of SUD and a risk factor for SUD, and generally warrants a comprehensive multicomponent treatment approach.

VanDerNagel, Kiewik, Dijk, et al. (2017) compared the outcomes of the self-report version of the SumID-Q to the SumID-Q proxy version (completed by clients’ caregivers) to biomarkers (data collected by hair, urine, sweat patches) of substance use in 112 clients with mild ID to borderline intellectual functioning who lived in several Dutch facilities providing care to clients with ID. The authors found that agreement between the three strategies varied across substances and type of biomarker. It was found that biomarker analysis seemed of limited additional value compared to self-report and proxy report in the assessment of substance use, especially considering the additional costs and lower willingness of clients to participate in biomarker analysis.

Collaboration Between Organizations

In many cases, treatment of substance abuse in individuals with ID requires collaboration

between facilities in ID care, addiction medicine, and mental health care. However, staff in these facilities report a lack of expertise when working with these clients. A survey by VanDerNagel et al. (2011) among 39 ID care organizations in the Netherlands showed that most had inadequate expertise with substance use of clients with ID. Respondents also noted that substance users face a number of psychosocial problems that the service providers were poorly equipped to address. Individuals with ID experience barriers to accessing substance abuse treatment, for example in addiction services. When in treatment, the drop out may be relatively high. For example, McGillivray, Gaskin, Newton, and Richardson (2016) found that the drop out of alcohol and/or drugs programs in prison was much higher in prisoners with ID than in those prisoners without ID. The higher drop out levels were attributed to staff who were inexperienced in providing treatment to individuals with ID. Many individuals with ID may have negative experiences with treatment in mainstream addiction centers (see Taggart, McLaughlin, Quinn, & McFarlane, 2007).

Van Duijvenbode et al. (2015) and other researchers have identified a need for more cross-system collaboration and the use of integrated treatment approaches for the benefit of individuals with dual and triple diagnosis. Cross-system collaboration also implies involvement of ID services in prevention, care, and treatment for those with comorbid SUD and ID. This includes establishing policies regarding the prevention of substance use by clients, and staff members to protect other clients and staff members from the harmful effects and undesirable role models of clients' (and staff's) substance use, while avoiding repressive policies that may discourage clients to seek help. Organizations of ID care need to acknowledge SUD as a complex and potentially serious health problem that warrants clinical attention, intensified staff support, and possibly referral to an addiction center, rather than seeing SUD as a behavioral problem that can be remediated by relatively simple measures (Van Duijvenbode et al., 2015). Addiction centers, on the other hand, not only need to adapt their treat-

ment protocols and patient communication to the need and learning style of those with ID, but also need to learn how to work together with and learn from staff in ID care organizations to provide optimal care for this patient group.

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