Barriers and facilitators to social participation in people with mental health and substance use disorders: a formative qualitative study

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Abstract

Purpose – *This study aims to explore how people with concurrent mental health and substance use disorders and lived experience of deep social marginalization perceived barriers and facilitators to mainstream social participation. The purpose of this study is to identify meaningful and relevant learning content for a virtual reality-based intervention to promote social participation in this group.*

Design/methodology/approach – *This formative qualitative study was conducted in Norway during Autumn 2022. Nine in-depth individual interviews with adults recovering from dual diagnosis were conducted, audiotaped, transcribed and analysed using reflexive thematic analysis in a collaborative analysis process.*

Findings – *Results indicated that social alienation, poor social skills, stigma, low self-esteem and social anxiety were key barriers to social participation in this group. This study suggests a need to learn appropriate social behaviour in mainstream society, in addition to better employability skills, civic literacy and health literacy to improve utilization of social opportunities.*

Practical implications – *This study implies that virtual reality-based interventions for promoting social participation in people with dual diagnosis should primarily focus on learning and practising appropriate social behaviour in shared public spaces before practising advanced social skills such as employability skills in simulated work environments. Learning and practising social skills appears decisive for using more complex social opportunities, such as in education, health, social services and work.*

Originality/value – *This research provides suggestions for the content of a novel virtual reality-based intervention to promote social participation among people in recovery from dual diagnosis.*

Keywords *Social participation, Functional recovery, Virtual reality-based interventions, Reflexive thematic analysis*

Paper type *Research paper*

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Introduction

Mental health and substance use disorders, hereafter dual diagnosis (DD), are among the most prominent public health problems worldwide (WHO, 2022). There is a need to develop more comprehensive, integrated and evidence-based responses for harm reduction and support to recovery in this group (WHO, 2022; EMCDDA, 2023). People with polysubstance use disorders with opiate addiction are particularly vulnerable to extreme marginalization (Van Draanen *et al.*, 2020; Luchenski *et al.*, 2018; Volkow and Blanco, 2023). Chronic stress resulting from social exclusion and inequality creates a stress response that can lead to increased interpersonal conflicts and morbidity, cyclically reinforcing the mechanisms causing psychosocial impairment and social marginalization (Van Draanen *et al.*, 2020). This in turn leads to multiple overlapping risk factors and high levels of morbidity and

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mortality (Luchenski *et al.*, 2018). Promoting social participation is vital for mitigating social marginalization and fostering recovery among people with DD (Aasen *et al.*, 2023; Noordsy *et al.*, 2002; Davidson, 2016).

Social participation concerns individuals' engagement in activities that involve social interactions with others and include affective or intimate relationships (Boop *et al.*, 2020). Social participation takes place when people are actively involved in work or everyday activities they find purposeful or meaningful (Boop *et al.*, 2020). This entails a focus on finding possibilities and spaces for people to relate, move, be, act and participate in work, education, family and community life in society (Huxley *et al.*, 2012; da Silva and Oliver, 2021). This overlaps with the concept of mental health recovery. Recovery-oriented practice entails a focus on making clinical practice person-centred and aims to enable people to participate fully in the community (Davidson, 2016). Social participation also encompasses social and political involvement of people in social groups and/or public and community spaces to enable a dignified life. This includes changing negative aspects of everyday life, such as illness, violence, social injustice, socioeconomic inequity, exclusion and oppression (da Silva and Oliver, 2021). This is closely linked to the concept of citizenship, where marginalized individuals are recognized as citizens with the right to live a life of dignity in the community, while social conditions and community integration are improved (MacIntyre *et al.*, 2022; Harper *et al.*, 2017).

Virtual reality-based interventions (VRIs) are interventions in virtual-reality simulated environments that provide a real sense of presence, such as digital simulations, serious games applications or something in between (Makransky and Petersen, 2021; De Freitas *et al.*, 2010). VRIs hold the potential to enhance capacity, availability and quality in mental healthcare (Freeman *et al.*, 2017; Riches *et al.*, 2021; Bell *et al.*, 2020). Recent research on VRIs show promising potential in improving social functioning in individuals with psychosis and autism (Riches *et al.*, 2021; Schroeder *et al.*, 2022; Jahn *et al.*, 2021; Chiappini *et al.*, 2024). VRIs have yet not been used for promoting social participation among people with DD (Wiebe *et al.*, 2022; Dellazizzo *et al.*, 2020), however the promising results found in improving social functioning among people with psychosis and autism spectrum disorders indicates a potential benefit from VRIs in DD rehabilitation as well.

VRIs provide unlimited access to challenging situations that are difficult to find or risky in real world environments. VRIS can further be graded in difficulty and repeated until the desired learning outcomes are achieved (Freeman *et al.*, 2017). VRIs can also reduce the quality inconsistency of human treatment (Freeman *et al.*, 2017). In VRIs, individuals can enter simulations of difficult real-world situations and learn the appropriate responses, coached by digital avatars or human therapists. However, the VRI learning experiences must be carefully designed and structured in a deliberate workflow to provide the intended outcomes (Britain, 2004).

Virtual reality has been proven to have several benefits in mental health, especially for improving functional outcomes, as evidenced by accumulated research (Bell *et al.*, 2020; Dellazizzo *et al.*, 2020; Wiebe *et al.*, 2022). However, the evidence on VRI efficiency is in general of low to moderate quality (Torous *et al.*, 2021; Wiebe *et al.*, 2022; Dellazizzo *et al.*, 2020). Studies on VRIs show great heterogeneity in conceptual use and methodological grounding, with methods and concepts mixed across treatment-oriented and learning-oriented simulation programs, across different learning methods, and across different technologies (Mitra and Fluyau, 2020; Gerup *et al.*, 2020; Riches *et al.*, 2021). It is still unclear how VRIs can be further developed into interventions that target difficulties with social functioning among people with DD in a way that promote real-world social participation.

Study aim

Involvement and inclusion of end-users in co-designing novel VRIs is essential for addressing their needs, expectations and preferences (Birckhead *et al.*, 2019; Riches *et al.*, 2021). This is also vital for client uptake, particularly regarding hard-to-reach groups such as people with DD (Bell *et al.*, 2022; Bevan Jones *et al.*, 2020; Realpe *et al.*, 2020).

The aim of this study was to explore what people with DD perceived as facilitators and barriers to social participation and how barriers to social participation were reflected in the target group's daily living. The overall purpose of this formative study was to identify relevant and meaningful learning content for the development of a VRI to promote social participation among people with DD.

Methods

Context and design

This qualitative study was conducted in autumn 2022 in Eastern Norway with people in recovery from DD as participants. We obtained data from in-depth interviews analysed using reflexive thematic analysis (Braun and Clarke, 2021). The present study constitutes the second part of a three-part formative study in the project "Virtual reality as a facilitator for participation in society among persons with mental health/substance use disorders." (clinicaltrials.gov ref. NCT05653167), which aims to develop and evaluate a VRI paradigm to promote social participation among people with DD. The project follows the recommendations for methodology of virtual reality clinical trials in health care (VR-CORE) for scientific rigour and focuses on VRI content development through principles of human-centred design (Birckhead *et al.*, 2019).

Recruitment

To recruit people with DD recovery experience who were willing and able to participate in qualitative research, we used a non-governmental support centre for people in DD recovery. We used convenience sampling (Stratton, 2021) to recruit sufficient participants while minimizing disturbance. The first author presented the project to potential participants at the centre and invited them to join. The inclusion criteria were age 18 years and above, self-reported DD, with experience of social marginalization and the capacity to understand the study information and informed consent. After screening for inclusion criteria, interviews were scheduled in collaboration with the head of the centre and the participants.

Data collection

We conducted nine semi-structured individual interviews with people in DD recovery. The first three were conducted by the first author alone, as the second author was unavailable, while the other six were conducted by the first and second authors. Eight interviews were included in the study as the ninth respondent were not exposed to social marginalization. The interviews lasted between 24 and 90 min and followed a semi-structured interview guide developed by the first and second authors, with open-ended questions on how the participants perceived the barriers and facilitators for their participation in work, education, social life, cultural life and leisure activities in their local community. The interviews were audiotaped and transcribed *verbatim*.

Participants

The sample comprised three females and five males with self-reported DD, aged from 42 to 61 years. Seven self-reported DD since early adolescence. One participant had only used opiates and had adult substance use onset. The others reported polysubstance use, including opiates. All participants reported a history of multiple mental health conditions, including social anxiety, generalized anxiety, depression and post-traumatic stress disorders. All lived in safe accommodation, abstained from severe substance use, and they were at various stages of recovery when interviewed. All participants reported first-hand experience of deep social marginalization due to DD. Five attended organized work training. None had ordinary work. Six participants were native Norwegians. One was born abroad and raised in Norway, and one was an Eastern European immigrant. The sample characteristics are presented in Table 1.

Data analysis

We used collaborative reflexive thematic analysis with an inductive approach to analyse the data. Reflexive thematic analysis comprises the following steps:

- familiarizing oneself with the data;
- generating initial codes;
- searching for themes;
- reviewing themes;
- refining and naming themes; and
- writing up (Braun and Clarke, 2021).

The first author listened to the interview recordings, transcribed them *verbatim* in Norwegian and read the transcripts carefully. In the second step, the first and second authors generated initial codes from empirical statements within and across the transcripts.

The first author then presented the statements and initial coding to the second and fifth authors and discussed the meaning and relevance of the statements at semantic and latent levels in step three. The resulting themes were reviewed and revised in collaboration with the second, third and fifth authors in step four. In step five, the first author revised themes in collaboration with the fifth author. In step six, the first author connected each theme to quotations and wrote an analytical description of the themes. All authors edited this description. The themes were also discussed with the participants, who agreed with the authors' interpretations. The involvement of a peer researcher enriched the reflexive analysis and deepened our understanding of the data.

The first author is a psychiatric nurse with a master's degree in mental health care and clinical experience from mental health and addiction care. The second author is a peer researcher with lived experience of DD. He was involved in developing the interview guide,

Table 1 Sample characteristics

Participant	*Gender*	*SUD onset*	*Self-reported mental health disorder*	*SUD*	*SUD treatment*
P 1	M	44	PTSD	OPI	OAT
P 2	M	11	ADHD/ANX	PSU	No current
P 3	M	11	PTSD/ADHD/ANX/PSYCH	PSUO	OAT
P 4	M	12	ANX	PSUO	OAT
P 5	F	10	CPTSD/ADHD/PD/DEPR/PSYCH	PSUO	OAT
P 6	F	13	ANX	PSUO	OAT
P 7	F	10	PTSD/ANX	PSUO	OAT
P 8	M	14	ANX	PSUO	OAT

Mental health disorders: PTSD = Post Traumatic Stress Disorder; CPTSD = Complex Post Traumatic Stress Disorder; ADHD = Attention Deficit Hyperactivity Disorder; ANX = General anxiety; DEPR = Depression; PSYCH = Psychosis, unspecified; PD = Personality disorder, unspecified

Substance use disorders: SUD = Substance use disorder; OPI: Opiates; PSUO = Poly substance use including opiates; PSU = Poly substance use; OAT = Opiate agonist treatment

Source: Table by authors

conducting the interviews and collaborating in the analysis (Moltu *et al.*, 2013). In the reflexive analysis process, the first author brought philosophical meta-theoretical assumptions, prior professional experience and theoretical knowledge to the analysis. The second author brought an additional layer of analytical perspective with lived experience forming his pre-understandings in the shaping of the codes and revision of the themes.

Ethical considerations

This study complied with the Norwegian guidelines for medical and health research (2009) and was approved by the Regional Committee for Medical and Health Research Ethics (ref. 421376), and the Data Protection Officer of Innlandet Hospital Trust (ref. 18197741). All participants signed an informed consent and could withdraw from the study at any time.

Results

Four sub-themes related to barriers and facilitators to social participation were identified. These were grouped into two main themes. The overall theme structure with associated codes is presented in Table 2.

In the following section, the main themes and codes will be explained and enriched with quotations. These have been translated from Norwegian with the original meaning preserved as far as possible.

Barriers to social participation

Social alienation. This theme refers to the participants' descriptions of all the differences they found between the substance use community and mainstream society. The participants underlined that understanding the differences between these two worlds is key to understanding how to enable people with DD to participate and thrive in mainstream society.

A separate society. The participants described their social circumstances within the substance use community as a separate society existing in the shadows of mainstream society. The substance use community was described as a harsh environment where everybody and everything revolves around financing drugs, providing drugs and avoiding abstinence. The participants had spent many years in the substance use community and explained that the "normal world" functioned differently from their familiar social life. One said:

Table 2 Overall theme structure

Nr	*Main themes*	*Sub themes*	*Codes*
1	Barriers to social participation	Social alienation	A separate society A perceived lack of social skills Getting the help you need Working with sober people
		Stigma and hesitance	Poor self-esteem Social anxiety
2	Facilitators for social participation	Driving forces for social participation	Restored dignity Revitalizing a sense of purpose Reuniting disrupted relations
		Fundamental Social inclusion	Feeling safe and secure Opportunities to participate Thriving at work

Source: Table by authors

> "It's not easy, you know [. . .] you have to get used to being clean. It's like going to another world, there's sort of different rules of the game." (P 4)

They explained that substance use environments are regulated by different mechanisms, rules and social norms than mainstream societies, involving considerable violence, intimidation, victimization and exploitation. One participant explained:

> "Out there, there's a lot of violence and threats, you know, and it shouldn't be like that, I'd rather not have stuff like that where I am now." (P 4)

Another participant said:

> "People were afraid of me when I was only about 13 or 14." (P 1)

The participants stated that the differences between their familiar social life and mainstream society were so prominent that they felt alienated from mainstream society.

A perceived lack of social skills The participants characterized their emerging social participation as a struggle to comprehend appropriate social behaviour and felt that they lacked appropriate social skills for participation in mainstream society. They explained that many functional social abilities in the substance use environment were dysfunctional and inappropriate in mainstream society. They felt socially alienated and lacking in suitable social skills. Further, they were unfamiliar with common decency and people being friendly and polite without an ulterior motive. One explained:

> [. . .] "It's difficult to adapt to the normal world when you've lived thirty-five years in the other world. I'm still quite new in this world [. . .] but I try to observe the people around me and try to learn a bit and pick up things from people here and there." (P 4)

The participants also often found themselves in situations they knew were common in normal life but that they found unfamiliar. One said:

> "I'm fifty years old and there's still normal everyday situations I have no idea how to behave in, or how to relate to, and I think I've got a pretty clear head." (P 2)

One concern for the participants was their poor knowledge of what people talk about in mainstream society and what is important to those people. They explained that they were unfamiliar with talking to people from outside the substance use community, particularly those they did not know.

One participant reported having little knowledge of everyday topics such as politics, public affairs or practices in society, which are frequently discussed in mainstream conversations. She said:

> [. . .] "And I feel like I've got nothing to contribute in a normal social setting, I really am not got anything. I never finished school, I am not got no education, and I've never had a real job." (P 5)

Another participant stated:

> "That's why I keep away from people; I've got nothing to talk about, because you don't know the stuff other people know." (P 6)

The participants thus did not know what sober people talked about or what was going on in mainstream society. They also found it difficult to accept expressions of dissatisfaction or disagreement without feeling intimidated, due to their prior experience of violence and intimidation.

Getting the help you need. The participants described struggling to cope with their various mental health disorders and to receive the help they needed. Several also had physical and dental health problems. They all emphasized that they received little information on manoeuvring in health, social care and welfare services. Not only were there insufficient health and social services, but services were difficult to access and to trust, and they lacked health literacy. The participants needed to make better use of health and social care and wanted to learn how to communicate their concerns to health and social workers. They also reported little understanding of their mental health issues. One explained how hard it was to be understood by health professionals:

> “Just something as simple as going to the doctor to talk about things that I’m simply afraid to bring up”. (P 7)

The participants also described complex health-care needs, and a need for integrated care with multidisciplinary support from various agencies. One elaborated:

> “You get all these diagnoses, but getting clean and so on, there’s a lot more to it.” (P 5)

All the participants were dependent on social services. Attending meetings and cooperating with numerous services, or just understanding what each service is about, was also described as a struggle.

Working with sober people. The participants stated that establishing a legitimate financial situation and not being dependent on crime for profit or drug dealing was a crucial step towards social participation. They found that their lack of social skills in work settings was the biggest barrier to employment. They also had little work experience. One said:

> “I started getting high when I was 13 or 14, so I’ve never had a real job before.” (P 6)

However, the participants carefully distinguished between interaction with their peers and with sober people in work settings. It was fine to have DD peers as colleagues, but the biggest challenge for many was to provide customer service to sober people. They also explained that all colleagues in ordinary work settings would be sober people without DD experience. The participants with work training experience also described how talking to customers, answering the phone, collaborating with colleagues and ordering deliveries were the biggest obstacles to overcome to thrive when working with sober people. Practising leadership was also difficult when required.

Stigma and hesitancy. The participants explained that stigma, poor self-esteem and social anxiety were major barriers to social participation. They hesitated to participate in mainstream society due to little confidence in their limited social skills and were thus afraid to try out their skills.

They had experienced stigma and social exclusion since early childhood in addition to multiple adverse experiences from their life in the substance use environment. All participants described extensive experiences of stigmatization, social exclusion and inequity. One explained:

> “On the one hand, I’m shutting myself out because I’ve been where I’ve been, but on the other hand, I’ve also been shut out by other people and people have told me I’m nothing but scum.” (P 5)

The participants also described their involvement in violence and crime which they now regretted and explained how their old crimes affected their present self-esteem. One illustrated this as follows:

> “I’ve never lived on the streets, but more like a person who’s given the police a lot to do, what with selling to other people and that means there are loads of people who know what I’ve been doing. That affects how you feel about yourself and your self-confidence and all that.” (P 2)

The participants described how this had led to severe self-stigma and lower self-esteem over the years. One explained how her social anxiety held her back:

> [. . .] “This paralyzing anxiety holds everything back, I can’t do anything, and I just sit there and stare at the damn TV.” (P 7)

This also made everyday tasks such as taking the bus, shopping and interacting with "normal people" unpleasant, frightening and exhausting. One participant explained her social anxiety in this way:

> "I'm afraid to make mistakes and afraid to feel that everybody's staring at me [. . .]. Where I put my hands, how I stand, how I walk, what I say. . ., and it really wears you out." (P 6)

The participants had been offered opportunities for social participation, but their lack of appropriate social skills and low self-esteem made them hesitant to participate in society beyond their community of DD peers. One said:

> "In Norway there are lots of opportunities. I don't know all of them, but I don't try either." (P 1)

Another participant said:

> "I'd rather take a detour than meet someone when I'm out in town." (P 6)

Most of the participants' daily activities, such as attending the support centre, job training, sport and other leisure activities took place in the company of sober former DD sufferers. Despite several years of sobriety and recovery, the participants were still hesitant to participate in society alongside people without DD experience.

Facilitators for social participation

Driving forces for social participation. The participants described how their substance use made them stop caring about anything or anyone but themselves. The everyday struggle to obtain drugs, cope with mental health symptoms and survive harsh conditions overshadowed all aspirations of being something, mattering to someone, or achieving something in their lives. Over the years, their sense of meaning in life had faded away, as described by one participant:

> "The time I used drugs I just gave a damn and didn't care about anyone but myself, so people could just say exactly what they want – because I didn't give a shit anyway" [. . .] (P 2).

The participants became preoccupied with their severe addictions, which diminished their hopes, dreams and personal aspirations. One stated:

> [. . .] "I think the life I lived before, with drugs and all that [. . .], back then there was no problem, then I just didn't take responsibility for anything." (P 5)

The participants felt that recovering their self-esteem and sense of dignity was a driving force in their recovery. Having something meaningful to do and feeling useful mattered for their dignity and protected them from relapse and all the guilt and shame that accompany setbacks. One explained:

> "[. . .] I feel I've got over the barriers that many people seem to struggle with. Now I like the life I have, now I have something to go to and something meaningful to do every day. You feel more normal then, and you don't feel so much stigma and you don't feel like you're just put in a box, like before." (P 4)

The participants described a revitalized sense of purpose as an essential driver in their recovery process and a key internal facilitator for participating in their local mainstream community. A better relationship with oneself was also described as key to improving relations with others and mattering to significant others, which were vital for social participation. They had all experienced loss of close relationships such as divorce, having their children placed in care and being rejected by their children. One explained:

> "A big goal for me is about my kids, and it would be nice to have a normal relationship with them." (P 8)

Reuniting with their close family and their children was pivotal to their recovery. The prospect of reconnecting with their children was an important motivation for staying sober.

Fundamental social inclusion. The participants emphasized the importance of appropriate housing that provided them with safety, sufficient sleep and rest and personal hygiene. These factors were considered crucial to social participation. They had all lacked fundamental social opportunities and experienced the hazards resulting from social marginalization. The participants gave several examples of being beaten up, sleeping outdoors in the cold and living in unsafe accommodation. Appropriate housing separate from DD peers was important for their personal safety and provided respite from the harsh substance use environment, as one explained:

> "You have no chance of getting sober in a place like that, you always have someone at your door bringing drugs or asking for drugs. There's never any peace, constant partying and people in and out at all hours [. . .] it wears you out." (P 4)

The participants emphasized that endless partying and social pressure from DD peers to take drugs were incompatible with staying sober or progressing towards recovery or social participation. They were keen to liberate themselves from that life and establish what they considered normal life. One said:

> "I just want to live a normal life, living a completely normal life is my dream." (P1)

The participants explained that this was decisive for participation in their local mainstream community and detailed the difference between normality then and now. Today, normality meant a decent, safe place to live where they could settle down and achieve some stability and predictability in life.

Thriving at work. Some participants attended organized work training alongside former DD peers. They enjoyed this and it improved their self-esteem:

> "To turn up for work in the morning, put on my work clothes and make myself useful has an incredible impact on my self-confidence. I think maybe if people's first impression is that someone is a bad person, but then they see, well, okay. He is at work, he's doing something [. . .] so for me work practice has meant a lot." (P 2)

Having a job to go to and being self-sufficient like "everybody else" were also described as key features of a normal life. Being obliged to join an environment that mattered to them and feeling that they were contributing to society instead of making trouble was of great value for the participants.

Discussion

The main aim of this study was to explore how people with DD perceive their barriers and facilitators to social participation, to inform the content of a novel VRI. The main findings are social alienation, poor social skills, inadequate help, stigma, low self-esteem and social anxiety as prominent barriers to participation in mainstream society. These findings concur with studies on social participation in various populations and cultural settings (Chan and Huxley, 2022), studies of healthcare providers' experiences of working with DD clients (Aasen *et al.*, 2023), and studies of clients in both mental health and DD recovery (MacIntyre *et al.*, 2022; Van Draanen *et al.*, 2020; Luchenski *et al.*, 2018; Harper *et al.*, 2017).

The main facilitators for social participation were to restore a sense of dignity and a sense of purpose, to reunite with family members and to be given opportunities for social participation. Personal safety was also important to the participants. Homelessness and harsh living conditions involving disturbances, danger and personal violations are barriers to social participation and recovery (Zolnikov *et al.*, 2021; Ness *et al.*, 2014; Klevan *et al.*, 2021). The barriers and facilitators identified in this study agree with those found in previous studies on DD recovery (Klevan *et al.*, 2021; Ness *et al.*, 2014). A critical finding related to VRI in this study is the participants' emphasis on poor social skills as a key barrier to social participation. They were reluctant to take opportunities to socialize and mostly avoided social interaction with normal people. This made them hesitant to use shared public spaces such as public transport, recreation facilities, libraries, parks, cinemas, restaurants and shops. Everyday activities such as taking the bus, shopping and interacting with "normal people" were perceived as unpleasant, frightening and exhausting.

In a citizenship perspective, shared public spaces are essential settings for creating a sense of citizenship and belonging that derives from fleeting social interactions too momentary and occasional to be considered friendships, but significant enough to provide a lasting sense of proximity, belonging and shared citizenship (Harper *et al.*, 2017).

For people outside education, employment and organized leisure activities, shared public spaces are their main socialization settings and their entry point for social participation and a sense of citizenship (Harper *et al.*, 2017). The participants' experiences from public places were related to substance use, drug trading, street work, violence and rough living and their behavioural repertoires were adapted to surviving the harsh environments on the streets rather than achieving shared citizenship. The behaviour necessary to ensure personal safety in the substance use scene in public spaces will often be considered inappropriate by people without DD experience, leading to devaluation, rejection and alienation.

Another key finding regarding social skills is the participants' descriptions of poor civic literacy, health literacy and employability skills. Limited knowledge of everyday topics such as politics, public affairs and societal practices were described as prominent barriers to social participation. The participants found it important to understand what people in mainstream society talk about in casual conversations. Their statements relate to civic literacy, which may be understood as people's willingness to participate and act with consideration and deliberation in a pluralistic world, to think critically and to act with empathy in relation to others, despite potential conflicts of interest (Barber, 1993 as cited in Wahlström, 2022). Civic literacy is about democratic participation in a broader sense than constitutional knowledge (Wahlström, 2022). As democracy is closely related to changes in society and people's ways of living, democracy primarily takes place and develops locally through communication in everyday social spaces in neighbourhoods (Wahlström, 2022). Democratic participation is thus a key part of citizenship and social participation in local communities. Civic literacy comprises knowledge about the world, acting responsibly in the world and realizing oneself in the world. This involves abilities to contextualize and critically reflect on knowledge and to participate in contexts of shared interests with others across social boundaries (Wahlström, 2022).

The participants also described health literacy as vital to recovery and social participation. Health literacy is defined as "the knowledge and competencies that enable people to access, understand, appraise, and use information and services in ways which promote and maintain good health and wellbeing for themselves and those around them" (Nutbeam and Muscat, 2021). Health literacy is a key path to obtaining support from health and social services (Parker *et al.*, 1999). Inadequate health literacy is recognized as a stronger predictor of poor health than age, income, employment status, education level or race (Parker *et al.*, 1999). People with marginal health literacy have inferior self-care, receive fever preventative measures and have higher all-cause mortality (Shahid *et al.*, 2022).

The participants described establishing a legal income and being self-sufficient as important to enhance their self-esteem and personal dignity, but also felt that their limited work experience and social skills in work settings were barriers to employment. Employment is one of the strongest predictors of recovery in people with substance use disorders (Magura and Marshall, 2020). The social skills required to thrive at work are employability skills, which are defined as

"Personal skills in communication, cooperation, responsibility, flexibility, organization and problem solving that enable people to thrive at work" (Magura and Marshall, 2020).

Practical implications

Understanding others and being understood by others through communication is the main common feature of the themes in this study, and this relies on social cognition and social communication skills. Communication is a fundamental social capability in all aspects of life (Wahlström, 2022).

Social cognition refers to processes that are used to acquire and interpret information about others, such as character, intentions and behaviours, about others. This necessitates awareness, analysis, choices, sharing or avoiding gazing, recognition of faces, interpretation of facial expresses, scrutiny of head, whole body- and part motion. Social cognition also refers to the understanding and use of the rules and concepts governing social interactions by means of gestures, etiquette, touch and proximity. Social cognition skills forms the bases for the ability to infer and represent the mental states of others and to attribute and interpret desires, beliefs, intentions and thoughts as determinants and predictors of behaviour (Millan *et al.*, 2012). Social communication is about how we express ourselves to others, how and why we use language to interact with other people. We all make communication decisions based on where we are, who's around us and why we are communicating. Social communication skills are about using verbal communication for various purposes, such as greeting others, making oneself understood, asking for help, setting boundaries, asserting opinions, negotiating or expressing needs. Social communication skills involve being able to adapt language to the listener, adapt the level of detail in information and adapt language use to different situations and surroundings. This is also about following social norms, or rules of verbal communication, such as walk-taking, introduction, sticking to the topic and the connection between body language, mimicry and verbal communication (Grover *et al.*, 2020).

VRIs to enhance social participation should therefore focus on building up a foundation of basic communication skills for shared public spaces before more complex social skills and behaviours are practiced in various social settings. A wide variety of social skills and behavioural repertoires could be modelled in VRI scenarios. Presenting oneself to others, setting boundaries, being assertive, asking for help, discussing opinions, coping with criticism and displaying empathy are some fundamental social skills to practice in VRI simulations, but there are many more that could be modelled in VRIs to improve social participation. VRI scenarios to improve social communication skills should thus simulate shared public spaces. When learners have mastered fundamental social skills, they will need to move on to more complex behaviours in various social contexts. Cooperation, customer service, attending meetings and engaging in leisure activities are social settings that require complex social behaviour. This should be practised in relevant scenario simulations, such as workplaces, doctor's surgeries and service offices. Cognitive, social and vocational skills are vital to community functioning and quality of life among people with psychosis (Schroeder *et al.*, 2022; Bell *et al.*, 2022; Riches *et al.*, 2020). Improving these skills is likely to improve social participation and quality of life among people with DD as well.

In a democratic perspective, the aim of education includes educating a citizen, not only a person (Dewey, 1916 as cited inWahlström, 2022). This perspective also relates to promoting social participation among people with DD. This study shows that poor civic literacy, including knowledge about society and public affairs, is a barrier to social participation. Training in civic literacy and health literacy are vital factors. Further, social participation requires the will and courage to interact with the environment based on one's own needs and interests (Wahlström, 2022). Low self-esteem and lack of confidence in social skills were prominent in our data. VRIs for social participation thus also need to focus on bolstering people's courage to use social skills. This calls for VRIs with an errorless learning design to ensure that learners build both skills and confidence to enable interaction in social settings.

Strengths and limitations

This study was purposively designed as a formative study to inform the further development of a novel VRI application. The participants were recruited for their lived experience of DD and recovery relevant to the study aim. A broad research team and peer researchers collaborated in the design and implementation, and a peer researcher was involved in the data analysis. A limitation is the convenience sampling, where the researcher described the research to potential participants, who could then volunteer to participate (Stratton, 2021).

Convenience sampling is a relatively unobtrusive recruitment method that ensures a genuine interest in participation in vulnerable and hard-to-reach populations. However, such non-probability sampling does not allow generalization to a general population. Additionally, this study was conducted in a Scandinavian welfare context, which may limit its relevance in other cultural and societal contexts.

Conclusion

This study shows that the participants in the precent study experienced a sense of alienation from mainstream society. The participants explained that this resulted in persistent hesitation to use social opportunities and participate in education, work and cultural life in their local mainstream community. The study indicates that VRIs should be used as an integral part of coordinated and holistic health and social services focused on both functional and social recovery. This study helps us understand how we may design the content of a new VRI to enable people with DD to use opportunities to participate, learn and work in mainstream society. More research is needed to understand how to design VR-based learning experiences that effectively enable skills transfer from virtual to real environments with sustained learning outcomes.

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Further reading

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