"A Double-Edged Sword": Practitioners' Perspectives on Social VR for ADHD

Mahya Tazike
Indiana University Indianapolis
Indianapolis, IN, USA
mtazike@iu.edu

Elmira Deldari
University of Maryland Baltimore County
Baltimore, MD, USA
edeldar1@umbc.edu

Adina Friedman
Indiana University Indianapolis
Indianapolis, IN, USA
adifried@iu.edu

Francesco Cafaro
Indiana University Indianapolis
Indianapolis, IN, USA
fcafaro@iu.edu

Abstract

Social Virtual Reality (VR) is emerging as a promising technology for individuals with Attention-Deficit/Hyperactivity Disorder (ADHD). However, we still need to explore how practitioners perceive and envision its integration into their clinical practice. This study presents findings from semi-structured interviews with six practitioners (clinicians, therapists, and clinical professors) experienced in ADHD and VR interventions. Our findings reveal practitioners see significant therapeutic potential in social VR for supporting cognitive skills, impulse control, and creating emotionally safe environments. However, they also highlight challenges, including difficulties with social communication in VR, ensuring skill transfer to real-life, and managing overstimulation.

CCS Concepts

• **Human-centered computing → Human computer interaction (HCI)**; *Accessibility design and evaluation methods.*

Keywords

Social Virtual Reality (Social VR), XR, Design, Neurodiversity, ADHD

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1 Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders, with a growing global prevalence [4, 6, 35]. As of 2022, approximately 11.4% of U.S. children aged 3–17 years (about 7 million) have been diagnosed with ADHD [5]. Additionally, an estimated 6.0% of U.S. adults (15.5 million people) currently live with the condition, highlighting the urgent need for scalable, accessible interventions [5]. Researchers have long recognized the potential of Virtual Reality (VR) [8] to support individuals with disabilities, including those in the neurodivergent community[3, 28]. In particular, Social VR enables users to interact in shared, immersive spaces through avatars, voice, and body movement, creating new possibilities for social connection and support. In particular, Social Virtual Reality (Social VR) platforms (e.g., VRChat, Meta's Horizon Worlds, and Rec Room) enable users to interact in shared, immersive spaces using avatars, voice, and body movement. These platforms typically involve VR head-mounted displays and support real-time social interaction in 3D virtual environments, creating new possibilities for connection and support [9, 12, 14, 15, 37]. A growing body of research has explored the use of social VR to support individuals with ADHD, particularly through interventions designed to improve attention, behavior regulation (such as managing time and regulating emotions), and learning outcomes [4, 8, 17, 29]. For instance, recent research in social VR includes the design and evaluation of immersive VR systems (e.g., PigScape [17] that train impulse control in children [4, 17, 23, 30]) and user studies examining how individuals with ADHD experience VR in educational and social contexts [8, 22, 32].

Given the current state of the field, where technological interventions for ADHD utilizing social VR are not only emerging but also show promise, we need to explore how practitioners, who work with people with ADHD, (clinicians, therapists, and clinical professors) perceive, understand, and envision the integration of social VR into their practice. In fact, their perspectives play a key role in shaping and implementing social VR interventions in real-world clinical practice. We conducted semi-structured interviews with six practitioners to understand their views on the challenges, opportunities, and design considerations related to their use of social VR to support individuals with ADHD. We explore the following research questions:

• RQ1: How do practitioners perceive the therapeutic potential of social VR technologies in addressing core ADHD symptoms such as supporting socialization, emotional development, and self-regulation?
• RQ2: What are the perceived challenges that limit the therapeutic adoption of social VR-based interventionstazike

This work contributes to HCI and accessibility research by exploring practical and clinical insights that can inform the design of accessible, social VR interventions.

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2 Related Work

Social Virtual Reality (Social VR) is a promising technology to support neurodivergent individuals, including those with Attention-Deficit/Hyperactivity Disorder (ADHD), by offering safe, immersive, and interactive environments for learning and therapeutic engagement [25, 26, 35]. VR is particularly appealing to individuals who benefit from visual, game-like, and structured interaction formats [3, 36]. Social VR platforms [9, 14, 37] allow users to interact with others in shared virtual spaces [6, 21].

Prior research has explored the use of VR to support individuals with ADHD [4, 6–8, 24]. For example, researchers have developed immersive applications to teach time management [10], emotional regulation [1], and social cue recognition [30]. Cuber et al. [8] found that VR can help improve focus and memory retention in university students with ADHD. Tran et al. [31] studied how visualization design affects users with ADHD, and they found that participants with ADHD completed visualization tasks more quickly than Participants without ADHD but struggled with text-heavy visuals, and that preferences didn't always match the most effective formats. Byun et al [4] developed Le Petit Care, an AI-powered XR system for children with ADHD, showing strong engagement through tailored storytelling. A few studies have examined the perspectives of therapists or educators, but in the context of designing specific tools for neurodivergent users [26, 35]. Beyond these targeted VR interventions, recent work has begun to examine accessibility challenges in social VR. For instance, Collins et al [6] highlight challenges such as sensory overload. Gualano et al [18, 19] discuss inclusive avatar design in Social VR for people with invisible disabilities, emphasizing the need for flexible, context-sensitive disclosure and subtle self-representation features.

However, prior work on VR and social VR for ADHD has primarily focused on designing, implementing, and evaluating prototypes of specific technological interventions. Research in VR still needs to investigate the perspectives of practitioners (clinicians, therapists, and clinical professors) on the use of social VR in their clinical practice. This work addresses that gap by focusing on social VR and by gathering insights from professionals with expertise in ADHD and immersive technologies, offering guidance for the development of more accessible and effective social VR experiences.

3 Methods

We conducted semi-structured interviews with 6 practitioners in the field of ADHD who are familiar with using VR technology within their practice. We aimed to understand their perspectives on using social VR for ADHD in their clinical practice.

Participants. We have recruited six practitioners (4 female, 2 male), ranging in age from 31 to 58 (M = 40.67, SD = 9.88): two identified themselves as psychologists/coach, two as clinical professors, and two as clinical psychologists. Four participants reported their main area of focus as Behavioral Interventions, the other two as Diagnosis and Treatment. All participants had professional experience (from 5 to over 20 years) working with individuals with ADHD across various age groups. We identified potential participants through university faculty directories and targeted online searches for professionals with expertise in ADHD and VR technologies. Recruitment took place between February 2024 and April 2025.

Procedure. We conducted semi-structured interviews via video conferencing software (Zoom). All interviews were conducted in English and lasted approximately 50 minutes. Before starting the interview, we briefly introduced Social VR, including its core features, potential opportunities, and known limitations, to ensure a shared understanding of the topic. We asked participants about their experience working with individuals with ADHD, their perspectives on digital tools and immersive technologies, and their insights on the opportunities, limitations, and concerns related to social VR-based interventions. For example, we asked participants, "What are your thoughts on using social VR to help individuals with ADHD improve social skills or maintain social connections?"

Data Analysis. With participants' consent, all six interviews were recorded and automatically transcribed via Zoom. The transcripts were then manually reviewed and cleaned by two researchers to ensure accuracy. To begin the analysis, two transcripts were randomly selected. Two researchers independently conducted open coding at the sentence level for these transcripts. They then compared their codes, discussed any discrepancies, and collaboratively developed an initial codebook based on their shared understanding. Throughout the coding process, the researchers continued to regularly review and discuss each other's codes to maintain consistency. For example, one researcher coded a segment as "task difficulty" while the other labeled it "cognitive load". After the discussion, they agreed on using "executive functioning demand" to better reflect the nuance of the participant's point. These collaborative discussions helped refine the final codebook, which included 55 codes, and ensured a shared interpretation of the data. We then grouped related codes into representative themes that aligned with our two research questions.

4 Results

4.1 Therapeutic Role of Social VR for ADHD

4.1.1 Supporting Cognitive Skills. Our participants recognized the potential of social VR technologies to support individuals with ADHD in managing inattention, impulsivity, and emotional regulation. They described how immersive and interactive environments could offer structured spaces for attention training and repeated skill practice. As P1 explained: *"It's definitely better than [traditional tools]... it could provide a context for the skill and then reinforce it right away"*. She suggested that social VR may enhance engagement while reinforcing learned behaviors in contextually, socially-situated ways.

4.1.2 Training Impulse Control. Participants described the potential of social VR to support attention and self-regulation in individuals with ADHD, through immersive environments. P5 highlighted the appeal of social VR for sustaining attention: *"It's immersive and it keeps their attention, when you're using multiple senses like visual and audio [while using VR platforms], it might hold them longer than reading a book or doing a worksheet"*. P1 added how social VR could be used to simulate real-life moments that require impulse control: *"With VR you could simulate situations where they have to stop and*

think like before they interrupt someone or make a decision and they could get feedback right away" .

4.1.3 Creating Emotionally Safe Environments. In addition to cognitive benefits, several participants discussed social VR's ability to create emotionally safe, low-risk spaces where users can rehearse behaviors without fear of social judgment. This was particularly salient for individuals experiencing social anxiety. As P2 said: *"Social anxiety is perhaps one of the core problems with this population. So having a space to practice... is huge."* Social VR environments were described as offering room to experiment with social strategies in a way that feels non-threatening and private.

4.2 Challenges for the Therapeutic Adoption of Social VR for ADHD

4.2.1 Social Communications in Social VR. Individuals with ADHD often struggle with social communication, including missing social cues, experiencing peer rejection, or having difficulty regulating behavior in group settings [13]. Our participants highlighted the social dimension of ADHD symptoms, and emphasized how difficulties in reciprocal conversation, reading facial expressions, and interpreting social cues can lead to misunderstandings and peer challenges. As P4 said, *"They might just not understand how to engage in reciprocal conversation. They might talk too much or not notice the facial expressions of other people"*. According to our participants, these challenges can carry over into virtual environments. For example, P2 explained that *"Kids with ADHD have a harder time paying attention to social cues, and in a VR setting, they might miss signals like tone of voice or facial [avatar] expressions that other users pick up on."*

4.2.2 Transfer of skills to real life. Participants also identified a critical challenge in Social VR regarding the transfer of social-emotional skills to everyday life. P2 pointed out that virtual environments often lack the unpredictability of real-world interactions: *"In VR, things are kind of predictable, so when a kid does well, it doesn't always mean they'll succeed in the messiness of real life, if VR only present idealized scenarios, users may struggle to apply those skills in more complex settings."*. This highlights a key barrier: if social VR platforms only present idealized or scripted social scenarios, users may struggle to apply those skills in more complex, dynamic settings.

Participants suggested incorporating emotionally rich and flexible interactions within social VR environments. They noted that predictable conversations are insufficient for meaningful learning. Instead, social VR should be able to respond with a range of emotions, such as surprise, frustration, or confusion, based on the user's behavior. This kind of dynamic feedback would help users understand how their actions impact others and support the development of emotional regulation through adaptive, real-time experiences. As P5 noted, *"Ideally, VR would respond to what users are doing in the moment, giving them immediate feedback to help manage emotions and interactions."*

Additionally, participants recommend using structured scenarios, such as birthday parties, that people are already somehow familiar with (rather than unfamiliar, abstract scenarios). For example, P1 suggested, *"If we could create simulated interactions in VR, like a classroom or a birthday party, it might help them learn what to expect and how to act"*. These environments allow users to anticipate social cues, experiment with responses, and receive immediate feedback.

4.2.3 Overstimulation and Individual Tolerance. Participants consistently raised concerns about overstimulation and sensory overload in social VR environments. They noted that individuals with ADHD, especially those with co-occurring sensory sensitivities, may find certain VR environments overly intense or distracting. This overstimulation could ultimately undermine the intended therapeutic or educational outcomes. P4 explained, *"The flashy environments can grab their attention, which is good, but it can also overload them and actually reduce their ability to focus"*. Additionally, P6 described VR's immersive nature as a *"double-edged sword"* explaining, *"It might engage them at first, but if there's too much going on, they'll either check out or get dysregulated, it's a double-edged sword"*. These concerns are even more pronounced in social VR, where users must navigate not only visual and auditory stimuli but also social and emotional dynamics. As P3 said, *"In Social VR, they're not just managing their own attention, they're also dealing with moving avatars, shifting environments, and unpredictable social interactions."* Some participants emphasized that personalization could help manage sensory load in social VR environments, especially for individuals with ADHD who vary widely in their tolerance for noise, movement, and environmental complexity. P3 explained, *"It has to be customizable, some kids might do fine with noise and movement, others need quiet, structured spaces"* .

5 Discussion

5.1 Recommendation for the Design of Social VR Experiences for Therapeutic Use for ADHD

Our participants emphasized that social VR holds therapeutic promise due to its immersive, repeatable, and context-rich experiences, aligning with prior research highlighting VR potential for cognitive and behavioral support for ADHD [7, 35]. They highlighted that generic or overstimulating social VR settings can hinder engagement or fail to support meaningful social learning. This underscores the importance of designing social VR systems that are adaptable to the needs of individuals with ADHD, particularly regarding distraction sensitivity and emotional regulation around others [33, 34]. To address this, designers should incorporate personalization options that allow users to adjust social and environmental complexity. Our participants also explained that effective design of social VR experiences must account for the social challenges individuals with ADHD face, such as difficulty interpreting facial expressions, maintaining conversation flow, or regulating timing. Simulated environments like classrooms, birthday parties, or team games could provide meaningful practice opportunities. To increase engagement, participants suggested incorporating a reward system tied to successful task completion. For example, users could complete short, time-bound tasks, such as shopping for one item, finding a friend in a virtual park, asking for help in a store, or following instructions in a group activity, and earn points or social upgrades (e.g., avatar enhancements or new abilities) as they progress.

5.2 Broader Implications for the Design of ADHD-Accessible VR Experiences

Our interviews also indicated two broadly applicable recommendations for designing accessible VR experiences that extend beyond the therapeutic use of social VR.

First, for individuals with ADHD, new tasks requiring sustained attention can be overwhelming if introduced all at once [16]. To support focus and gradual skill development [20], accessible VR environments should be designed with a step-by-step progression that introduces distractions incrementally [27]. As suggested by P4, in a VR driving simulation, the first level might present a simple environment with minimal traffic and no pedestrians. Once the user demonstrates focus and mastery in this calm setting, the next stage could introduce mild distractions, such as light traffic. Later stages can gradually add more realistic elements like unexpected sounds and pedestrian crossings. This scaffolded approach allows individuals with ADHD to build confidence and concentration skills without becoming overwhelmed.

Second, individuals with ADHD often benefit from environments that provide clear goals, structured progression, and timely reinforcement [2]. To improve the accessibility of VR experiences, designers should break down tasks into short steps with immediate and meaningful feedback to help users stay focused and motivated. For example, as suggested by P3, incorporating rewards such as avatar customizations after completing small sets of tasks can boost engagement (an approach currently used in game design [11]). Since avatars are extensions of user identity in VR, unique upgrades can encourage participation and reinforce achievement. Systems can also use progress bars, chimes, or verbal encouragement to signal task completion and guide users through tasks.

6 Limitations

Given the small sample size and limited diversity in our current participant group, we were not able to deeply explore areas such as practical barriers to clinical adoption and technology integration. We plan to conduct additional interviews with practitioners in this field to reach theoretical saturation and to more thoroughly investigate logistical concerns and technology-related challenges.

7 Conclusion and Future Work

This study provides an initial exploration of practitioners' perspectives on how Social VR technologies can support individuals with ADHD. As next steps, we plan to expand our interviews to include more practitioners, as well as people with ADHD who periodically see a therapist, to provide a more comprehensive understanding of needs and challenges for Social VR. Broadly, this work contributes to ongoing efforts in HCI and accessibility to design more inclusive and accessible VR experiences for neurodivergent populations.

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