

## Systematic Review: Are Table-Top Roleplaying Games a Useful Therapeutic Tool for People with Neurodiversity?

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**Aims:** This study aimed to review prior research on tabletop role-playing games (TTRPG) as a therapeutic tool for neurodiverse individuals and identify gaps in the field to direct future research.

**Methods:** A comprehensive systematic review of available literature on the use of TTRPGs in the neurodiverse population was completed, with no limitations to publication language or date. This was completed using appropriate medical subject headings (MeSH terms) and ProQuest to search 21 electronic data bases. Papers were superficially reviewed using the title and abstract to determine if they met the inclusion criteria and relevant articles were reviewed in full.

**Results:** The systematic search resulted in the identification of 5 relevant articles, containing a combination of peer-reviewed journal articles (n=3), and dissertations/theses (n=2). The majority of papers (n=3) were published in the western world, with others coming from Japan (n=1) and Brazil (n = 1).

**Conclusion:** Existing literature suggests that TTRPGs offer significant benefits for neurodiverse individuals, particularly in enhancing social skills, communication, and overall social functioning. Kato's (2019) qualitative case study showed that TTRPGs improved social functioning, intentional communication, and cooperative decision-making in youth with autism spectrum disorder (ASD). Henning et al. (2024) echoed these findings, though they were not statistically significant. The benefits of TTRPGs were also demonstrated by Parks (2021), remarking that TTRPGs allow autistic young adults to practice social roles and skills at their own pace. Atherton et al. (2024) expanded this by showing that TTRPGs helped autistic adults form social connections in a safe, structured setting, promoting community and friendship. A shift in focus was seen in the study presented by Rubin-Budick (2022), which focused on the perspective of the therapist over the participants. This research gave an overriding consensus on the effectiveness of TTRPGs in improving emotional attunement and social engagement. Whilst the current body of research highlights these potential benefits, it is important to note that the studies conducted so far have been limited by small sample sizes and narrow participant demographics, with an overriding focus on ASD over other neurodiverse conditions.

Overall, available literature suggests that TTRPGs can enhance social development, communication, and emotional well-being in neurodiverse individuals. This review has also highlighted the need to explore the role of TTRPGs as a therapeutic tool in a wider range of neurodiverse conditions, with particular reference to attention deficit hyperactivity disorder (ADHD).

Abstracts were reviewed by the RCPsych Academic Faculty rather than by the standard *BJPsych Open* peer review process and should not be quoted as peer-reviewed by *BJPsych Open* in any subsequent publication.

## VR for Mental Health Interventions at Home: Feasibility and Guiding Principles for Success

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**Aims:** Virtual reality (VR) is becoming readily recognised as a transformative force in healthcare. In recent times there have been rising waiting lists, barriers to accessing care and a need to rapidly scale treatment provision for mental health conditions including depression, anxiety, anorexia, and phobias. As a result, the feasibility and design of current home-based VR mental health treatments has been evaluated to synthesise cohesive guiding principles for further development and implementation of Virtual Reality technologies.

**Methods:** A multi-method approach was employed, utilising both secondary data from literature reviews and primary data collection through semi-structured expert interviews and surveys to gain insights from all potential stakeholders. These were thematically coded through the COM-b behavioural model to produce a qualitative analysis uncovering key themes hindering and facilitating the adoption of VR technology. Survey data was subject to quantitative analysis to understand attitudes and guide our recommendations.

**Results:** Analysis of the results ascertained the key barriers and opportunities to provide improved VR mental health services for patients. The two main overarching themes found were: optimisation of the design of technology, and provision of a supportive deployment environment. Within design a significant theme was immersion; This allows simulated environments to replicate the benefits of in-vivo interventions. Presence, a subtheme, is key to supporting immersion and can be thought of as the suspension of disbelief in one's surroundings, allowing for the mimicking of the effects of in vivo exposure. Personalisation and interaction also contributed to enhancing the design. For the higher theme of creating a supportive deployment environment, the main considerations were acknowledging inequalities regarding both technical barriers and financial challenges.

A patient centered framework was developed to support engagement and adoption of VR, using the COM-B model. The model shows the interaction between the capability to participate in an action, the opportunity, which is determined by external factors that allow behavioural change, and the motivation to implement these changes.

**Conclusion:** The evidence for VR's therapeutic efficacy on home mental health is growing rapidly, however, translating evidence-based practices into the NHS can be a lengthy process. A theory driven framework of practical recommendations is vital for implementing VR interventions. Focus should be centred on holistic design and prioritization of facilitators, which address barriers under multiple domains to support patient and clinician confidence, and thus the successful adoption of VR.

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## Multi-Parametric Cerebellar Neuroimaging in Subjective Cognitive Decline as Predictors of Cognitive Alterations in Alzheimer's Spectrum

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**Aims:** Subjective Cognitive Decline (SCD) represents the earliest, reversible stage in Alzheimer's dementia (AD) spectrum, marked by self-appraised cognitive deterioration, that escapes objective

detection. The intricate fine-tuning of cognition by cerebellum has been substantiated by the Cerebellar Cognitive Affective Syndrome and “Dysmetria of thought” theory. However, the role of cerebellum in SCD is understated in research. This study aims to determine the relationship between cerebellar neuroimaging parameters and cognition in patients with SCD.

**Methods:** Patients with SCD, with a Clinical Dementia Rating score of 0, were assessed on Addenbrooke’s Cognitive Examination-III (ACE). Multiparametric MRI (Volumetric analysis of cerebellum, Diffusion tensor imaging at Middle Cerebellar Peduncles (MCP), Magnetic resonance spectroscopy (MRS)) was carried out. Relationship between cognition and neuroimaging parameters was determined.

**Results:** A total of 28 SCD patients with a mean age of  $70.89 \pm 3.89$  years were included. There were significant positive correlations of attention with axial diffusivities (AxD) at bilateral MCP; fluency with right cerebellar white matter volumes (CWMV); visuospatial function with left CWMV and fractional anisotropy (FA); total ACE scores with total CWMV, bilateral AxD. Significant negative correlations of myoinositol/creatine (mI/Cr) with attention, fluency and memory were revealed on MRS. Linear regression analysis exhibited significant associations between total ACE scores and CWMV; attention and axial diffusivities; memory and right cerebellar volume; fluency and CWMV, Cerebellar cortical volumes; Visuo-spatial function and FA at left MCP.

**Conclusion:** The aforementioned significant relationships highlight the unique role of multiparametric neuroimaging in early detection of cerebellar ultrastructural alterations, and the modulatory impact of cerebellum in cognition during initial stages of AD continuum. Furthermore, longitudinal studies are warranted to predict long term cognitive outcomes in SCD using cerebellar neuroimaging parameters.

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## Effect of the COVID-19 Pandemic and Isolation Measures on the Mental Health Well-Being of Sixth Form Grammar School Students in Cumbria

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**Aims:** COVID-19 affected many countries globally, including the UK, to which the UK responded by placing lockdown measures throughout the country. This meant that many people were restricted in their everyday lives, including students. This study is used to understand the impact of these measures on sixth form students.

**Methods:** The Warwick–Edinburgh Mental Wellbeing Scale was sent to students in a sixth-form grammar school in September 2021 to assess students’ mental well-being. A semi-structured proforma was then also sent in May 2022 to compare students’ experiences and mental health before and after the lockdown measures.

**Results:** On the well-being scale, 47.1% of sixth-form students scored below 44 (average to low mental well-being), while 31% of the 1st year sixth-form students and 27% of the 2nd year sixth-form

students scored 40 and below (lower than average mental well-being). In the semi-structured proforma, 73.90% of students (n=69) experienced quarantine since the pandemic started. 69.10% of them felt that the quarantines negatively impacted their mental health. In response to the question ‘In your own words, what was the most difficult thing that you experienced during the COVID pandemic?’ (n=55), 5 general themes were identified: *Isolation, not socialising, loneliness, loss of teenage life/youth, and online learning.*

**Conclusion:** The study showed that the mental well-being of sixth-form grammar school students in Cumbria was mostly negatively affected by the lockdown measures. The authors concluded that more accessible and approachable support should be provided to students in case of a similar event. More research is needed to understand the long-term impacts of such measures on students’ school and social lives.

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## COVID-19 Vaccine and Active Infection Associated Neuropsychiatric Manifestations in an Adolescent: A Literature Review

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**Aims:** The aim of this study is to evaluate the literature for COVID-19 induced psychosis in a child and adolescent population.

**Methods:** This review included a comprehensive literature search across major databases, including MEDLINE, EMBASE, PsycINFO, and the Cochrane Library. The inclusion criteria encompassed case reports, case series, longitudinal studies, and observational studies involving children or adolescents (under 18 years) who had a diagnosis of COVID-19 or a recent history of COVID-19 vaccination and presented with features of psychosis. Data extraction focused on key demographic information, such as age, gender, and past medical and psychiatric history. Additionally, details regarding COVID-19 treatment and the management of psychosis were recorded.

**Results:** Eight studies included patients with a history of COVID-19 infection or vaccination who subsequently presented with psychosis. Five were male (62.5%), and three were female (37.5%). COVID-19 infection was confirmed by PCR (50%), antibody tests (25%), positive viral swabs (12.5%), or positive lateral flow tests (12.5%). Most patients were managed conservatively for COVID-19 (50%), while others received steroids (37.5%) or antibiotics (12.5%). Antipsychotic medication was the primary treatment for psychosis in most cases (75%), with some patients also receiving lithium (12.5%), SSRIs (12.5%), or benzodiazepines (12.5%). Regarding prior psychiatric history, 62.5% of patients had no previous psychiatric diagnoses. However, 25% had a history of learning disabilities, and 12.5% had a history of depressive disorder and illicit drug use.

**Conclusion:** Neuropsychiatric manifestations of COVID-19 in adolescents are less frequently reported compared with adults. Common presentations include insomnia, mood disorders, and, less commonly, psychosis. The precise mechanisms underlying these neuropsychiatric complications remain unclear, but they are hypothesized to be linked to an exaggerated immune response, including cytokine storms, triggered by the infection. This review highlights the need for further research and the development of