

Acceptability and Perceived Benefit of a Chatbot-Delivered CBT-I Intervention for Autistic Adolescents: A Qualitative Study

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Background: Sleep disturbances are prevalent among autistic adolescents and can negatively affect mental health and daily functioning. Chatbot-delivered interventions based on Cognitive Behavioral Therapy for Insomnia (CBT-I) may improve access to behavioral sleep therapy, but existing digital programs were not designed for autistic adolescents. This study explored participants' experiences with Catching Z's, a 4-week chatbot-delivered, CBT-I-based intervention co-designed with autistic adolescents and caregivers.

Methods: A single-arm feasibility study was conducted with 13 autistic adolescents (ages 12–17). Post-intervention interviews with adolescents, conducted with or without caregiver support, were analyzed using reflexive thematic analysis. Codes were generated inductively, compared across transcripts, and developed into themes.

Results: Participants reported positive experiences with the chatbot intervention, describing improvements in sleep knowledge, behaviors, and confidence. Three themes were developed. First, developing sleep literacy and self-efficacy. Participants gained knowledge they could apply to their own experience, including how sensory processing differences affect sleep, fostering confidence and more positive sleep beliefs; one described having come to like sleep after previously disliking it. Second, translating sleep coaching into behavior change. Participants valued intervention components targeting pre-sleep arousal, including stimulus control strategies, relaxation techniques, and racing-thought management. Sleep tracking through logs and dashboards enhanced self-monitoring and reinforced daily strategy use. Third, sustaining

engagement through autism-responsive design. While praising the interactive, conversational format and ease of navigation, participants recommended enhanced visual supports, customizable sensory options, concise modules with progress indicators in each session, and gamified positive reinforcement. Implementation barriers included school-related schedule constraints that hindered routine consistency, alongside intermittent technical glitches. Nevertheless, most participants expressed intent to continue using and recommending the intervention.

Conclusions: A chatbot-delivered CBT-I intervention was acceptable for autistic adolescents, who perceived benefit across sleep knowledge, behavior, and confidence. Findings underscore the importance of personalization and autism-responsive design to optimize sleep interventions for autistic adolescents.