January 17, 2024

Protocol Title: Hoarding Disorder Treatment With Virtual Reality

NCT Number: NCT03828461

Study Protocol/Method

Procedure overview

Participants diagnosed with HD participated in study interventions for 16 weeks, including 16 weeks of remote BIT group sessions and 8 weeks of in-person individual VR-based sessions (the two session types overlapped during weeks 7–14 of BIT). VR environments were individualized to look like each participant's cluttered room. Primary outcome assessments were collected at Baseline (Week 0), immediately before starting VR sessions (Week 6), and at Close Out (Week 17). Participants completed the SSQ at the end of every session.

Virtual reality treatment protocol

Beginning seven weeks into the BIT group sessions, eight weekly 1-h individual VR sessions were administered (one for orientation; seven using the VR). Session content was consistent with protocols for in-home decluttering visits (Linkovski et al., 2018). VR sessions were administered by doctoral trainee clinicians trained in the treatment protocol and VR equipment. Sessions were designed to augment sorting and discarding skills learned in the BIT group; they are described in more detail below. In the first session, participants received psychoeducation on the VR approach, and in Session 2, they familiarized themselves with the virtual home. In Sessions 2 and 3, the focus was on practicing cognitive skills with the virtual objects. This included identifying core beliefs about objects ("If you discarded this magazine, why would it be so upsetting?") and thinking through decision-making skills ("How many mugs would be 'enough'?"), while holding the virtual object in question (a magazine, a mug) and at times subsequently placing it into the virtual trash, recycling, or donation bins. In Sessions 4 through 8, focus was on desensitizing to discarding in the virtual home. Participants created a hierarchy of how distressing it would feel to discard each virtual object, then started discarding items lower on the hierarchy and worked their way up. In virtual discarding, they placed objects into bins (trash, recycle, donate; there was no "keep"bin although this is sometimes used in real-life discarding practice). An animated trash truck came to pick up the items placed in the trash. Participants were encouraged to lean into the psychological immersion of the process and the worry thoughts associated with discarding. During virtual discarding, they regularly rated their subjective distress on a scale of 0–10. As homework, they were assigned to actually discard one of the items that they had virtually discarded in session (or a similar item). In the final (8th) session, in addition to the VR activities, a relapse prevention plan was also made.

BIT Peer support group treatment protocol

The BIT group met online once per week for 16 weeks and followed the structured format detailed in the Buried in Treasures workbook (Tolin et al., 2013) and the BIT facilitator's guide (Shuer and Frost, 2011). Each 2-h group session was led by two study staff group facilitators (KV, TA), one of whom was a doctoral trainee clinician. The content began with psychoeducation about HD and non-acquiring skills,

and then provided educational content regarding skills for discarding possessions (e.g., behavioral experiments where one discards an item and then tracks how distressing it feels).

Statistical Analysis Plan

The relatively small sample size limits inference-based statistics such as mixed effects models (MEMs); thus, primary analyses will be descriptive statistics. It is generally recommended that analysis of small samples, such as the present study, be descriptive (Grimes and Schulz, 2002; Lancaster et al., 2004). The goal is for preliminary data to support the potential effectiveness of this approach, which can then be examined in a larger study. For primary outcome measures, we calculated the reliable change index (RCI; Jacobson and Truax, 1991), a statistical approach for measuring individual change in self-report scores; RCIs greater than 1.96 indicate reliable change, likely attributable to treatment rather than measurement error. To be thorough, we also note clinically significant change on the SIR using a stringent standardized criterion for this questionnaire (Norberg et al., 2021).