

# Adapting AVATAR Therapy: Using Available Digital Technology for People Living with Auditory Verbal Hallucinations in Low- and Middle-Income Countries

Stuti Viren Kapadia<sup>1</sup> 

Schizophrenia reduces the quality of life and academic and vocational performances of affected individuals.<sup>1</sup> It affects about 20 million people worldwide.<sup>2</sup> One of its hallmark symptoms is auditory verbal hallucinations (AVH), wherein the patients hear voices that are particularly threatening, commanding, and abusive in nature, thus adding to the already existing derogatory effects.<sup>3</sup> Although Clozapine is one of the benchmark treatments amongst antipsychotic medications, unfortunately, 20% to 50% of patients do not respond to it and suffer from treatment-resistant schizophrenia for years.<sup>4</sup> Another first-line and evidence-based treatment exercised for AVH is cognitive behavioral therapy for psychosis (CBTp).<sup>5</sup> Various randomized controlled trials (RCTs) and meta-analyses have shown that CBTp has moderate effects in ameliorating the symptoms and enhancing the quality of life.<sup>5-8</sup> Because

the available pharmacological and psychological interventions depict modest effects on AVH outcomes, further clinical research is required in this domain.

Amidst the above interventions, a new wave of virtual reality therapy termed AVATAR therapy (AT) is currently under research. It aims to ameliorate the AVH by adapting a dialogic approach where the therapist plays the dual role of the voice and the therapist.<sup>9</sup> The sessions are targeted toward achieving goals developed in collaboration with the patient. As the voices are invisible entities that patients deal with regularly, assigning a face and communicating with them in real time gives a real sense of the voices heard.<sup>9</sup> However, this novel therapy has been tested in clinical trials in the UK only and has received a significant economic contribution from generous sponsors. This, however, raises questions for testing the therapy in low- and middle-income

countries (LMICs). The mental health care budget in LMICs accounts for <1% because of other human and financial burdens,<sup>10</sup> and also the number of mental health professionals is insufficient compared to the number of people living with the illness.<sup>10</sup> For example, India and Pakistan spend only about 0.06% and 0.04%, respectively, of their general health budget on mental health.<sup>11</sup> Moreover, mental health professionals in the LMICs are also uneconomically and inadequately distributed, because of which a large number of people remain untreated.<sup>11</sup>

## AVATAR Therapy: A Brief Introduction

AT is a therapist-assisted, computer-based intervention in which therapists facilitate a conversation between the patients and the AVH they are experiencing. Patients use a computer program

<sup>1</sup>Dept. of Psychosis, King's College London, England, United Kingdom.

**HOW TO CITE THIS ARTICLE:** Kapadia SV. Adapting AVATAR Therapy: Using Available Digital Technology for People Living with Auditory Verbal Hallucinations in Low- and Middle-Income Countries. *Indian J Psychol Med.* 2022;44(4):405-408.

**Address for correspondence:** Stuti Viren Kapadia, Flat No.212, Silver Spring CHSL, Shastri Nagar, Behind Vartak College, Vasai West, Mumbai, Maharashtra, India. E-mail: stutikapadia@gmail.com

**Submitted:** 02 Aug. 2021  
**Accepted:** 25 Feb. 2022  
**Published Online:** 21 Jun. 2022



Copyright © The Author(s) 2022

Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution- NonCommercial 4.0 License (<http://www.creativecommons.org/licenses/by-nc/4.0/>) which permits non-Commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

**ACCESS THIS ARTICLE ONLINE**  
Website: [journals.sagepub.com/home/szj](https://journals.sagepub.com/home/szj)  
DOI: 10.1177/02537176221090106

to construct a visual representation (AVATAR) of the dominant voice and select a voice for it in one room. The therapist is in a second room with a control panel that allows them to speak in his or her own voice, or as the avatar. A video link allows the therapist to see and hear the participant's responses, enabling them to adjust therapeutic interventions and modify the avatar interaction according to the ongoing dialogue. The intervention involves two active phases wherein the first phase focuses on power, control, and autonomy over AVH, and the second phase follows a formulation of context, meaning-making, experiences of trauma, and powerlessness. Therapists use a detailed therapy manual where the conversations explicitly focus on patient's relationship with the voices and self-esteem and acknowledgement of their strengths and capabilities.

## Evidence Base for AT

AT uses a dialogic and relational approach with the aid of digital technology and assists the patients to communicate with their voices<sup>12</sup> directly. A pilot study got results of effectiveness for AT compared with treatment as usual (TAU), where TAU did not demonstrate any therapeutic effects.<sup>13</sup> Although the measure of insight and quality of life scores favored AT, we are unclear on the clinical meaning of the same.<sup>13</sup> No significant differences were seen in the Positive and Negative Syndrome Scale scores and the rates of reduction in anxiety between the two treatment groups.<sup>14</sup> A single-blind RCT of AT compared with supportive counseling was conducted where the scores were assessed at baseline, 12 weeks, and 24 weeks.<sup>15</sup> The effect size of the therapy was 0.8. However, no significant differences were observed between the two groups at either 12 or 24 weeks,<sup>15</sup> which the authors have acknowledged but relatively later in the manuscript and not in the abstract, giving greater exposure to AT, making the report indistinctly misleading. The short-term findings from an RCT comparing virtual reality therapy (VRT) with CBT revealed that both the interventions produced significant improvements in the AVH frequency and depressive symptoms.<sup>4</sup> However, VRT showed superiority over CBT on affective symptoms, persecutory beliefs, and quality of life,

which sustained over a period of one year follow-up.<sup>4</sup> Thus, VRT depicts the potential for effective results for patient-tailored approaches rather than the classical CBT. A recent study by Aali et al.,<sup>16</sup> did not show any positive or promising results with regard to AT, but the uncertainty of the results could also be attributed to the bias reported by the authors because of the procedure adopted as well as because of incomplete data outcomes and lack of follow-up with the patients. Interestingly, a case study report carried out in Canada showed significant improvement and complete amelioration of AVH in a patient who had been hearing voices for 20 years.<sup>17</sup> However, the authors did not explicitly state how the results were measured.

## Proposed Plan with Available Digital Technology for People Living with AVH in LMICs

Although the promising results of the AT cannot be disregarded, the treatment remains in its infancy. The various clinical trials and the RCTs for testing the efficacy and effectiveness of the therapy have been possible because of the generous funding provided by various funding agencies. This important factor should be considered while planning the testing of the therapy outcomes in LMICs as they face a dearth in locating funding for the regular functioning of their population's mental health care needs, let alone procure funds for testing out a novel therapy. Hence, to meet the unmet needs of this population, an innovative and adaptive approach would be feasible. The effectiveness of a combination of AT and supportive counseling, and the psychological intervention most commonly used in LMICs<sup>11</sup> can be studied, making the AT approach available and accessible for the said population.

## Designing the Voice

The computer and desktop requirements can be substituted with a pen and paper, and the patients can design the AVATAR face themselves instead of directly choosing the face from the AVATAR software, which could possibly aid in enhancing the patients' self-esteem. However, to answer "if this is effective" would

require clinical testing. The same could be modified at different time intervals as the sessions progress, according to the patient's comfort, in collaboration with the therapist. As certain patients report hearing voices of their own family members, friends, or neighbors, if they are able to give shape or draw these voices we could further test if there are any differences between giving shape to unknown voices and voices of people they know. Another image that the patient finds calming can also be drawn or chosen. Thus, the drawn AVATAR face can be on one side of the paper and a calm and soothing image on the other side of the paper. Therapists can also try to build the same avatar face in MS Paint or other similar basic software to build a concrete image if required. The simple technique could especially be implemented with people with compromised cognitive capacities who might find it quite difficult to engage with complex technological processes. The technique can also be tested across all age groups living with the voices.

Understandably, not all the patients would be able to draw and give a shape to their voice, and hence it is quite possible that certain patients might not be able to participate in the same. For such patients, another digital technique called Bitmoji could be used to create the AVATAR face (**Figures 1 and 2**).

Bitmoji is a personal emoji app available for both android and iOS users that lets users create an expressive cartoon avatar with an incredibly realistic depiction of themselves and others. Although it is widely used by the younger population, it is appropriate for all ages. The app allows the user to choose from various options, including hairstyle; hair color; eye color, size, and shape; eyebrows; nose shape; facial shape; and expressions. Once the face is created, users can customize their Bitmoji with their preferred attire and aesthetics, if required. The use of the app can be learned through minimal self-training or, in some cases, through basic workshop facilitation, which would not require high training costs. After that, the therapists could assist the patients in creating the appropriate Bitmoji (Snapchat, Santa Monica, CA, USA) image to match it closely with the perceived AVH, to ensure smooth facilitation of the sessions. A major drawback of

using this app is that it only assists with creating a Bitmoji face but not with designing a voice. However, neither of the above methods of designing the voice provide a real-time avatar speaking to the patient as opposed to the design of AT.

## Technology

Despite the strong evidence on the effectiveness of CBT for various mental health disorders, it is not widely used across various clinical settings in LMICs because of the paucity of competent training programs and experienced CBT practitioners.<sup>18</sup> Challenges such as inequality in accessing services, stigma, discrimination, lack of trained professionals, and underfunding could be addressed by telemental health services.<sup>19</sup> Eight RCTs presented video conferencing as the most frequently used modality along with e-counseling, telephone follow-up, online discussion groups, and computerized occupational therapy.<sup>19</sup> Although more rigorous research on telemental health services is required, these studies showed a positive outcome.

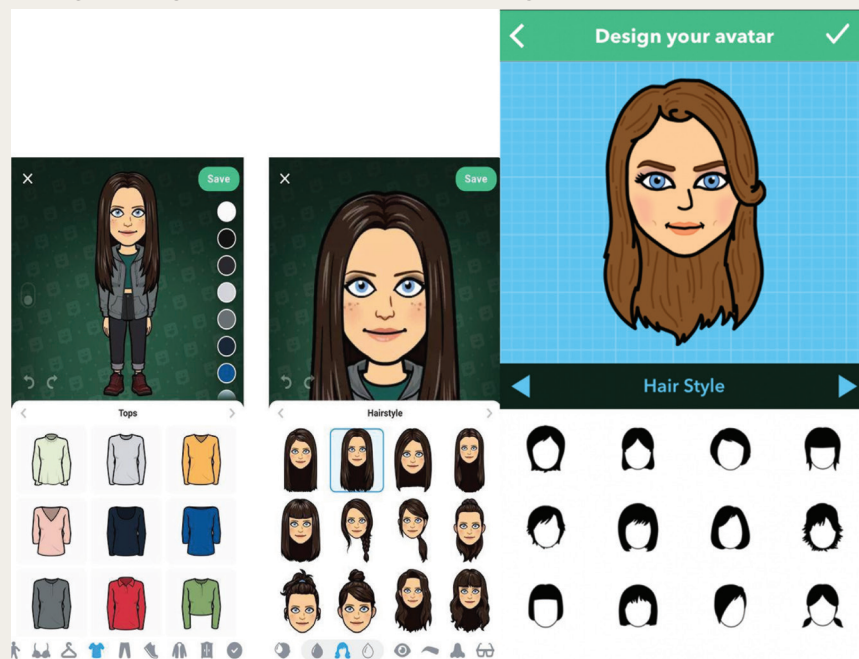
As currently the world is undergoing a digital transformation, the present idea can be carried out digitally via secure digital apps such as Microsoft Teams, Zoom, or Google Meet, which are even currently being utilized for online counseling. Thus, the participants can draw/create Bitmoji and share the images with the therapist, which can then be used via a sharing screen with the patient during the online session. If the patient feels anxious or overwhelmed during the session, the calming image can be pictured on the screen. The sessions can be recorded, and they can be shared with the clients for later use.

## Therapeutic Approach

Counseling can focus on occupational and functional independence, emotional recovery, past trauma, predominant AVH, and overall recovery. Some of the specific target goals would be shifting the locus of control (power, control, and confidence) from the voices to the patient, wherein the patient can be equipped with coping strategies, enabling them to develop a dialogic response to the voices. For example, if the voices are particularly threatening in nature, the patient could respond by saying, "I hear you, and

FIGURE 1.

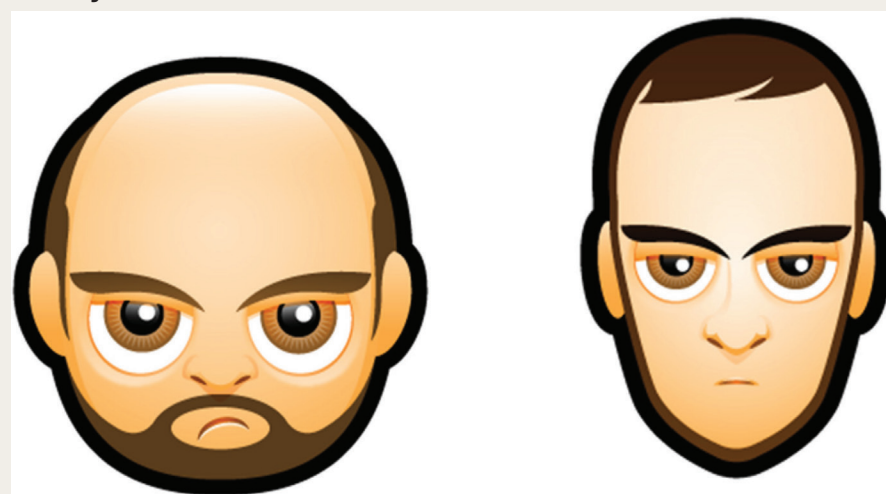
### Using Bitmoji Avatar to Create the Image of the Voice



Source: Figure has been sourced, saved and downloaded from the Bitmoji App.

FIGURE 2.

### Bitmoji AVATAR Face



Source: Figure has been sourced, saved and downloaded from the Bitmoji App.

you do sound dangerous to me, but I understand that this is a part of my illness, and I am at a safe place right now." Other areas to be worked on could be social inclusion, the relation of voices to inner processes, trauma, grief, and adversity. The above approach might seem analogous to art-based therapy; however,

art-based therapy involves the use of different art forms to enhance recovery and healing, whereas the approach mentioned above does not particularly focus on the expression through drawing the voices. Rather, the beliefs and relationship the patient has with the voices are of principal importance.



## Research Gaps

There is a need for further research on the following aspects:

1. Does the control given to the patient, the time they spend creating the AVATAR, or the extent to which they contribute to its creation (face only or both face and voice) lead to anxiety? The adverse outcome of anxiety have also been reported by Aali et al.,<sup>16</sup> but the underlying reasons were unclear.
2. Is this adapted technique necessary to achieve the therapeutic goals set in collaboration with the patients, or can they be achieved even without these adaptations?
3. Will the approach suit people with recent onset of the illness or even those with chronic illness?
4. Is the approach effective for and relative to people of all age groups?
5. In AT, as the sessions progress, the therapist uses the tone and content in the way the voices speak to the patient. Dr Leff<sup>3</sup> explains that this leads to a subconscious change within the patient. But we are unaware of the mechanism of this process in relation to the actual voices, i.e., if the actual tone and content of the AVH change.

## Conclusion

This is a novel idea that can be incorporated into the traditional approach of counseling, especially in LMICs and marginalized populations where the professionals do not have training resources for equipping themselves with the AVATAR-based approach. Although the present view would require a considerable amount of research for testing its efficacy and effectiveness, such trials can even be carried out in LMICs without a funding source. The proposed approach does not aim to replace or modify the effectiveness of virtual reality but tries to simplify the mechanism of the technology used to adapt it to an environment where exclusive technology is not widely used and accessible.

The above-discussed method is particularly curated for and is born out of the challenges and obstacles faced by

the population in LMICs where usual care and access to mental health treatment is difficult to obtain and would thus potentially depend on training and competence of the professionals and, more importantly, economizing the treatment.

### Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author received no financial support for the research, authorship, and/or publication of this article.

### ORCID iD

Stuti Viren Kapadia  <https://orcid.org/0000-0001-5830-4291>

## References

1. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub, 2013; 947.
2. WHO.int. Schizophrenia, <<https://www.who.int/news-room/fact-sheets/detail/schizophrenia>> (2021, accessed July 30, 2021).
3. Leff J, Williams G, Huckvale M, et al. Avatar therapy for persecutory auditory hallucinations: What is it and how does it work? *Psychosis* 2014; 6(2): 166–176.
4. Dellazizzo L, Potvin S, Phraxayavong K, et al. One-year randomized trial comparing virtual reality-assisted therapy to cognitive-behavioral therapy for patients with treatment-resistant schizophrenia. *Schizophrenia* 2021; 7: 9, <https://doi.org/10.1038/s41537-021-00139-2>
5. van der Gaag M, Valmaggia LR, and Smit F. The effects of individually tailored formulation-based cognitive behavioural therapy in auditory hallucinations and delusions: A meta-analysis. *Schizophr Res* June 2014; 156(1): 30–37.
6. Pfammatter M, Junghan UM, and Brenner HD. Efficacy of psychological therapy in schizophrenia: Conclusions from meta-analyses. *Schizophr Bull* 2006; 32(Suppl 1): S64–S80.
7. Jauhar S, McKenna PJ, Radua J, et al. Cognitive-behavioural therapy for the symptoms of schizophrenia: Systematic review and meta-analysis

- with examination of potential bias. *Br J Psychiatry: J Ment Sci* 2014; 204(1): 20–29.
8. Turner DT, van der Gaag M, Karyotaki E, et al. Psychological interventions for psychosis: A meta-analysis of comparative outcome studies. *Am J Psychiatry* 2014; 171(5): 523–538.
  9. Craig TK. AVATAR therapy: A promising new approach for persistent distressing voices. *World Psychiatry* 2019; 18(1): 98–99.
  10. WHO. *Mental health systems in selected low- and middle-income countries: a WHO-AIMS cross-national analysis*. 2010. World Health Organization; 103.
  11. Rathod S, Pinninti N, Irfan M, et al. Mental health service provision in low- and middle-income countries. *Health Service Insights* 2017; 10: <https://doi.org/10.1177/1178632917694350>.
  12. Garety P, Edwards CJ, Ward T, et al. Optimising AVATAR therapy for people who hear distressing voices: Study protocol for the AVATAR2 multi-centre randomised controlled trial. *Trials* 2021; 22: 366. <https://doi.org/10.1186/s13063-021-05301-w>
  13. Ward T, Rus-Calafell M, Ramadhan Z, et al. AVATAR therapy for distressing voices: A comprehensive account of therapeutic targets. *Schizophrenia Bull.*, 2020; 46(5): 1038–1044.
  14. Rus-Calafell M, Ward T, Zhang XC, et al. The role of sense of voice presence and anxiety reduction in AVATAR therapy. *J Clin Med* 2020; 9(9): 2748. <https://doi.org/10.3390/jcm9092748>
  15. Craig TK, Rus-Calafell M, Ward T, et al. AVATAR therapy for auditory verbal hallucinations in people with psychosis: A single-blind, randomised controlled trial. *Lancet Psychiatry* 2018; 5(1): 31–40.
  16. Aali G, Kariotis T, and Shokraneh F. Avatar Therapy for people with schizophrenia or related disorders. *Cochrane Database Syst Rev* 2020; 5(5): CDO11898.
  17. Dellazizzo L, Potvin S, Phraxayavong K, et al. Avatar therapy for persistent auditory verbal hallucinations in an ultra-resistant schizophrenia patient: A case report. *Front Psychiatry* 2018; 9: 131.
  18. Beck A, Nadkarni A, Calam R, et al. Increasing access to cognitive behaviour therapy in low and middle income countries: A strategic framework. *Asian J Psychiatr* 2015; 22: 190–195. <https://doi.org/10.1016/j.ajp.2015.10.00>
  19. Acharibasam JW and Wynn R. Telemental health in low- and middle-income countries: A systematic review. *Int J Telemed Applications* 2018; 2018: 9602821. <https://doi.org/10.1155/2018/9602821>