AVATAR THERAPY FOR AUDITORY HALLUCINATIONS

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EXTENT OF THE PROBLEM

• about 25% of people with schizophrenia continue to experience hallucinations and delusions despite treatment with antipsychotic medication

• hearing distressing voices has a major impact on patients and carers
EXTENT OF THE PROBLEM

• persistent voices impair the ability to work and make social contacts
• instances of violence against relatives, members of the public, and the patients themselves are often provoked by ‘voices’
• one in ten patients with schizophrenia commit suicide.
PHENOMENOLOGY OF ‘VOICES’

• when asked about the worst aspect of hearing persecutory voices, many people say ‘the helplessness’

• people who are able to establish a dialogue with the ‘voice’ feel much more in control (Nayani & David, 1996)
AVATAR THERAPY

• Developed for people with persistent persecutory voices despite adequate medication

• Summary of therapeutic procedures:
  • 1. An avatar is created by the patient to represent the ‘voice’
  • 2. A dialogue with the avatar brings it under the patient’s control
  • 3. The avatar changes from being persecutory to supportive
RATIONALE FOR THE THERAPY

• Physical or sexual abuse, emotional neglect, and bullying by peers in childhood are associated with persecutory voices in adult life

• This is mediated by low self-esteem stemming from the traumatic events

• A high proportion of voice hearers suffer from depression. Mean score on Calgary Depression Scale control group 22.67; experimental group 26.50. Maximum 27
RATIONALE FOR THE THERAPY

• The critical abuser/parental imago (Fairbairn’s ‘internal saboteur’) cannot be tolerated in the patient’s mental space and is extruded as a persecutory voice. As a result any control the patient had over the abuser, however meagre, is lost.

• The extruded persecutor becomes autonomous and takes over control of the patient

• The aim is ‘to give the patient’s ego back its mastery over lost provinces of his mental life’
Externalisation and reintegration of auditory hallucinations

- **Reintegration**
  - External loud voice or voices → external whisper → thoughts spoken aloud → silent thoughts

- **Externalisation**
  - Silent thoughts → thoughts spoken aloud → external whisper → external loud voice or voices
Avatar System Components

1. Face matching - ‘Facegen’
2. Animation - ‘Annosoft® LIP-SYNC’
3. Voice matching
   – Novel real-time voice-morphing technology
4. MP3 player to record sessions
MATCHING THE FACE

• Relatively easy to match the face, but many patients did not experience a face which was associated with the voice

• These patients were asked to choose a face they would feel comfortable talking to
Example Faces

15 minutes to create the face
MATCHING THE VOICES

• The therapist’s voice is morphed to create both male and female voices

• It would be preferable to use a female for female voices
Avatar Therapy System
Configuration

Therapist

Amplifier

Audio IO

Voice Changer & Push-to-talk

Audio Lip Sync

Animated Head

Patient

Room partition

Normal

Morphed

PC
EXPERIMENTAL DESIGN

• Randomised controlled trial with a cross-over of controls
  • Experimental patients receive 6 weekly sessions of avatar therapy, then a 1 week follow-up
  • Controls receive treatment as usual for 7 weeks, then are offered the experimental therapy
  • Patients who have had the therapy receive an additional 3 months follow-up
ASSESSMENT INSTRUMENTS

• basic information: age, gender, education, job, medication, duration of hearing voices
• Psychiatric Symptoms Rating Scale: hallucinations (PSYRATS)
• Beliefs About Voices Questionnaire (BAVQ-R) omnipotence & malevolence scales
• Calgary Depression Scale for Schizophrenia (CDS)
FOLLOW-UP ASSESSMENTS

• Conducted by a user-researcher who has heard persecutory voices in the past but has been free of voices for 8 years

• He conducts all the follow-up assessments and is blind to the treatment status of the participants and trial design
INTER-RATER RELIABILITY
(Cohen’s kappa)

• User-researcher vs. Professor Leff

• Beliefs About Voices Questionnaire **0.88**.

• Psychotic Symptoms Rating Scale **0.94**.

• Calgary Depression Scale for Schizophrenia **0.84**.
PARTICIPANTS AND DROP-OUTS

• 26 Participants recruited from community mental health teams in North London
• 14 Randomised to therapy and 12 to treatment as usual
• All controls followed up at 7 weeks
• 8 Controls accepted therapy
• 8 Experimentals completed therapy
• A total of 16 participants received therapy
• All 16 were followed up 3 months after the end of their therapy
26 PARTICIPANTS

- Age: range 14-74
- Mean 37.7
- Gender: female 10, 38.5%
- Length of time hearing voices: range 3 ½ ->30 years
- Mode: >10 years
EFFECTS OF THERAPY:
Charles- voices for 30+ years

• Voices: continuous → once a week
• Hours at a time → several minutes
• >50% certainty of external source → entirely self-generated
• Majority unpleasant → occasionally unpleasant
• Self-deprecation: severe → mild
• Suicidal thoughts: mild → absent
EFFECTS OF THERAPY: Bernard- voices for 3.5 years

• VOICE DISAPPEARED AFTER 2 SESSIONS
• Distressing majority of time→no distress
• Depression moderate→mild
• Woken by voice at 5.30a.m.→sleeps until 7a.m.
• 3 MONTH FOLLOW-UP: VOICE ABSENT
Saul: VOICE FOR 16 YEARS

- VOICE DISAPPEARED AFTER 2 SESSIONS
- Saul thanked us for giving him his life back
- 3 month follow-up: voice returned at night only
- Advice given on work habits and use of MP3: voice disappeared
- Saul: my mind is completely clear now
EFFECTS OF THERAPY:
Richard- voice for 13 years

• Did not want to see face of abuser, but able to speak to the avatar
• VOICE DISAPPEARED AFTER 5 SESSIONS
• VOICE RETURNED AFTER 2 WEEKS
• AFTER AN ADDITIONAL SESSION VOICE DISAPPEARED
EFFECTS OF THERAPY
George-voices for 9 years

• Voices: continuous → once an hour
• Voices always unpleasant → occasionally
• Extremely distressing → slightly
• Complete disruption to life → minimal
• Suicidal thoughts moderate → absent
• No control over voices → some control on the majority of occasions through use of MP3 with recorded therapy sessions
EFFECTS OF THERAPY

George

• 3 MONTH FOLLOW-UP

• Had been in a sheltered residence for 9 years and never left the grounds

• Now attending a centre where he is learning to disassemble and assemble bicycles
https://www.youtube.com/watch?v=aYfG53fgwXc

Right click on link and select “Open Hyperlink”
William: CHANGES OVER TIME

<table>
<thead>
<tr>
<th>TIME</th>
<th>VOICES</th>
<th>DEPRESSION</th>
<th>LOW SELF-ESTEEM</th>
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<tbody>
<tr>
<td>BASELINE</td>
<td>30</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>AFTER THERAPY</td>
<td>30</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>3 MONTH F-U</td>
<td>24</td>
<td>3</td>
<td>1</td>
</tr>
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# Changes in Total Scores

<table>
<thead>
<tr>
<th></th>
<th>PSYRATS</th>
<th>BAVQ</th>
<th>CDS</th>
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<tbody>
<tr>
<td><strong>Between Group Effects</strong></td>
<td>-8.75</td>
<td>-5.88</td>
<td>-0.94</td>
</tr>
<tr>
<td></td>
<td><em>P</em> = 0.003</td>
<td><em>P</em> = 0.004</td>
<td>NS</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Control Group TAU vs Therapy</strong></th>
<th>T1 to T2</th>
<th>T1 to T2</th>
<th>T1 to T2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>P</em> = 0.027</td>
<td><em>P</em> = 0.042</td>
<td>NS</td>
</tr>
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</table>
## FOLLOW-UP DATA

<table>
<thead>
<tr>
<th></th>
<th>PSYRATS</th>
<th>BAVQ-R</th>
<th>CDS</th>
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<tbody>
<tr>
<td><strong>3M Follow Up vs Post Treatment</strong></td>
<td>-3.5</td>
<td>-1.14</td>
<td>-2.8</td>
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<tr>
<td></td>
<td>P &lt; 0.029</td>
<td>NS</td>
<td>P = 0.052</td>
</tr>
</tbody>
</table>

NS: not significant
THREE MONTH FOLLOW-UP

• Patients continued to improve:
  Further significant reduction in PSYRATS
• Significant reduction in Depression
• Probably due to use of MP3
• The 3 patients whose voices ceased:
  voices still absent
• Effect Size 0.8
PLANNED SUBSIDARY ANALYSIS

• Reduction in suicidal thoughts $P=0.034$
• Power calculation based on a reduction of 35% in Omnipotence score
• Reduction in Omnipotence score 29% at end of therapy
• 37.9% at 3 month follow-up
WHAT CAN WE LEARN FROM AVATAR THERAPY?

• The introduction of an avatar allows us for the first time, to study the relationship between the patients and their voices, AT FIRST HAND

• Kraepelin: What the patient may disclose to us in the course of the interview is always a secondary product...we are always confronted with the question-what is the primary experience traceable to the illness.
HOW DOES AVATAR THERAPY WORK?

• Validation of the patient’s experience
• Patients interact with the avatar as though it is a real person, but since it is their creation they know it can’t hurt them. They are provided with a safe space in which they can try out strategies to oppose the voice.
• They learn to stand up to the avatar and take control of it
• This generalises to the persecutory voice leading to a reduction in its perceived omnipotence
HOW DOES AVATAR THERAPY WORK?

• During the course of therapy the avatar changes its nature, ceasing to abuse the patient after one or two sessions, and gradually becoming friendly and supportive.

• This change results in a reduction of the perceived malevolence of the voice, enabling the reintegration of the externalised hypercritical parent/abuser.

• Patients can use the MP3 to listen to the sessions whenever they hear the voices.

• We tell them they have a therapist in their pocket.

• This may explain the further improvements after the end of therapy.
2 publications on Avatar Therapy

2 publications on Avatar Therapy

- Psychosis online
- Avatar therapy for persecutory auditory hallucinations: What is it and how does it work? (same authors) March 4, 2013
- http://dx.doi.org/10.1080/17522439.2013.773457
NEXT STAGE

• MEDICATION-RESISTANT AUDITORY HALLUCINATIONS ARE A GLOBAL PROBLEM
• HOW TO MAKE AVATAR THERAPY AVAILABLE?
• A LARGE-SCALE REPLICATION PLANNED in BRIXTON, LONDON
The London Independent Replication

• Aims
  – Demonstrate feasibility, effectiveness and safety
  – Show therapist training & delivery in routine NHS setting

• Design
  – Pragmatic, two arm observer-blind RCT comparing ‘Avatar’ therapy with supportive counselling
  – Primary outcome: reduction in severity of Auditory Hallucinations
  – Powered to detect a moderate effect size of \( d = 0.7 \)
London Independent Phase II RCT

- Monitoring of participants’ welfare & safety
- Increase of sample size to 140
- Accommodates a loss to follow-up of 20%
- ‘Intention-to-treat’ analysis
- Additional assessment of delusions
- Systematic monitoring of MP3 use
- Evaluation of cost-effectiveness including QALYs
- Qualitative study of participants’/clinicians’ experience
The London Independent Replication

- Aims-Demonstrate feasibility, effectiveness and safety in a routine NHS setting
- Design: Observer-blind RCT comparing Avatar therapy with supportive counselling
- Primary outcome: reduction in severity of Auditory Hallucinations
  - Powered to detect a moderate effect size of \( d=0.7 \)
- Therapy
  - 6 weekly sessions delivered by ~ 4 therapists
The London Independent Replication Study

- Monitoring of participants’ welfare & safety
- Recruitment & Follow-Up
  - Propose increase of sample size to 142
  - ‘Intention-to-treat’ analysis
  - Additional assessment of delusions
  - Systematic monitoring of MP3 use
  - Evaluation of cost-effectiveness including QALYs
- Qualitative study of participants’/clinicians’ experience