

# 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

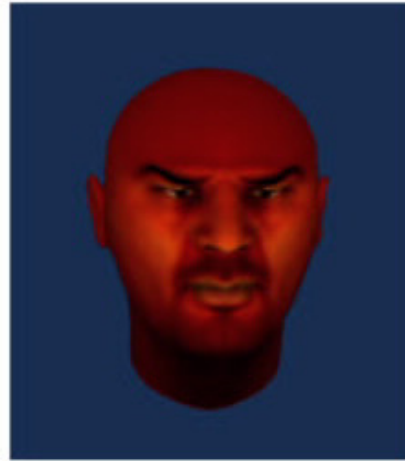
1. Face matching - 'Facegen'
2. Animation - 'Annosoft® LIP-SYNC '
3. Voice matching
  - Novel real-time voice-morphing technology
4. MP3 player to record sessions



# 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

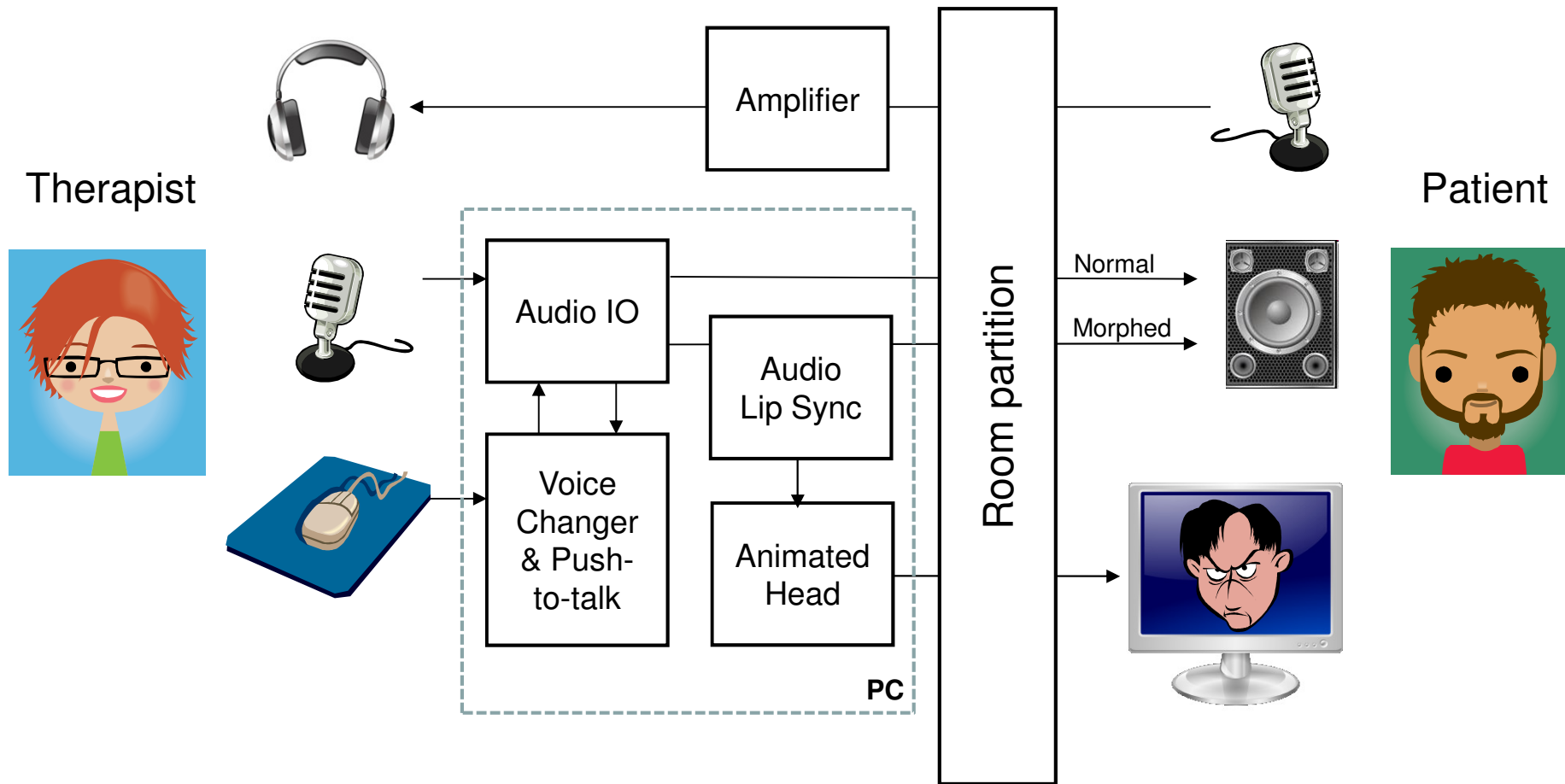


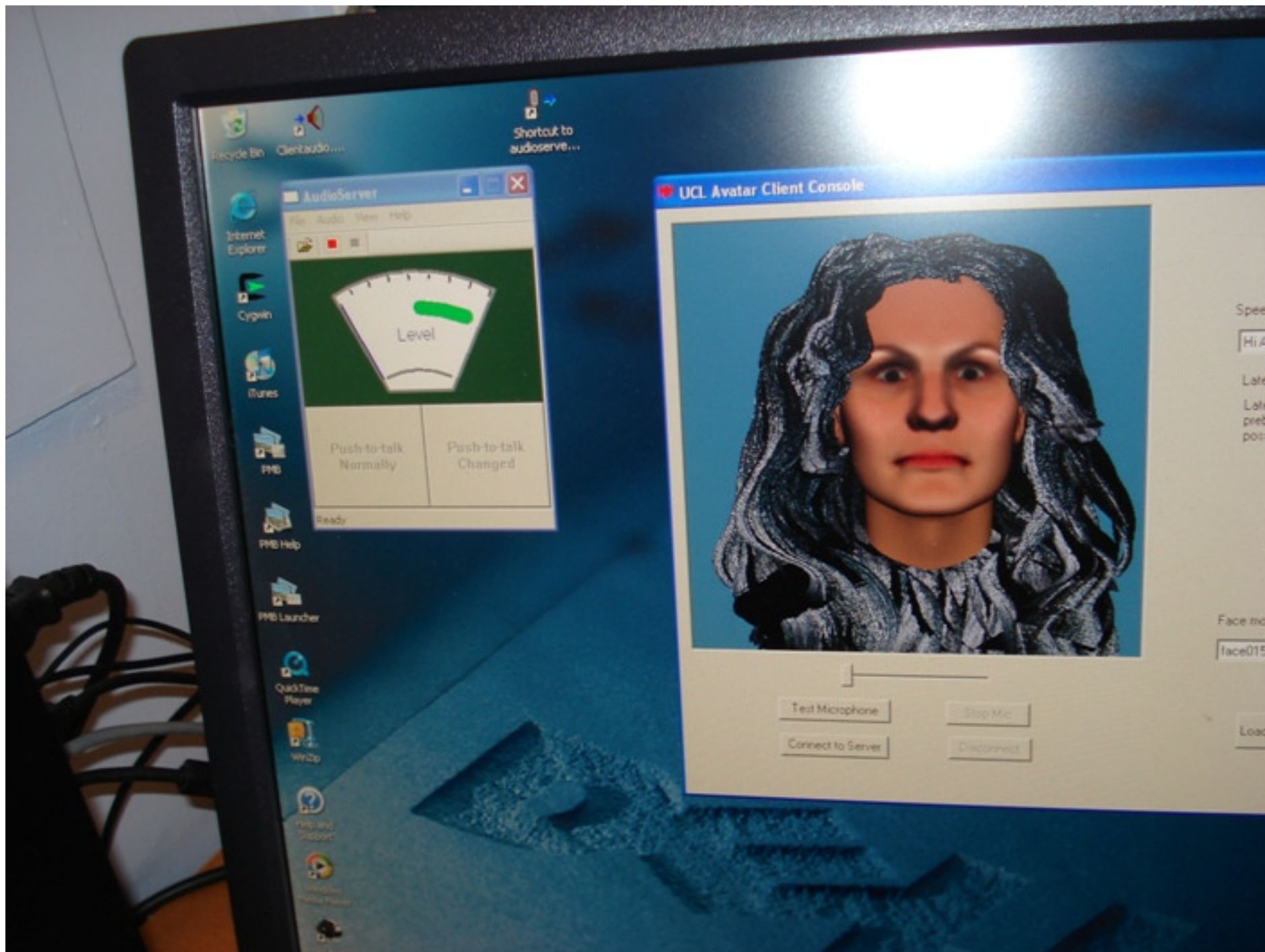
15 minutes to create the face

# 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













# 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 1/2 ->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-depreciation: 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

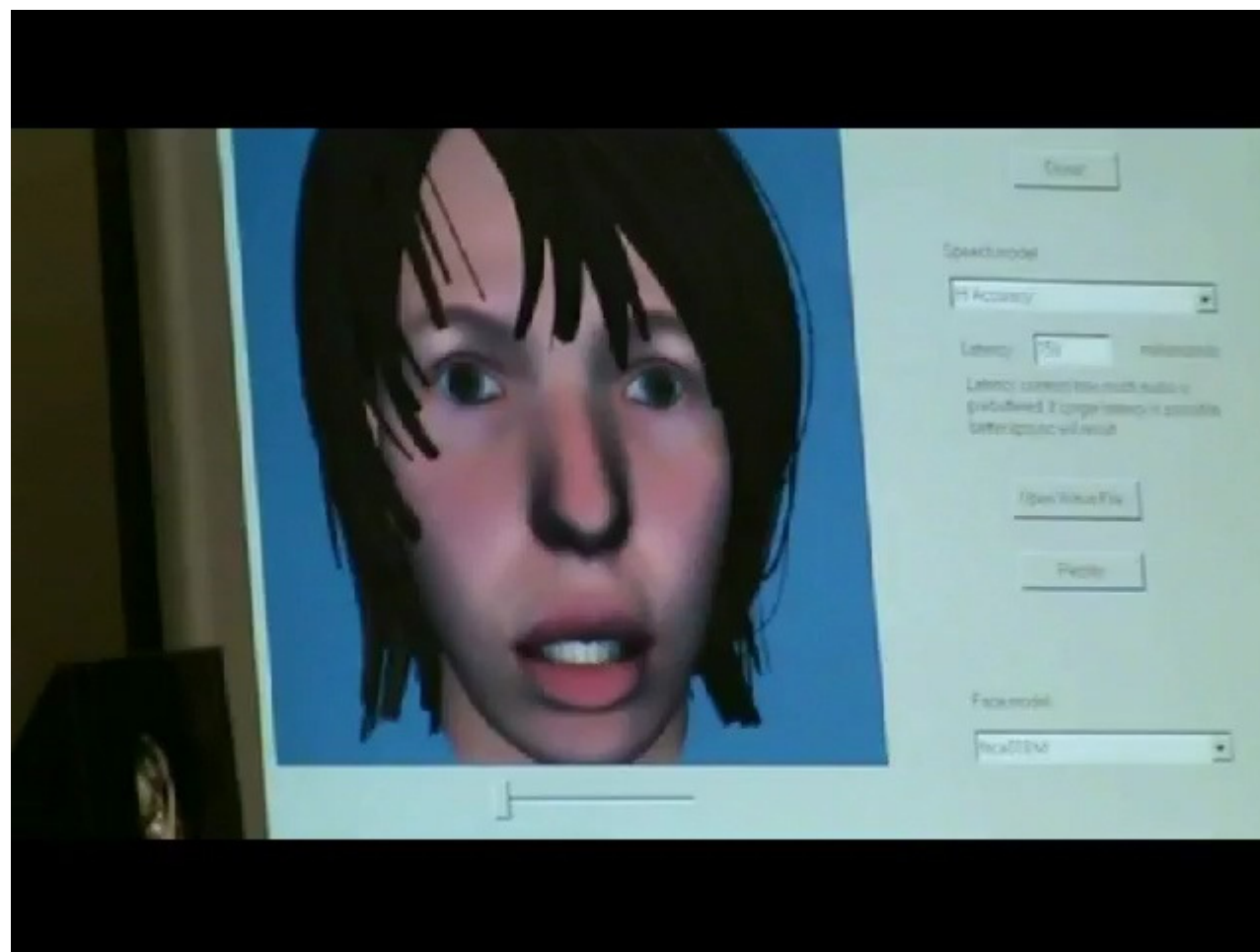
- Voices:continuous→once an hour
- Voices always unpleasant→occasionally
- Extremely distressing→slightly
- Complete disruption to life→minimal
- Suicidal thoughts moderate→absent
- No control over voices→some control on the majority of occasions through use of MP3 with recorded therapy sessions



# 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>

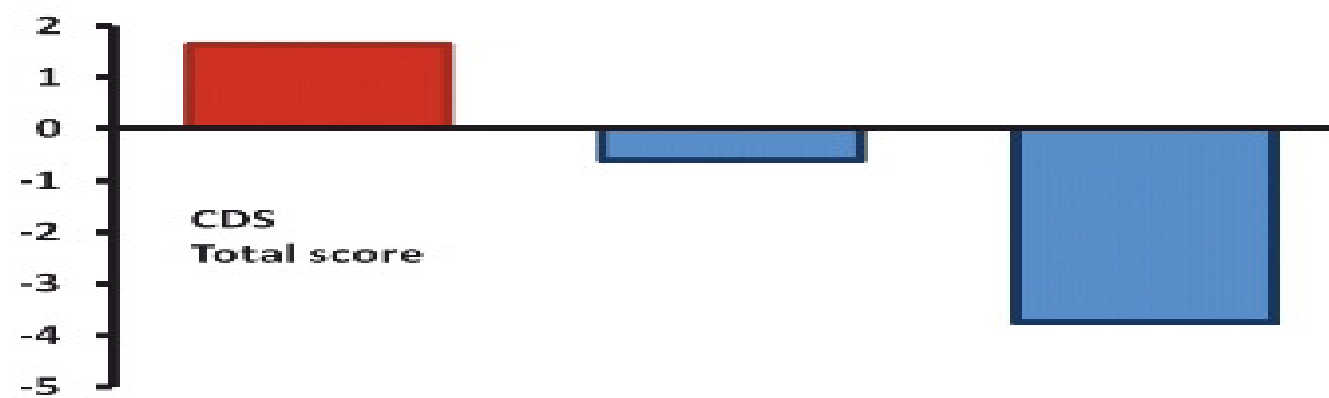
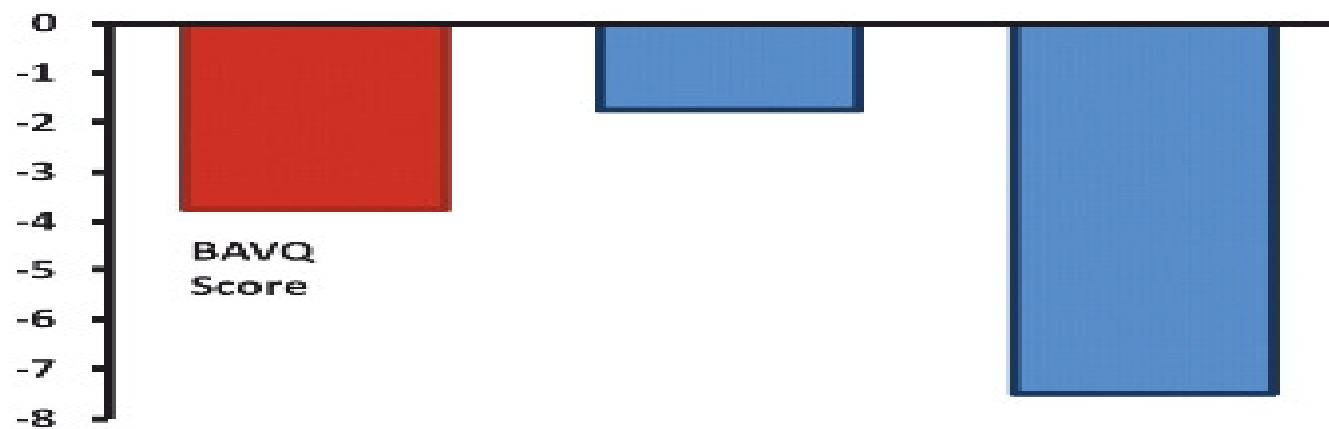
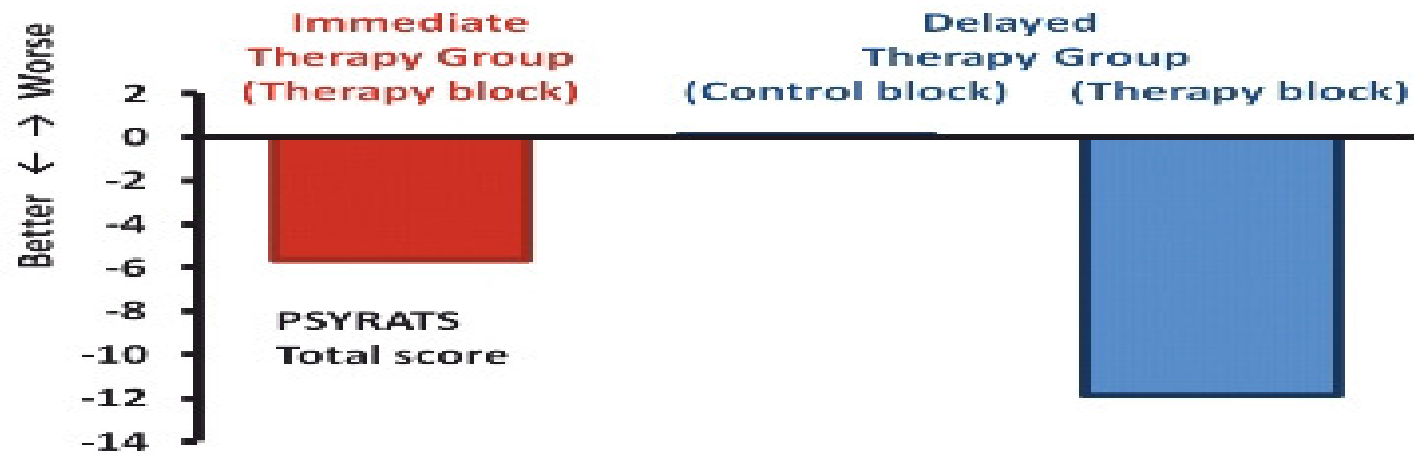
Right click on link and  
select "Open Hyperlink"

# William: CHANGES OVER TIME

TIME	VOICES	DEPRESSION	LOW SELF-ESTEEM
BASELINE	<b>30</b>	<b>11</b>	<b>2</b>
AFTER THERAPY	<b>30</b>	<b>7</b>	<b>2</b>
3 MONTH F-U	<b>24</b>	<b>3</b>	<b>1</b>

# CHANGES IN TOTAL SCORES

	<b>PSYRATS</b>	<b>BAVQ</b>	<b>CDS</b>
BETWEEN GROUP EFFECTS	<b>-8.75</b> <b>P= 0.003</b>	<b>-5.88</b> <b>P= 0.004</b>	<b>-0.94</b> <b>NS</b>
CONTROL GROUP TAU vs Therapy	T1 to T2 <b>P= 0.027</b>	T1 to T2 <b>P= 0.042</b>	T1 to T2 <b>NS</b>



# FOLLOW-UP DATA

	<b>PSYRATS</b>	<b>BAVQ-R</b>	<b>CDS</b>
3M Follow Up vs Post Treatment	<b>-3.5</b> <b>P &lt; 0.029</b>	<b>-1.14</b> <b>NS</b>	<b>-2.8</b> <b>P = 0.052</b>

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 SUBSIDIARY 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

- Computer-assisted therapy for medication-resistant auditory hallucinations: proof-of-concept study. Leff, J., Williams, G., Huckvale, M.A., Arbutnot, M., Leff, A.P. British Journal of Psychiatry, 208, 428-433.

# 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