

**Training University Students through Acceptance and Virtual Reality  
for Coping Public Speaking Fear: a Clinical Trial**

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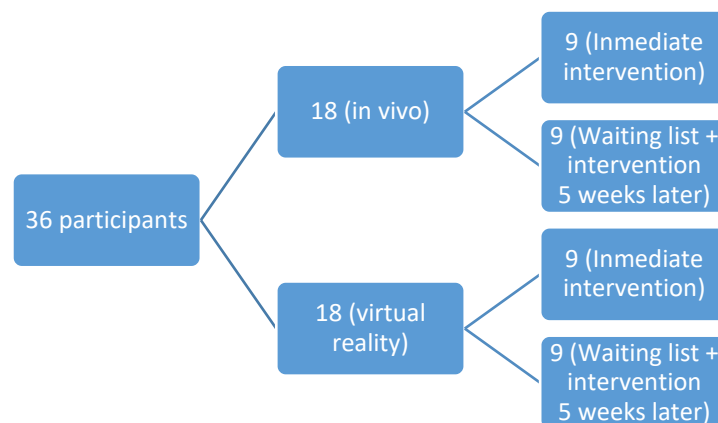
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Study Protocol and Statistical Analysis Plan

## Study Protocol:

- Objective: To study the efficacy of in vivo exposure and virtual reality combined with Acceptance and Commitment Therapy to treat public speaking fear.
- Design: Randomized clinical trial
- Methods.

After being informed about the study, all patients giving written informed consent will be assessed to determine eligibility for study entry. Patients who meet eligibility requirements will be assessed through an structured interview, behavioural observation, standardize questionnaires and subjective scales and assigned to a waiting list, in vivo exposure or Virtual Reality.



Assessment will provide specific information to sort topics (health, culture and arts, equality, education, environmental protection, human relationships, ethical dilemmas) and distractors (people talking, coughing, laughing, yawning, mobile phone ringing, mobile phone vibrating, audience asking easy/hard questions, one person stands up) for oral presentations from most to least difficult/troublesome. This will allow therapist to build a personalized exposure hierarchy for every participant.

Participants assigned to in vivo or virtual reality arms will receive psychological intervention consisting in a 5-session individual face-to-face ACT-based treatment. Virtual reality will be delivered through Psious platform distributed in Spain by TEA and through a Virtual Reality equipment including a Samsung S7 mobile and

Samsung Gear VR glasses. The audience in In vivo exposure will be made up of university students.

Every session in In vivo and virtual reality conditions will include a 12-minute oral presentation. Participants will be asked to improvise a talk about a new topic (e.g. violence against women, education system in Spain, new technologies, political corruption, cinema and TV series, climate change, healthy nutrition...). Participants will have 3 minutes to prepare their speech. Difficulty will progressively increase based on each participant's pre assessment (considering topics and distractors)

The participants will be assessed through self-report instruments and observational measurements before and after treatment and at 3 months follow-up.

Intervention protocol.

Session 1. Values clarification through 'the dreamed professional exercise' (variation on 'imagine your funeral' exercise). Introducing acceptance through 'Ship's captain metaphor'. Training cognitive defusion through imaginal exposure (physicalizing exercise, and watching thoughts as graffiti) (Hayes et al., 2012).

Sessions 2, 3, 4, 5.

- Part 1. Training cognitive defusion through imaginal exposure (physicalizing exercise, and watching thoughts as graffiti) (Hayes et al., 2012).
- Part 2. In situ exposure to valued actions. Virtual Reality or In Vivo exposure (improvisation of a 12 minute oral presentation, after 2 minutes to prepare).
- Part 3. Feedback. Positive reinforcement. Self-monitoring (homework)

### **Statistical Analysis Plan (SAP):**

The results will be analysed through non-parametric techniques (comparisons of pre, post and follow-up group means). An analysis of variance will be performed to determine the specific weight of each independent variable, as well as the possible interaction between them. The statistical approach of Jacobson and Truax (1991) will be used to estimate the clinical significance of the effect.