Official Title of the Study: **"Use of personalized Virtual Reality and Paper-and-pencil Interventions as complementary tools in the treatment of Alcohol Use Disorder: from cognitive rehabilitation to the prevention of relapses".**

Unique Protocol ID: **1/20**

Document Date: **November 10, 2020**

INSTITUTO S. JOÃO DE DEUS

ID protocol nº1/20

Protocol Approval

This document serves to formalize the approval of the clinical study: **"Use of personalized Virtual Reality and Paper-and-pencil Interventions as complementary tools in the treatment of Alcohol Use Disorder: from cognitive rehabilitation to the prevention of relapses".**

This project is a randomized controlled clinical study, which aims to explore the impact of a Cognitive Rehabilitation program using Virtual reality- *Reh@city*, and Paper-and-Pencil tasks- *Task Generator*. A total of 60 participants will be included and randomly assigned to the three conditions: 20 in the *Reh@city* group, 20 in the *Task Generator* group and 20 in the *Control Group*. Participants will be recruited from the Alcoholic Rehabilitation Center S. Ricardo Pampuri- Casa de Saúde São João de Deus- Funchal, and their inclusion in the study will be done according to the criteria described in the attached protocol.

After deliberation, all the conditions necessary to carry out the study were verified, namely the ethical principles related to the participants privacy. The basic principles of clinical research are also respected, in the clear presentation of the underlying objectives and hypotheses, interest, innovation, methodology and design used in the study.

The direction of the Casa de Saúde São João de Deus decided to approve the study, since it respects all the basic principles of Good Clinical Practices in Research.

The director,

INSTITUTO S. JOÃO DE DEUS
CASA DE SAÚDE S. JOÃO DE DEUS
FUNCHAL

November 10, 2020

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Protocol

"Use of personalized Virtual Reality and Paper-and-pencil Interventions as complementary tools in the treatment of Alcohol Use Disorder: from cognitive rehabilitation to the prevention of relapses".

Protocol for randomized and controlled trial

Alcohol use Disorder (AUD) is associated with various levels of deficits in cognitive functions. This research aims to assess the impact of a cognitive intervention program, using Virtual Reality and paper-and pencil tasks, in the cognitive functioning of this population, during the abstinence treatment. With the follow-up assessments, we pretend to verify the effects of these cognitive intervention programs and the outcomes in terms of relapse rate.

Participants with AUD diagnosis will be recruited from the Alcoholic Rehabilitation Center S. Ricardo Pampuri- Casa de Saúde São João de Deus. Subjects will be formally informed of the objectives, relevance and details of the study and treatment, and will be invited to participate voluntarily. All individuals who accept to participate in the study must give their verbal and written informed consent according to the model below. Participants can at any time voluntarily stop participating in the study.

We pretend to recruit 60 participants for this study:

- 20 subjects for the cognitive intervention using Virtual Reality *(Reh@city Group)*.
- 20 subjects for the cognitive intervention using paper-and-pencil tasks (*Task Generator Group*).
- 20 subjects for the traditional/ Standard intervention (*Control Group*).

Inclusion Criteria:

- Inpatients of Alcoholic Rehabilitation Center S. Ricardo Pampuri (with Alcohol use Disorder diagnosis according to DSM-V and AUDIT scale).
- Education (able to read and write).
- Standard neuropharmacological protocol.
- Motivation to participate voluntarily in this study.

Exclusion Criteria:

- Abuse of other substances.
- Neurological and psychiatric pathology (present or past).
- Severe depressive symptoms as assessed by the Beck Depression Inventory.
- Visual problems that can affect the performance of the tasks (hemianopsy, diplopia).

Procedure:

Patients who meet the previous criteria will be randomly allocated to one of the 3 groups, ensuring the homogeneity of the groups.

The participants of the experimental groups *Reh@City* and *Task Generator* will perform a total of 12 sessions, 30 minutes each for 4 weeks. The sessions will consist of performing cognitive tasks automatically adjusted to the capacities of each patient and their periodicity must be strictly followed.

The control group will do the traditional / standard treatment.

Neuropsychological Assessment

The neuropsychological assessment will be performed in four different timings:

1. Week 0: recruitment moment.
2. Week 3/4: after the intervention.
3. Follow-up- 6 months post-intervention.
4. Follow-up- 12 months post-intervention.

The clinical assessment will consist of the application of a set of scales commonly used with the Portuguese population and will aim to assess the different cognitive domains.

1. **Cognitive Screening:** Montreal Cognitive Assessment (MoCA) (Nasreddine et al., 2005; portuguese version Freitas, Simões, Alves & Santana, 2011).

2. **Working memory:** Letter-number sequencing (Wechsler Adult Intelligence Scale III; Wechsler, 1997/2008b).

3. **Executive Functions:** Frontal Assessment Battery (Dubois et al., 2000; Portuguese version Lima et al., 2008).

4. **Visuospatial skills and visual memory:** Rey Complex Figure (Rey, 1941; Osyerrieth, 1994).

5. **Attention:** Toulousse-Piéron sustained attention test (Toulouse & Piéron, 1904).

6. **Processing Speed:** Coding and Symbol Search (Wechsler Adult Intelligence Scale III; Wechsler, 1997/2008b).

7. **Learning and memory:** Verbal Paired Associates (Wechsler Memory Scale – III; Wechsler, 1997/2008a).

The *quality of life and general health status* will be assessed with the SF-36 (Medical Outcomes Study 36- Item Short- Form Health Survey) which consists of a multidimensional questionnaire formed by 36 items, divided in 8 domains: functional capacity, physical aspects, pain, general health, vitality, social aspects, emotional aspects and mental health.

Note:

An assessment session takes an average of 60 minutes. It should be noted that the evaluation deadlines must be accomplished, after the initial evaluation, the participant must start the intervention 2 to 3 days later, at the most. The same applies to the re-assessment, this must be carried out at the most 2 to 3 days after the end of the intervention.

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INFORMED CONSENT DOCUMENT

I understand that all information derived from the study ***"Use of personalized Virtual Reality and Paper-and-pencil Interventions as complementary tools in the treatment of Alcohol Use Disorder: from cognitive rehabilitation to the prevention of relapses"*** is property of the responsible research team. I give my consent so that anonymous data about me (results, images, and videos properly anonymized) can be saved and processed for the purpose of scientific evaluation. I understand the meaning of the information provided to me about the study and my questions have been satisfactorily answered. I had enough time to decide on participation in this study.

I hereby consent to my participation and consent to the collection and use of information.

I will receive a signed and dated copy of this informed consent document.

_____

Participant's signature

_____

Legal representative - if applicable

_____

Investigator

Date_____