

# Rehabilitation program for deficit awareness “the trisquel”

## Summary

The consumption of psychoactive substances has been consistently associated with the presence of alterations in different neuropsychological processes. In recent years there is a growing interest in improving neurocognitive rehabilitation procedures as applied to the treatment of addictions. In this context arises therapeutic game “The trisquel” in order to address, in a more dynamic and closer, the treatment of cognitive and social rehabilitation of drug dependent patients. The Trisquel is a rehabilitation program awareness deficit in the format of board game with a dynamic similar to the popular trivial, that, after eight years of experience working with patients and professionals, can be considered a therapeutic tool useful. Helps reduce distances therapist. Patient, reinforces the group feeling, evaluates the cognitive functions of the participants. In addition, each professional can adapt it to their daily needs. Throughout this article will be described the justification, the antecedents, the sessions, the dynamics and the last advances of this therapeutic game.

**Keywords:** therapeutic game, cognitive rehabilitation, deficit awareness, addictions, mental health

Volume 7 Issue 3 - 2017

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**Received:** January 10, 2017 | **Published:** March 03, 2017

## Introduction

Advances in knowledge about neurobiological fundamentals have helped to better understand the notion of addiction.<sup>1-3</sup> In this context, addictive disorders have been defined as a pathology of motivation and decision making<sup>2,3</sup> and are considered a disease of the brain that can be treated.<sup>4</sup> Consumption of psychoactive substances has been consistently associated with the presence of alterations in different neuropsychological processes: memory, attention or executive functions,<sup>5-9</sup> neuropsychological alterations present even after prolonged periods of abstinence.<sup>10</sup> Also, in a more applied area, there is a growing interest in the improvement of neurocognitive rehabilitation procedures in its application to the treatment of addictions<sup>11-17</sup> and other comorbid conditions such as the acquired immunodeficiency virus.<sup>18,19</sup> The term cognitive rehabilitation can be applied to any intervention strategy or technique that seeks to help patients and their families to live and cope with or reduce the cognitive deficits resulting from brain damage and is a process through which people with brain damage work Along with healthcare professionals to remedy or alleviate the cognitive deficits that arise following a neurological condition.<sup>20</sup>

Lack of awareness of limitations is one of the major problems that arise in rehabilitation, since it prevents patients from criticizing the adequacy or otherwise of their behavior,<sup>21</sup> making it difficult to create an environment of participation and motivation In rehabilitation, impedes the benefit of treatment,<sup>22</sup> impedes the application of strategies learned outside therapy<sup>23,24</sup> and contributes to the maintenance of unrealistic goals.<sup>25</sup> Alterations in deficit awareness often constitute a major handicap in the rehabilitation process and in the process of socio-family and work reinsertion, representing one of the major barriers to successful rehabilitation, adequate psychosocial adjustment and satisfactory reintegration.<sup>26,27</sup> Although there is no consensus among the different investigations<sup>28</sup> regarding the relationship between the level of insight and the possibility of benefiting from rehabilitation,<sup>28,29</sup> it seems evident that the awareness of sequelae appears as a very important variable that affects To the motivation and degree of cooperation of the patients in the rehabilitation sessions.<sup>30-35</sup> It is

considered a necessary prerequisite for the success of the rehabilitation process, medium-long-term maintenance of rehabilitation gains<sup>29</sup> and the application in daily life of compensatory strategies learned in the rehabilitation phase.<sup>33,36,37</sup> Therapeutic games<sup>29,38</sup> have been used to increase participation, provide information, and improve skills in people with disabilities<sup>29,39, 40, 41</sup> and problem solving.<sup>29</sup> From this perspective emerges the therapeutic game “El trisquel”,<sup>42</sup> with the idea of approaching in a more dynamic and close, the cognitive and social rehabilitation treatment of our drug-dependent patients.

## Why a game?

A game is an instructive method in which one participates in a competitive activity with predetermined rules.<sup>43</sup> With educational games, users have the opportunity to experiment with decision-making and problem solving in an active, risk-free learning environment.<sup>44-46</sup> In addition, they learn from their own actions through the interactions that occur with their peer groups.<sup>47,48</sup> By allowing active learning experiences, educational games stimulate higher order thinking such as analysis, synthesis, and evaluation.<sup>49</sup> On the other hand, they make the learning process fun and exciting, and reduce stress and anxiety,<sup>50</sup> which in turn increases retention.<sup>51</sup>

The use of educational games is based on the principles of Knowles' theory of adult learning:<sup>52</sup>

- I. Previous adult experiences become a resource for learning; The games facilitate this process, since feedback is provided through their peers, according to their previous experiences.<sup>53</sup>
- II. Adult learning focuses on problems rather than content; Games allow you to apply your knowledge in a situation that resembles real-life problems.

## Educational games have many advantages

- a. Their innate competitive nature tends to motivate participants.<sup>54</sup>
- b. They have the potential to promote learning in the cognitive, affective and psychomotor domain.<sup>55</sup>

- c. The positive perception of the participants about these games.<sup>56,57</sup>
- d. Therapeutic games involving teams can improve communication and social interaction among members.<sup>58</sup>
- e. Participants have the opportunity to develop alliances and mutual respect, which promotes teamwork and collaboration.<sup>46</sup>
- \* Adapted from "Educational games for health professionals".<sup>59</sup>
- g. Development and evaluation of an interactive Web-based breast imaging game for medical students.<sup>75</sup>
- h. The Pediatric Board Game.<sup>76</sup>
- i. The use of games to improve patient outcomes.<sup>77</sup>
- \* Adapted from "Educational games for professionals of the Health".<sup>59</sup>

### And also some disadvantages

- a. They can require a lot of time in terms of game creation, layout, rules presentation and game implementation, and post-game reporting.<sup>46</sup>
- b. They also require small group sizes, a flexible scheme, and perhaps not all users can participate.<sup>43</sup>
- c. They may require special equipment<sup>60</sup> and their acquisition or creation can be expensive.<sup>61</sup>
- d. On the other hand, the use of therapeutic games can cause stress or embarrassment to individuals with poor performance.<sup>62</sup>
- e. In some cases, participants may have difficulty extracting the information presented.<sup>46</sup>

\* Adapted from "Educational games for health professionals".<sup>59</sup>

Previous experiences such as the "Highway to Consciousness",<sup>38</sup> "Trivial of Consciousness",<sup>29</sup> "Escalation of Consciousness",<sup>40</sup> Trivia Psychotica",<sup>63</sup> "Reaction",<sup>64</sup> "El Tren"<sup>65</sup> are clear examples of how a game can be a tool for cognitive stimulation and rehabilitation<sup>66</sup> Specifically, El Tren is a therapeutic game that has been validated to work with social skills with patients with disorder.<sup>67</sup> Recently, various interventions use electronic games (EG) in health and mental health, in a variety of diagnoses and therapeutic objectives.<sup>68,69</sup>

Escalation of Consciousness",<sup>40</sup> "Trivia Psychotica",<sup>63</sup> "Reaction" "El Tren"<sup>65</sup> are clear examples of how a game can be a tool for cognitive stimulation and rehabilitation<sup>66</sup> Specifically, El Tren is a therapeutic game that has been validated to work with social skills with patients with disorder.<sup>67</sup> Recently, various interventions use electronic games (EG) in health and mental health, in a variety of diagnoses and therapeutic objectives.<sup>68,69</sup>

The utility of such intervention programs can go beyond cognitive rehabilitation. Since they not only allow simple and complex cognitive processes to work in a more enjoyable way than cognitive rehabilitation sessions, they can also be used as an educational activity for professionals.<sup>63</sup> psychoeducational (behavior, emotions, norms , Theoretical aspects) and integrative.<sup>14,18,19, 42</sup>

Health educators have also used educational games to impart knowledge and improve the skills of their students:

- a. Simulation games in learning.<sup>70</sup>
- b. Simulation gaming: a new teaching strategy in nursing education.<sup>44</sup>
- c. Critical decisions develop the learner's nurse's understanding of mental health legislation.<sup>71</sup>
- d. The games we play.<sup>72</sup>
- e. Fun and games in neonatal emergency care review. The Neonatal Emergency Trivia Game.<sup>73</sup>
- f. Blood Clot: gaming to reinforce learning about disseminated intravascular coagulation.<sup>74</sup>

This type of intervention, when carried out in a group setting, represents a real situation that favors learning, allows to economize therapeutic interventions, especially those related to social skills, encouraging patients to be aware of their needs and potentialities, As well as that of his playmates.<sup>14</sup> The therapeutic game The trisquel is a program of rehabilitation of the deficit awareness in table game format, used to work the awareness of the deficit and the cognitive / executive functions of our drug-dependent population. It consists of a board, three tokens with the figure of a trisquel, twelve trisquelitos (awards), a die, a tower of Hanoi, checkers of the ladies and the domino, coins, five blocks of cards with 1105 theoretical- Practices, answer sheets and a diptych with the rules of the game, with game dynamics similar to the popular trivial.

The questions and tests that make up the thematic blocks of the game were adapted to the idiosyncrasy and cognitive characteristics of our users (Degree of difficulty, subjects to be treated), taking as reference the neuropsychological evaluations<sup>78</sup> made to the subjects participating in the sessions Of Trisquel. Most of the manipulative and non-manipulative tests have been adapted from psychological and neuropsychological batteries (Test Barcelona, WAIS-III, Test of the clock, Poppelreuter, FAS, Go-nogo, IGT, Torre de Hanoi), so it can be said that these tests should be taken into account as possible indicators of the current cognitive state of the patient.

### Color coding of the blocks of cards

Color Green Manipulative tests (praxis visoconstructive, writing, fine psychomotricidad, drawing).

Types of tasks: Copy of a figure, Draw the following figures, Deferred copy of a figure, Draw the following tools, Draw a clock, Write in reverse order, Make figures with the checkers of the ladies, Make a column with the counters Of the ladies, visual Span with the bicolor tacos, Coins and Verbal Reasoning.

Color Blue Non-manipulative tests (memory, attention, comprehension, calculation, orientation, categorical evocation).

Types of tasks: Synonymous words, Complete sayings, Repeat a number of digits / verbal span, Recognition of overlapping images Poppelreuter, Repeat a series of words / verbal span, Spell words in reverse order / Verbal span, Repeat series of words in order Inverse, Category evocation, Evocation of names, Evocation of names of instruments to work the leather and the wood, Tests of arithmetic, Number series, Topographic Guidance, Trigrams and Span verbal words.

Color Orange Before starting the game the moderator must choose one of the following thematic options:

Orange. A. Theoretical and practical questions about relapse prevention and HIV-AIDS.

Orange. B. Theoretical and practical questions about Tuberculosis and diseases. Sexually transmitted diseases (STDs), Hepatitis B and C.

Orange. C. Theoretical and practical questions about mental health.

Orange. D. Theoretical and practical questions about Women, Drug addiction and Gender violence

Orange. E. Theoretical and practical questions about Alcoholism.

Orange. F. Theoretical and practical questions about the AUTO-T program.

Color Yellow Theoretical and practical questions about social skills, communication and executive functions (inhibition, theory of mind, planning, emotions, prosody).

Types of Tasks: Stories of Happé, Tower of Hanoi, Emotional Prosody, Emotional Comprehension, Work on executive functions through tests and questions related to planning, sequencing, inhibition of responses and decision making, Role playing, Definitions or rain Of ideas-brainstorming on social skills, Multiple choice tasks on social skills, Theoretical definitions on the pragmatic function of communication. Attributions, coping strategies and thoughts, Time estimation, Go-Nogo tasks, Cognitive estimation.

Color White Theoretical and practical questions about:

White N°1. Theoretical questions on health education.

White N°2. Theoretical Questions on Smoking.

Objectives

- a. Acceptance and participation of the game by the patients.
- b. Continuity in the use of the game.
- c. Improvement of the therapist-patient relationship.
- d. Settlement of the theoretical contents worked through the game.
- e. Improve basic cognitive processes (attention, memory, perception) and complex (language, intelligence, thinking).
- f. Improvement in social skills and prosocial behavior.

In relation to the objectives set, both patients through game evaluation surveys, and professionals in team meetings, consider that trisquel is a useful therapeutic tool, which helps to reduce therapist-patient distances, reinforces the Group feeling, assesses the cognitive functions of the participants and that each professional can adapt to their daily needs. Since we started using the first version of Trisquel in March 2008 to date, say that weekly attendance at sessions has been maintained and even has been requested by patients to increase the frequency of sessions, on the other hand the Professionals recognize that it has been a stimulus in their daily work. Although these qualitative perceptions in themselves are satisfactory, in September 2016 we started a project to evaluate the effectiveness of the therapeutic game “The Trisquel” in the treatment of patients with Severe Mental Disorder and in January 2017 we will expand it to a population with disorders Related substances.

## The sessions

They are performed in the day unit of the Drug Dependency Unit (UAD) CEDRO, have a weekly frequency, a duration of approximately one hour and attend an average of 6/8 patients per session. The users who attend the sessions of trisquel are patients with disorders related to substances to treatment in CEDRO in the modality of semi-residential treatment (U.Day) and all are included in an interdisciplinary neuropsychological rehabilitation program. The

actual duration of the sessions is marked by chance or the moderator, since if too many therapeutic interventions are performed in situ (behavioral modifications, clarification of theoretical concepts, ...), the session tends to be extended. For this reason, the moderator must know the program adequately, so that, in this way, he is agile and resolute when making the interventions and clarifications that arise during the sessions. Dynamics and norms are described in the professional manual.<sup>14</sup> Each session is structured in terms of theoretical work. The blocks of cards with the tests are ordered numerically (from the simple to the elaborated) by subjects to treat. This gives the moderator freedom, since, it allows him to define in advance what theoretical concepts are priority to work and where it would be advisable to open a debate.

## The moderator

It is essential the figure of the moderator, who will be a member of the therapeutic team (Neuropsychologist, Psychiatrist, Psychologist, DUE, Educator) responsible for:

- a. Read the questions or tests.
- b. Solve doubts about how I should perform the various tests.
- c. Handle the group and the context of the session appropriately.
- d. Prepare the theoretical contents to be worked during the session.
- e. Reading and evaluation of tests.
- f. Manage time, depending on the characteristics of the tests.
- g. Counteract the potential frustration that may result from not being able to answer a question or test, with some facilitation strategy.
- h. Decide which tests may need some facilitation strategy (pencil, paper, count aloud or with fingers), depending on the difficulty of the test and the cognitive state of the patient.

The majority of the tests / questions of the game can be reason for therapeutic intervention on the part of the professional, realizing:

- a. Clarifications on some theoretical or practical concept.
- b. Behavioral modifications of maladaptive behaviors arising in role playing.
- c. Positive modeling of these behaviors, in situ or recording the incidence on the record sheet of the session, to be addressed a posteriori in the consultation.

## Review and expansion of content

In the year 2014 a working group was created that for months realized a wide revision of the theoretical-practical contents that are worked through the Trisquel. In this sense, the work of this group was:

Review the 560 theoretical-practical tests that made up the first version of Trisquel (2008).

- i. Eliminate those tests or questions that were redundant, obsolete or did not provide information.
- ii. Elaborate proposals for improvement or expansion of content, taking into account the evaluation surveys and the opinion of the professionals who work daily with the instrument.
- iii. Review the theoretical-practical tests proposed by the collaborating entities.

- iv. In order to carry out this expansion, a collaborative project was carried out with different entities that work directly or indirectly with our center.
- v. Host house for AIDS patients “Home GERASA”, Cádiz, Spain.
- vi. Association of relatives and mental patients “LENDA”, Redondela, Spain.
- vii. “Erguete” Association of Drug Addiction Assistance, Vigo, Spain.
- viii. Association “Missionary Brothers of the Poor Sick”, Vigo, Spain.

The product of this inter-center collaboration is an extension of content on the following topics:

- i. Mental health.
- ii. Nursing health interventions on hepatitis B and C, tuberculosis and sexually transmitted diseases.
- iii. Educational intervention from a gender perspective xiii. Alcoholism.
- iv. Work of emotions through movement (AUTO-T).

#### Project to assess the effectiveness of therapeutic play: Trisquel

In order to evaluate the qualitative perception that users have about the therapeutic game, patients (N = 56) who have participated in the last years in a continuous way in the sessions of Trisquel in the Assistance Unit of CEDRO Drug Dependence (Vigo, Spain) and in the Home GERASA (Chiclana de la Frontera, Spain), you were given an anonymous questionnaire that gave us the following results:

On June 23, 2016, the Autonomous Research Ethics Committee of Galicia (Spain) issued a favorable report to carry out the study Effectiveness of the therapeutic game “The Trisquel” in the treatment of patients with Severe Mental Disorder (Registration Code: 2016 / 268). Study that is briefly described below:

Type of study. Experimental with two randomized groups (control and experimental) with pre and post measures.

## Material and methods

### Population of study

Patients undergoing treatment in care centers of integration centers for people with mental disorders that meet the selection criteria specified in the inclusion criteria section and that do not meet any of the exclusion criteria.

### Inclusion criteria

Inclusion criteria are:

- a. patients diagnosed with schizophrenia spectrum disorder and other psychotic disorders according to DSM-V diagnosed by an expert clinician;
- b. ability to consent (competition);
- c. read the information sheet of the project and sign the informed consent;
- d. be of legal age;
- e. know how to read and write.

### Exclusion criteria

Those who are illiterate,

- a. who have intellectual deficits defined as IC <70,

- b. have a history of moderate or severe neurological pathology (TBI, stroke, etc.),
- c. are in an acute psychiatric process,
- d. those who, due to their advanced state of cognitive impairment, can not be evaluated;
- e. those that do not present cognitive impairment (MOCA  $\geq$  26).

## Sample

In order to minimize coercion to the captive population, informed consent has been used, the information sheet of the project (voluntary, explanation of study objectives, ARCO rights, non-economic consideration for participation). All patients who have agreed to participate in the study will be screened to identify cases that meet inclusion and exclusion criteria and on this filtered census a simple random sampling technique (generation of random numbers without repetition) will be applied, until they arrive To the estimated sample size. Patients will then be randomly assigned to the control group and experimental group and a data collection questionnaire and a battery of standardized neuropsychological tests will be administered to each selected patient.<sup>78</sup>

The data obtained will be collected and kept until the study ends anonymously and will be included in a file registered in the General Data Protection Register of the Spanish Data Protection Agency (AEPD). Currently the project is in the intervention phase in the association of relatives and psychiatric patients LENDA (Redondela, Spain) and in the coming months we will have the results that, after corresponding statistical analysis, allow us to evaluate the effectiveness of implementing the therapeutic game “The Trisquel” to people with severe mental disorder and to know if the improvement in the cognitive functioning of patients participating in the program, will improve their quality of life.

## Acknowledgments

None.

## Conflicts of interest

Author declares there are no conflicts of interest.

## Funding

None.

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