NEW TECHNOLOGIES IN TRAUMA TREATMENT

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Abstract

The mean scores in Reexperimentation, Avoidance, Hyperarousal, and Total CPSS score, decreased significantly in a group with EMMA Virtual Reality treatment sessions, compared to another group without EMMA Virtual Reality sessions, with high effect sizes.

Introduction

Psychological treatment in children with emotional and / or behavioral problems has shown a high level of efficacy, however, in disorders such as PTSD, the strategies and techniques employed to achieve greater involvement and adherence to treatment, as well as to reduce suffering have been modified over time. Some treatment techniques for treatment of traumatic reactions are especially aversive, both for therapists and those in treatment.

Virtual reality (VR) environment is a flexible and adaptable system where any traumatic event can be “symbolically” represented using different tools (e.g., symbols, pictures, music, sounds, video, etc). This VR environment could be a good solution for the limitations of VR environments that can only be used to treat a specific traumatic event. Its main weakness is that for some PTSD populations, a more specific and realistic VR environment might be more suitable. The EMMA-Child (Engaging Media for Mental Health) virtual reality system is an important tool in improving the exploration of events and past experiences related to the psychological problem, and it also provides new and rewarding experiences.

We have used a cognitive behavioral protocol and "The Book of Life" at the beginning and end of therapy, for children with complex trauma with the EMMA virtual reality system. We carried out pretest and posttest evaluation. Treatment last nine months.

Scores for trauma measures decreased at the end of treatment. Effect size was high in variables analyzed. We found differences in adherence to treatment and in diverse variables when virtual reality was used.

EMMA-Child is an important tool to improve the exploration of events and past experiences related to the psychological problem, as well as to provide new and rewarding experiences.

EMMA-Child enables the exposure and elaboration of trauma with less suffering, increasing adherence to treatment and bonding with the therapist.

Aim

To verify if treatment through VR specifically in the "World of EMMA", improves the effectiveness of treatment of PTSD in children in care.

Method

Participants: Participants: 46 children in care by the Autonomous Community of the Region of Murcia took part, 52.2% boys and 47.8% girls, aged between 8 and 16 years, average 11.06 years. All children were referred by the Psychodiagnostic Evaluation and Treatment Project (PEDIMET), by the Directorate General for Children.

Instrument: The *Child PTSD Symptom Scale* (CPSS) questionnaire was used, which evaluates the presence of PTSD symptoms in children and adolescents aged 8 to 18. This comprises 5 scales (Re-experiencing, Avoidance, Hyperarousal and Total Score, and a functional impairment scale).

Procedure: An analysis of Spearman's correlations, mean differences ("t" Student), and Cohen effect size ("d") was performed. The change was compared by separation into two groups: One group (control) without EMMA RV sessions (n = 8) and another group with EMMA RV (n = 38). Both groups were evaluated pre and post treatment.

All statistical treatment was carried out with the SPSS v19 package.

Results

Spearman's correlations between CPSS scales and the number of EMMA sessions were analyzed, significant EMMA RV correlations were found with **Avoidance** (p =.-340; p <.05) and **Total score** (p = -.339; p < .05), the remaining variables showed the inverse relationship between PTSD symptoms and EMMA sessions (**Reexperiencing** p = -.317; **Hyperarousal** p = -.271; **Interference** p = -.321).

The differences in mean and effect sizes in the CPSS posttest scores between the EMMA RV treatment group and the control group, yielded positive and statistically significant results with high Cohen effect magnitudes (Figure 1).

Reexperiencing • control group (X = 3.88) treatment group (X = 1.64) (t = 2.117; p <.05; d = .809).

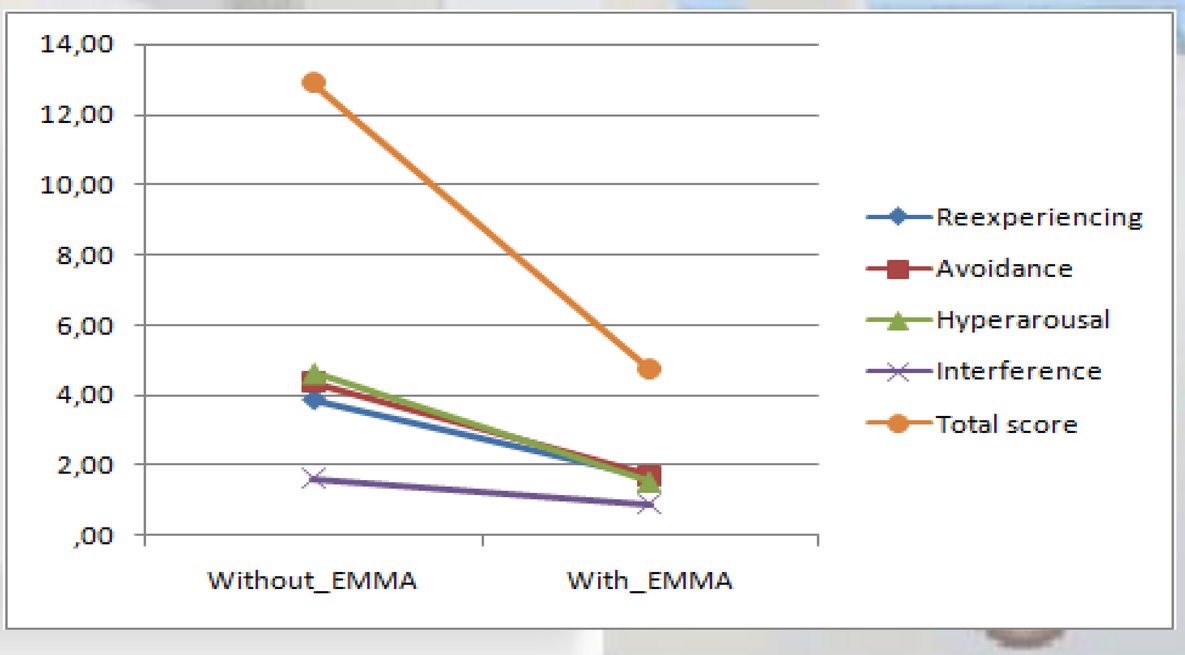
Avoidance: • control group (X = 4.38) treatment group (X = 1.71) (t = 2.035; p <.05; d = .781).

Hyperarousal: • control group (X = 4.63) treatment group (X = 1.54) (t = 2,681; p <.05; d = .990).

Interference: • control group (X = 1.63) treatment group (X = .89) (t = 1,469; p> .05; d = .579).

Total score: • control group (X = 12.88) treatment group (X = 4.72) (t = 2,546; p <.05; d = .947).

Figure 1. Difference of CPSS scores, control group and treatment group.



Conclusions

Significant differences were found in the measures of scales Re-experiencing, Avoidance, Hyperarousal and total score scales, where the control group exceeds the treatment group, with high effect sizes. These results are encouraging and indicate that EMMA RV improves the efficacy of PEDIMET treatment for PTSD. In addition, children had less interference in the evocation of trauma, improving exposure, and showing more acceptance and adherence to treatment by EMMA. Owing to the relevance of PTSD diagnosis, it is advisable to follow this line of research of the application of new technologies to the treatment of psychological problems.

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Notes:

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