A One-Day Assyst Group Treatment Intervention to Victims of Flood in Bulgaria

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Abstract

This pre-post repeated measures study aimed to assess the effectiveness, efficacy, and safety of the Acute Stress Syndrome Stabilization Treatment Intervention in a group format (ASSYST-G) with Bulgarian participants from a flooded region. A total of 24 participants (2 males and 22 females) participated in the study. Participants' ages ranged from 33 to 89 years old (M = 63.38 years old). Post-traumatic stress disorder (PTSD) symptoms and flood-related distress were measured at four-time points for all participants. Due to attrition for unrelated reasons, final statistical analyses were conducted on the data from 18 participants. Repeated measures analysis of variance (ANOVA) indicated a clinically significant reduction in PTSD symptoms as measured by the PCL-5 Short Form: Wilks' Lambda = .419, $F_{(3,15)}$ = 6.92, p = .004, multivariate partial eta squared = .581. Similarly, a clinically significant reduction in flood-related distress, as measured by the Visual Analog Scale (VAS), was observed: Wilks' Lambda = .206, $F_{(3,15)}$ = 19.22, p < .001, multivariate partial eta squared = .794.

The statistical analysis confirmed that the ASSYST-G treatment intervention effectively reduced both PTSD symptomatology and flood-related distress in Bulgarian participants from a flood-affected region. No adverse effects were reported or observed during the intervention or at post-intervention assessments. This study represents the first implementation of the ASSYST-G intervention in a Bulgarian context. Its findings hold both empirical significance and substantial social value, challenging prevailing cultural stereotypes. Additionally, the results raise important questions regarding the optimization of treatment delivery following natural disasters.

Keywords: Acute Stress Syndrome Stabilization; ASSYST; Natural Disasters; EMDR; PTSD; Trauma; Low-Intensity Interventions

Abbreviations: ASSYST: Acute Stress Syndrome Stabilization Treatment; PTSD: Post-traumatic stress disorder; VAS: Visual Analog Scale; EMDR: Eye Movement Desensitization and Reprocessing; CBT: Cognitive Behavioral Therapy; AIP: Adaptive Information Processing; LII: Low-Intensity Intervention; EPT: Emotional Protection Team

Introduction

Eye Movement Desensitization and Reprocessing (EMDR) Therapy

Eye Movement Desensitization and Reprocessing (EMDR) therapy is an eight-phase, three-pronged, client-centered approach to treating PTSD and other psychological disorders. Developed by Francine Shapiro in the late 1980s, EMDR therapy has undergone significant evolution over the years. Since 2013, the World Health Organization (WHO) has endorsed it as one of the two evidence-based treatments for trauma, alongside trauma-focused cognitive behavioral therapy (CBT) [1]. The foundation of EMDR therapy lies in the Adaptive Information Processing (AIP)

model. This model posits that much of psychopathology results from maladaptive encoding and/or inadequate processing of adverse life experiences. Such dysfunction impairs the individual's ability to integrate these experiences adaptively. EMDR therapy facilitates the resumption of normal information processing, enabling integration with the individual's adaptive memory networks. The approach addresses past traumatic experiences, current triggers, and potential future challenges, resulting in symptom alleviation, reduced distress, improved self-perception, relief from physical disturbance, and resolution of anticipated triggers [2].

Group Applications of EMDR Therapy

In the late 1990s, Dr. Ignacio Jarero and Lucina Artigas pioneered the application of EMDR therapy in group formats to provide early intervention in the context of natural and man-made disasters. Building upon the EMDR Standard Protocol, they developed the EMDR Integrative Group Treatment Protocol (EMDR-IGTP) for Early Intervention with Children and, subsequently, the EMDR-IGTP for Adults. These protocols have been extensively researched and validated over the years [3-4]. In response to prolonged adverse experiences, Dr. Jarero and Lucina Artigas later introduced the EMDR Integrative Group Treatment Protocol for Ongoing Traumatic Stress (EMDR-IGTP-OTS), which specifically targets enduring traumatic stress [5-7].

Acute Stress Syndrome Stabilization (ASSYST) Treatment Intervention

In 2017, Dr. Jarero developed the Acute Stress Syndrome Stabilization (ASSYST) treatment intervention in individual, group, and web-based formats. Drawing on components from the EMDR-IGTP-OTS and the EMDR Protocol for Recent Critical Incidents and Ongoing Traumatic Stress (EMDR-PRECI), the ASSYST treatment intervention focuses on alleviating intrusion symptoms caused by traumatic memories. These symptoms, a core feature of acute stress disorder (ASD) and PTSD, can cause significant psychological and physiological distress, hindering daily functioning [8-9]. ASSYST is classified as a Low-Intensity Intervention (LII), bridging the gap between psychological first aid and high-intensity treatments like trauma-focused CBT or EMDR therapy. LIIs are characterized by their brevity, simplicity, and minimal utilization of the therapist's time. Unlike high-intensity interventions, ASSYST can be delivered by mental health professionals who are not formally trained in EMDR therapy, making it an accessible and scalable approach to addressing acute psychological distress [10-12].

EMDR Therapy in Bulgaria

EMDR therapy was introduced to Bulgarian practitioners in the mid-2010s. While the therapy has gained popularity and the community of EMDR practitioners is expanding, a robust workforce capable of implementing this diverse therapeutic approach has yet to be established. Despite these challenges, the Bulgarian EMDR therapeutic community remains proactive, seeking international collaboration to address gaps in skills and diversify applications of EMDR therapy.

Volunteer Efforts and ASSYST Training

In February 2023, following the earthquake in Turkey, a volunteer group of bilingual EMDR-trained and non-EMDR-trained practitioners was formed to provide emergency psychological support to disaster victims. Recognizing the diverse skill levels within the group, Dr. Ignacio Jarero and Nicolle Mainthow conducted pro bono training in the ASSYST treatment intervention, both in its individual and group formats. This training was considered an optimal fit for the context, given its low-intensity nature and adaptability for practitioners not formally trained in EMDR therapy. Delivered in English with simultaneous Bulgarian interpretation, the training included translated protocols and materials provided by a specialized translating agency at no cost. During this period, the volunteer group gained visibility in the media and clinical communities, offering their services upon request. However, it should be noted that, to date, AIP-informed group interventions aimed at reducing PTSD symptoms have not been implemented in Bulgaria.

Request for Intervention in Karavelovo, Bulgaria

In May 2023, the volunteer group was approached by a steering committee from the village of Karavelovo in the Karlovo region of Bulgaria. The village, which had been severely flooded several months prior, experienced widespread destruction of homes, livelihoods, and infrastructure, with no psychological support available to residents at the time of contact. The committee sought psychological assistance for the affected villagers, highlighting an urgent need for intervention.

Objective

The objective of this study was to evaluate the effectiveness and efficacy of the Acute Stress Syndrome Stabilization Group (ASSYST-G) treatment intervention in reducing posttraumatic stress disorder (PTSD) symptoms and flood-related distress among victims of a natural disaster who had not received prior psychological support related to the event.

Method

Study Design

This study employed a pre- and post-repeated measures design to evaluate the effectiveness, efficacy, and safety of the ASSYST-G treatment intervention on PTSD symptoms and flood-related distress. For ethical reasons, this design was chosen to allow participants to receive the intervention without randomization and the inclusion of a waitlist control group. The null hypothesis posited that there would be no significant statistical difference in reported PTSD symptoms or levels of distress among Bulgarian participants from a recently flooded region following the ASSYST-G intervention at three follow-up time points.

Participants

Participants were primarily older adults from the village of Karavelovo, located in the Karlovo region of Bulgaria. Village residents were invited to participate in the intervention, resulting in the registration of 26 participants. Two participants received the ASSYST individual treatment intervention and were excluded from the ASSYST group intervention. The final sample comprised 24 participants (2 males and 22 females). No exclusion criteria were applied. Participation was voluntary, and all participants provided informed consent, which included an explanation of the study design and objectives. Additionally, participants consented

in writing to be photographed or video-recorded to ensure fidelity to the ASSYST-G protocol and for visual documentation of the intervention. Demographic data, including name, address, age, and gender, were collected on the day of the intervention.

Instruments for Psychometric Evaluation

The primary outcome measures were the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) Short Form and the Visual Analog Scale (VAS). These instruments were administered at four time points: Time 1, baseline (pre-treatment), Time 2, post-treatment (one week); and follow-ups at Time 3, three weeks; and Time 4, six weeks post-treatment.

i.   Posttraumatic Stress Disorder Checklist for DSM-5 Short Form (PCL-5 SF): The PCL-5 SF, developed by Zuromski et al. [13], is a rigorously validated four-item short form derived from the full PCL-5. It assesses one item each from DSM-5 PTSD Criteria B, C, D, and E, focusing on symptoms experienced during the past week. The scale has demonstrated strong psychometric properties, including high reliability, a Brier score of 0.032, and an area under the curve (AUC) of 0.994 for various threshold settings. A clinical psychologist translated the instrument into Bulgarian.

ii.   Visual Analog Scale (VAS): The VAS has long been used in clinical practice and research to measure the intensity and frequency of bio-psycho-social symptoms. Aitken [14] extensively reviewed its development and applications, establishing its high reliability and validity. In this study, the VAS measured distress levels associated with memories of the floods. Its ease of use and straightforward interpretation made it particularly suitable for this population.

Attrition

Although 24 participants began the intervention, some attrition occurred during follow-up testing. Complete psychometric data at all time points were available for 18 participants, and this subset was used for statistical analyses.

Procedure

The intervention was conducted in groups of five to seven participants, with 24 individuals divided accordingly. The ASSYST-G treatment intervention was delivered exclusively by practitioners trained in the ASSYST-G protocol. Each group included a designated team leader and two members who served as the Emotional Protection Team (EPT). The EPT monitored participants' responses throughout the intervention and were prepared to provide the individual Acute Stress Syndrome Stabilization (ASSYST-I) treatment intervention if a participant's disturbance levels indicated a need for additional support. The team leader facilitated the intervention by providing instructions and guiding participants through the structured, manualized ASSYST-G protocol.

Three identical interventions were offered to each group. Participants attended one or more sessions based on their levels of disturbance. Participants who reported a reduction in subjective-related disturbance from zero to three on a 10-point scale (with 10 indicating the highest level of disturbance) could choose to discontinue further participation. After each intervention, participants were debriefed and provided with contact information to use if distress symptoms resurfaced. To ensure fidelity to the ASSYST-G protocol, the intervention team engaged in a group consultation with Dr Ignacio Jarero following the sessions. This consultation allowed the team to debrief and confirm adherence to the treatment procedures.

Statistical Analysis

The data from this study were analysed using IBM SPSS Statistics (version 29.0).

Descriptive Statistics

The participant sample (N = 24) ranged in age from 33 to 89 years old, with a mean age of 63.38 years old (SD = 15.34). The age distribution of participants was as follows: one individual aged 30-40 years old, six between 40-50 years old, eight between 60-70 years old, three between 70–80 years old, and six between 80-90 years old. The number of group sessions attended ranged from one to three, with participants attending an average of 2.54 sessions (SD = 0.83).

PTSD

A one-way repeated measures ANOVA was conducted to assess changes in PTSD symptom severity, measured using the PCL-5 Short Form (PCL SF) across four-time points:

a.   **Time One:** Pre-intervention (baseline).

b.   **Time Two:** One-week post-intervention.

c.   **Time Three:** Three weeks follow-up.

d.   **Time Four:** Six weeks follow-up.

The PCL SF scores were normally distributed at all assessment points.

The results demonstrated a significant effect of time on PTSD symptoms, with a large effect size, Wilks' Lambda = .419, $F(3,15)$ = 6.93, $p < .004$, multivariate partial eta squared (η^2) = .581.

Pairwise Comparisons

Pairwise comparisons of mean scores revealed significant differences ($p < .05$) between pre-treatment scores (Time One) and scores at each of the post-treatment time points (Time Two, Time Three, and Time Four). A steady and unidirectional decline in PTSD symptoms was observed over time, indicating the sustained effectiveness of the intervention. See Table 1 and Figure 1.
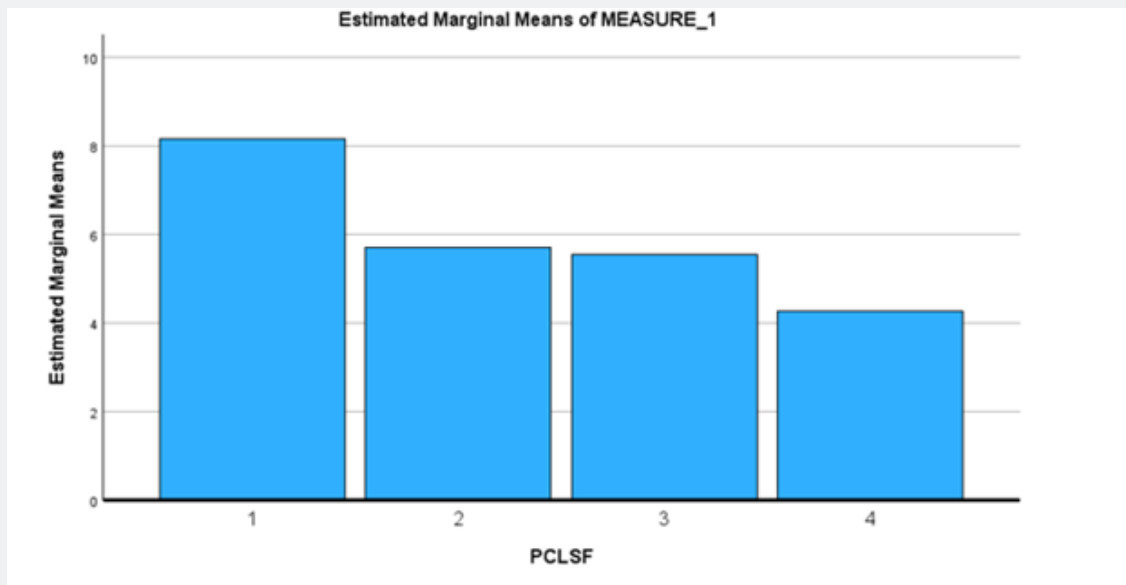
Figure 1: Profile Plots PCL SF by time points.

Flood-related Distress

A one-way repeated measures ANOVA was conducted to compare the scores on the VAS at four-time points: Time One (before the intervention), Time Two (one-week post-intervention), Time Three (three weeks post-intervention), and Time Four (six weeks post-intervention). VAS was normally distributed in time points two and three. In time point one, there was a skewness right, suggesting a high level of distress. In time point four, there was also some skewness right, however, to a lesser degree. This did not affect the ANOVA results, given the test's robustness. Results revealed that the intervention had a significant effect for time on flood-related distress, with a large effect size, Wilks Lambda = .206, $F(3,15) = 19.22$, $p < .001$, partial eta squared $\eta^2 = .794$.

Pairwise Comparisons

Table 1: PCL-SF Mean scores (M) and standard deviations (SD) at Time 1. Baseline assessment; Time 2-one-week post-intervention; Time 3-three weeks post-intervention and Time 4–six weeks post-intervention; N-18.

Measure/Time point	Mean	St. Deviation
T1: Baseline 3/06/2023	8.17	3.974
T2: 10/06/2023	5.72	3.025
T3: 24/06/2023	5.56	2.955
T4: 15/07/2023	4.28	2.372

Pairwise comparisons of mean VAS scores indicated significant reductions in distress levels ($p < .05$) at each post-treatment time point (Time Two, Time Three, and Time Four) compared to the baseline assessment (Time One). However, there was an observed increase in reported distress levels at Time Four compared to the post-treatment assessments at Time Two and Time Three. Despite this increase, the distress levels at Time Four remained significantly lower than those reported at baseline (Time One). See Table 2 and Figure 2.

Table 2: VAS Mean scores (M) and standard deviations (SD) at Time 1. Baseline assessment: Time 2–one week post-intervention; Time 3–3 weeks post-intervention, and Time 4–6 weeks post-intervention. N–18.

Measure/Time point	Mean	St. Deviation
T1: Baseline 3/06/2023	6.22	2.39
T2: 10/06/2023	3.33	1.847
T3: 24/06/2023	2.28	1.674
T4: 15/07/2023	3.5	2.093

Discussion

This study aimed to evaluate the effectiveness, efficacy, and safety of the Acute Stress Syndrome Stabilization Treatment Intervention in a group format (ASSYST-G) with Bulgarian participants affected by a severe flooding event. The results demonstrated significant reductions in PTSD symptoms, as measured by the PCL SF, and flood-related distress, as measured by the VAS. Pairwise comparisons indicated a significant difference between pre-treatment and all three post-treatment time points, with a steady, unidirectional decline in PTSD symptoms. The multivariate analysis for PCL SF (Wilks' Lambda = .419, $p = .004$) confirmed a statistically significant effect of time, indicating meaningful improvements in PTSD symptoms throughout the intervention. Similarly, the analysis for VAS scores (Wilks' Lambda

= .206, p < .001) highlighted a significant temporal effect on flood-related distress. Pairwise comparisons suggested significant reductions in distress at all post-treatment time points compared to pre-treatment levels. However, an increase in VAS scores at Time Four (six weeks post-intervention) compared to Times Two (one week) and Three (three weeks) was observed. This trend, though inconsistent with the sustained reductions in PCL SF scores, may suggest the influence of external, compounding factors of unknown origin that emerged between the third and fourth assessments. The large effect sizes observed for both PTSD symptoms (η^2 = .581) and flood-related distress (η^2 = .794) underscore the intervention's substantial impact. According to Cohen's guidelines [15], these values represent very large effects, indicating that the ASSYST-G intervention was highly effective in reducing PTSD symptoms and distress associated with the flood.
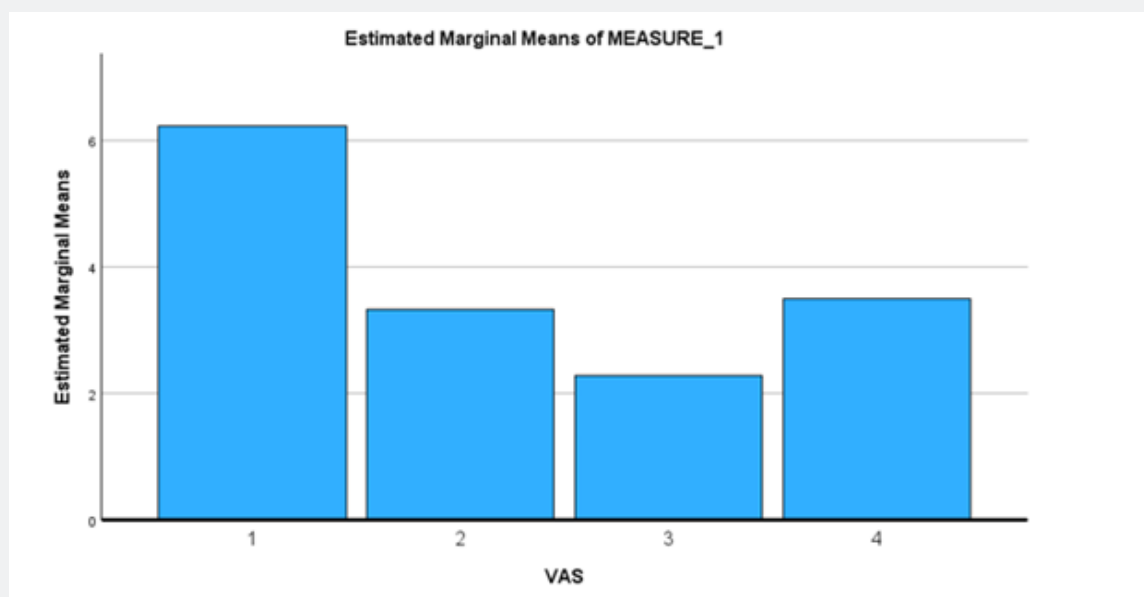

Figure 2: Profile Plots VAS by time points.

Conclusion

This study is unique in its application of ASSYST-G, the first Low-Intensity Intervention (LII) derived from a structured EMDR group treatment protocol, targeting PTSD intrusion symptoms in a predominantly older adult population in Bulgaria. Anecdotally, older Bulgarians are often resistant to psychological interventions, especially those delivered in a group format. The success of this intervention underscores its potential applicability in culturally and demographically diverse contexts. The findings of this study, combined with prior research on ASSYST interventions in various settings, suggest that this tool holds great promise as a rapid, accessible, and effective treatment for trauma-related distress. Its continued use in appropriate contexts is recommended, particularly in post-disaster scenarios where resources are limited and timely interventions are critical.

Limitations and Future Directions

Despite its promising findings, this study has several limitations. The small sample size and the absence of randomization reduce the robustness of the results. Additionally, the homogeneity of the sample, which was predominantly female, limits the generalisability of the findings and precludes meaningful between-group comparisons. The relatively short follow-up period of six weeks also limits insights into the long-term sustainability of the observed changes. Longitudinal studies with extended follow-up periods are necessary to determine whether the reductions in PTSD symptoms and distress are maintained over time. In conclusion, the results of this study provide strong preliminary evidence that the ASSYST-G intervention significantly reduces PTSD symptoms and distress in individuals affected by natural disasters. These findings reject the null hypothesis and support the therapeutic efficacy of ASSYST-G. Further research with larger, more diverse samples and rigorous study designs is needed to enhance our understanding of this intervention's long-term effects and broader applicability.

Acknowledgement

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