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RESEARCH ARTICLE

A Single-Session Flash Technique Group Intervention to Reduce Secondary Traumatic Stress Among Mental Health Workers in Earthquake-Affected Areas

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ABSTRACT

Background: Following natural disasters that cause mass trauma, health professionals and aid workers working in the disaster area may experience increased secondary traumatic stress and burnout due to being exposed to the traumatic experiences of others, which may lead to a decrease in both their mental health and professional functions. In this study, the effectiveness of a single-session Eye Movement Desensitization and Reprocessing (EMDR) Flash Technique group intervention implemented to reduce the traumatic stress levels of professionals working in the Kahramanmaraş-centered earthquake zone was evaluated.

Methods: The study was conducted with a total of 13 trauma workers ($\bar{X}$age=27.8±2.1) working in container cities in Malatya and Adıyaman. A 90-minute Flash group protocol was applied. Before and after the intervention, participants' distress intensity regarding traumatic scenes was measured using Subjective Units of Distress (SUD) scores.

Results: The mean and standard deviations of the SUD scores given by the participants to each of the three traumatic events they selected at the beginning of the session Incident-1=8.7±1.1, Incident-2=7.5±1.2, Incident-3=6.2±1.3 decreased significantly at the end of the session (0.38±0.50, 0.15±0.37, 0.07±0.27, respectively). All participants stated verbal expressions of positive changes such as a sense of relief, emotional distancing and relaxation at the end of the session.

Conclusion: This study shows that the EMDR Flash Technique can be an effective method in reducing secondary traumatization symptoms in professionals working in earthquake zones. Being able to apply it quickly and in groups increases the usability of this technique in post-disaster psychological support processes.

Keywords: Earthquake, EMDR, Flash Technique, Group Intervention, Secondary Traumatic Stress

Introduction

Natural disasters such as earthquakes, floods and hurricanes are destructive natural events that have devastating effects on human life due to their uncontrollable nature and the threat they pose to life.[1] Earthquakes are among the leading natural disasters that cause great physical, economic and psychosocial damage to society due to injuries, loss of life, and destruction of infrastructure.[1,2] Turkey, which is considered as an "earthquake country" due to its geographical location where approximately half of its territory is located in a 1st degree earthquake zone, has experienced earthquakes that caused large-

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-scale loss of life and property throughout its history.[2,3] On February 6, 2023, two major earthquakes centered in Kahramanmaraş (magnitudes Mw 7.7 and Mw 7.6, respectively) occurred on the East Anatolian Fault Zone and were felt in a very wide geographical area, directly affecting 11 provinces. These two major earthquakes, which are among the biggest disasters in Turkey's history and occurred on the same day, caused great destruction that required aid and solidarity at both national and international levels.[4,5] According to the strategy and planning report prepared by the Presidency of Strategy and Budget of the Republic of Turkey, a total of 53,537 people lost their lives in the earthquakes that directly affected approximately 16% of the country's population and caused great loss of life and property; more than 313,000 buildings collapsed or were severely damaged; approximately 3.3 million people became homeless and 2.7 million people involuntarily migrated due to basic needs such as security and shelter.[5-7]

Challenging events that threaten people's lives, physical integrity and/or the safety of their loved ones and disrupt people's basic belief systems are described as trauma.[8,9] Earthquakes are also traumatic experiences that shake the perception of security of both the individual and their loved ones due to being unexpected, unintentional, out of control and posing a life-threatening threat. In such challenging incidents, being a witness to others' traumatic experiences directly or indirectly and learning in detail what happens to others because of the profession, also leads to traumatic stress as stated in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5).[8] This situation, called secondary trauma, can also bring about trauma symptoms such as re-experiencing, overstimulation, avoidance and emotional alienation.[9,10] In other words, the impact of an earthquake affects not only the earthquake victims and their relatives, but also people working in the region to help the earthquake victims, the media, etc. In this context, it has been observed that professionals who provide search and rescue or health services in disaster areas develop secondary trauma and burnout symptoms as a result of distressing experiences to which they are repeatedly and in detail exposed.[11-16] Professionals who experience secondary traumatic stress have been observed to experience a decrease in their emotional resilience in the long term; an increase in symptoms such as anxiety, depression and sleep disorders and deterioration in their mental health.[15-19] Increased secondary traumatic stress, which is positively correlated with the severity of traumatic events and the need for support, has a disruptive effect on the professional functioning of trauma and health workers. [17,18-20] In order to reduce the negative effects of traumatic stress on mental health, it is of great importance for professionals in the field of trauma to benefit from psychotherapeutic approaches included in treatment guidelines.

Eye Movement Desensitization and Reprocessing (EMDR) is a therapy method recommended by the American Psychiatric Association and the World Health Organization for the treatment of trauma and whose effectiveness has been proven by scientific studies.[21] [,22] According to the Adaptive Information Processing model, traumatic experiences are stored without being processed and cause the emergence of disturbing thoughts, emotions and body sensations that disrupt function.[23,] [24] When disturbing memories are not processed, the brain, triggered by internal and external stimuli, continues to give reactions related to the past traumatic experience to new situations

and events.[23-25] The basic function of EMDR therapy, based on AIP, is to activate the information processing system and reprocess these traumatic experiences with bilateral stimulation. By desensitization and reprocessing, it improves other symptoms such as anxiety and depression that develop due to traumatic stress and trauma, while also increasing the psychological well-being of the individual.[23, 26-28]

Flash Technique, which is a relatively new protocol developed by Manfield in 2017 with a new approach to EMDR therapy, is a technique in which physical tasks such as blinking and positive affect are added to bilateral stimulation.[29] Unlike EMDR, since desensitization and information processing are provided by activating positive engaged memories instead of directly exposing individuals to unprocessed distressing memories, it prevents dissociation that will be experienced during the session by minimizing direct exposure to disturbing traumatic memories and therefore the distress that will be experienced during therapy and makes the intervention more tolerable.[29-32] Studies have shown that the Flash Technique is effective in improving post-traumatic stress symptoms as well as other mental problems such as exam anxiety and phobias and that there are rapid decreases in symptoms in both individual and group applications.[31-34] It has been reported that after a single-session intervention on the effectiveness of the Flash Technique, the participants' trauma-related stress symptoms were significantly reduced.[34-36] The level of effect obtained in a short time and its usability, especially for individuals with dissociation, make the Flash Technique an important treatment tool, especially in mass traumas such as earthquakes, where resources are limited and great destruction is experienced.

This study aimed to improve the effects of traumatic events that mental health professionals working in earthquake zones witnessed and were exposed to and disturbed them during their interviews with earthquake victims. A single-session Flash Technique group intervention was aimed. Our research hypothesis: H_1: Single-session Flash Technique group application will significantly reduce the subjective unit of distress (SUD) levels related to traumatic memories experienced by mental health professionals working with earthquake victims.

Methods

Participants: Participants consisted of 13 single, young adult mental health professionals (8 female, 5 male; mean age = 27.8 ± 2.1 years, range = 26–30) who had been working in earthquake-affected regions for at least eighteen months. Recruited from the Travma ve Afet Ruh Sağlığı Çalışmaları Derneği (TARDE), the Post-Earthquake Support Network (DEPSDA), and the Ministry of Health, they included psychologists and social workers providing frontline psychosocial support. During their fieldwork, participants had been repeatedly exposed to severe trauma-related experiences, including witnessing the loss of family members, rescuing individuals trapped beneath collapsed structures, and retrieving bodies from the debris. At the time of the study, all were working in container cities in Malatya and Adıyaman. Those who had received EMDR therapy during field missions, had a psychiatric diagnosis, or were using psychiatric medication were excluded. Participants were selected through convenience sampling, based on volunteerism and accessibility.

Procedure: After a 10–15-minute icebreaker where each participant introduced themselves and established connections with each other,

the purpose of the study was explained and information about the implementation process was provided. Permission to conduct the group intervention had been granted in advance by the TARDE, which coordinated post-earthquake field operations. It was stated to the participants that the session was designed as a support method for coping with traumatic memories and aimed to contribute to their emotional relaxation and reduction of stress. Prior to the intervention, the participants were divided into two groups. Each group received the intervention from an certified EMDR therapist who had been trained in the Flash Technique by Manfield. The Flash Technique protocol was administered in a group format. Then, the Flash Technique was applied for 90 minutes.

First, the intervention was introduced to the participants: (i) explanation of the technique, (ii) physical instructions regarding the implementation and (iii) emphasis on the importance of focusing on positive memories.

(i) The basic principles of the FLASH Technique were explained to the participants. It was stated that the method involves focusing on a positive memory instead of directly focusing on traumatic events and that this method aims to alleviate the emotional intensity of traumatic memories.

(ii) They were instructed to begin the practice by tapping their right and left knees with their hands and blinking their eyes three or four times upon hearing the command "Flash".

(iii) It was emphasized that focusing only on positive memories during the intervention was essential for the effectiveness of the session. As part of the Flash Technique protocol, participants were instructed to mentally "put in the box" any thoughts that were distracting, disruptive, or unrelated to the intervention, if such content emerged during the process—i.e., to mentally contain them using imagery—in order to maintain focus on the positive memory. This metaphorical instruction helps participants refocus by setting aside intrusive or irrelevant thoughts that may interfere with the intervention.

In the second step, participants were asked to find a few positive memories to engage with. They were told that this memory could be a moment when they felt safe and happy and could include different things such as a loved one, a pet, a place, or a positive musical sound. It was stated that if the first memory they chose at the beginning of the study did not create a strong enough positive emotion, they could switch to another positive memory if necessary. Participants were told that if they had difficulty finding a positive memory, they could use a calming or cheerful and cute image from the internet.

The third step was for participants to determine their negative memories and SUD (Subjective Units of Distress) scores. Participants were asked to select and note three negative memories that bothered them during their work in the earthquake region. They were asked to rate their level of discomfort regarding these memories between 0-10 and note the scores on their papers.

The Flash Technique was applied in the fourth step. Participants started practicing medicine by focusing on the positive memory they selected and applied the technique by blinking their eyes three or four times each time they heard the "FLASH" command. After each set of six repetitions of the FLASH command, participants were asked how long they could focus on the positive memory and participants who could not stay in a positive memory were asked to switch to another positive memory they had determined at the beginning of the study. Between each set, they were asked to

return to the traumatic event and check if there was a change in the scene and to determine if there was a change in their level of distress regarding this memory with the SUD score and note it on their papers. The same traumatic memory was worked on until the SUD score reached zero and when the score reached zero, the next traumatic memory was moved on. At the end of the session, participants were asked to read their starting and ending SUD scores and these scores were shared within the group. Verbal feedback was received on how they found the technique and the session ended.

The backward counting task (e.g., counting from 100 by fours) was used in line with suggestions made by Dr. Philip Manfield during advanced Flash Technique training. Although this is not a core part of the standard protocol, he recommended it as an optional strategy for participants who had difficulty connecting with a positive memory—especially those who struggled to visualize, relied on external images (like pictures on their phone), or tended to have more controlling personality traits. In such cases, adding a cognitively engaging task like backward counting can help activate working memory, making it easier for the participant to stay grounded and create distance from the traumatic material when a strong positive image isn't available. This approach is also supported by findings in the broader EMDR and working memory literature.

Measures

Because of the practical challenges of working in a post-disaster field setting, we used only the Subjective Units of Distress Scale (SUD) to measure participants' emotional responses. The SUD is a simple self-report tool that asks participants to rate their distress on a scale from 0 (no distress) to 10 (extreme distress). It is widely used in trauma-focused work because it is quick, easy to apply, and sensitive to changes in how someone is feeling in the moment. In this study, SUD scores were recorded at three points: before the intervention, after each set of FLASH repetitions, and at the end of the session. This helped us observe both moment-to-moment changes and the overall effect of the intervention.

Data Analysis

The data were analyzed using IBM SPSS Statistics (Version 21.0). To assess the effectiveness of the intervention, pre- and post-intervention SUD scores were compared using paired samples t-tests. Cohen's d was also calculated to determine the effect size for each traumatic memory.

Table 1. Socio-demographic Characteristics of Participants

Demographics	Participants (N=13)
Age ($\bar{X}$, SD)	27.8±2.1
Gender n (%)	
Female	8 (64.4%)
Male	5 (34.6%)
Marital Status n (%)	
Single	13 (100%)
Education n (%)	
Bachelor	7 (53.85%)
Master	5 (38.46%)
PhD	1 (7.69%)
Occupation n (%)	
Psychologist	6 (46.15%)
Social Worker	2 (15.38%)
Psychological Counselor	2 (15.38%)
Child Development Specialist	2 (15.38%)
Disaster Management Specialist	1 (7.69%)

SD= Standard deviation; N= Number of participants

Results

The average age of the participants (N=13) was $\bar{X}$ = 27.8 (±2.1). The gender distribution of the study group was 65.4% female (n= 8) and 34.6%

Table 2. Effect of Single-Session Flash Technique on SUD Scores

	Pre-Flash Technique SUD		Post-Flash Technique SUD		t (12)	Cohen's d
	Mean ± SD	Min - Max	Mean ± SD	Min - Max		
Incident 1	8.7 ± 1.1	7-10	0.38 ± 0.50	0-1	8.161*	11.82
Incident 2	7.5 ± 1.2	5-9	0.15 ± 0.37	0-1	-5.318*	6.83
Incident 3	6.2 ± 1.3	3-8	0.07 ± 0.27	0-1	-4.83*	4.34

N=13 , X̄=Mean, SD= Standard Deviation, SUD = Subjective Units of Distress, *statistical significance indicates p < .001

male (n= 5). The participants consisted of different occupational groups working in the field and all of them were single. Regarding their education levels, it was observed that 7 (53.85%) of participants had a bachelor's degree, 5 (38.46%) of them had a master's degree and 1 (7.69%) participant had a doctorate degree. Sociodemographic data of the participants are shown in Table 1.

In order to evaluate the effect of the single-session EMDR Flash Technique group intervention, the dependent sample t-test was used to evaluate whether the difference in the SUD scores obtained at the beginning and at the end of the session was significant (Table 2).

Before the intervention, the highest disturbance level was determined as Incident 1 ($\bar{X}$ = 8.7, ±1.1), then Incident 2 ($\bar{X}$ = 7.5, ±1.2) and the lowest SUD score was determined as Incident 3 ($\bar{X}$ = 6.2, ±1.3). At the end of the intervention, a significant decrease was observed in the SUD scores of all events. Especially in Event 3, the mean decreased to a very low level of 0.07. There was a statistically significant difference in SUD scores before and after the intervention for all events ($p < .001$).

The effect sizes (Cohen's d) calculated for the three events were 11.82, 6.83, and 4.34, respectively. These values far exceed the conventional threshold for a large effect and point to a remarkably strong and consistent reduction in participants' distress levels across all events. On average, SUD scores dropped from high levels prior to the intervention to near zero afterward, suggesting that the single-session Flash Technique produced a substantial emotional shift in a very short time. These results suggest that the single-session Flash Technique group intervention significantly reduced the discomfort experienced by trauma workers in the face of the traumatic events they witnessed.

Discussion

In this study, a single-session Flash Technique group protocol was applied to mental health professionals providing services in earthquake-affected areas to reduce the distressing effects of the traumatic events they were exposed to. To evaluate the effectiveness of the intervention, Subjective Units of Disturbance (SUD) scores were measured before and after the session. A comparison of these scores indicated that the single-session Flash Technique group intervention was an effective therapeutic method in reducing the distress levels associated with traumatic events. In addition to the observed reduction in SUD scores, participants provided verbal feedback between sets, describing their experience using terms such as "relief," "blurring," and "emotional detachment" regarding their traumatic memories. This feedback further supports the conclusion that

the intervention reduced the distress associated with their traumatic experiences.

Unlike the traditional Eye Movement Desensitization and Reprocessing (EMDR) protocol, the Flash Technique incorporates bilateral stimulation (BLS) while shifting the focus onto positive memory away from the traumatic event during the process.[30] For participants who struggled to maintain focus on a positive memory, they were guided to mentally visualize the fulfillment of a highly desired dream. One participant, who had difficulty vividly visualizing a positive event or engaging with an emotion strongly enough, was instructed to count backward from 100 in increments of four during the BLS. Following these interventions, a sharp drop in SUD scores was observed within the final three sets, which had previously shown no change. These findings suggest that focusing on a positive memory or mental imagery supports emotional regulation. Additionally, attentional distraction strategies such as blinking upon hearing the word "flash" or backward counting may activate working memory and the prefrontal cortex, thereby reducing the emotional intensity of the traumatic memory.[37-39]

The Flash Technique mitigates this risk by limiting direct exposure to the traumatic memory. In vulnerable populations or situations where acute stress is ongoing, direct exposure to traumatic content, even during sessions, can lead to emotional overload, increasing the risk of dissociation and retraumatization. Instead of prolonged exposure, participants briefly recall the traumatic event only between sets, helping them maintain a sense of distance, control and safety.[30] Moreover, the ability of the intervention to process multiple traumatic memories within a single session highlights its rapid and effective nature.[37] The positive results obtained from this group intervention suggest that both the sense of security fostered in the session environment and the shared experience of collective trauma among participants contribute to co-regulation. These findings align with existing literature on the effectiveness of single-session Flash group interventions in alleviating psychological issues such as post-traumatic stress and test anxiety. [31,34,36]

Thus, the Flash Technique group protocol appears to be a highly efficient and scalable intervention for large-scale disasters, particularly when resources such as time, workforce and space are limited. Its ability to be applied to a large number of individuals at once makes it particularly suitable for acute stress management in professional groups such as healthcare workers and first responders. This approach not only facilitates a rapid reduction in stress levels among trauma workers but also helps preserve their long-term psychological well-being and professional functionality.

Limitations

Although the findings of this study suggest that the Flash Technique may be an effective trauma intervention method, several methodological limitations should be considered. First, the small sample size and the absence of a control group are significant limitations in evaluating the effectiveness of the proposed technique. Second, the study relied solely on subjective measurement methods (SUD scores) to assess the intervention's effectiveness in reducing traumatic stress symptoms, without incorporating neurophysiological or standardized psychometric assessments. Subjective evaluations can be influenced by individuals' momentary emotional states, which may make it difficult to determine the

actual effect of the method. Future research incorporating physiological stress indicators and standard trauma assessment scales would strengthen the scientific basis of the intervention.

Additionally, as repeated measurements were not conducted, the long-term effects of the intervention were not assessed; only short-term effects were evaluated. Previous studies in the literature indicate that the effects of short-term interventions may diminish over time and trauma-focused interventions often require reassessment weeks or months later. Therefore, the lack of follow-up assessments to evaluate the intervention's long-term efficacy is another factor that limits the reliability of the findings.

Given these limitations, future studies are planned to address these gaps by including larger participant groups, more frequent and objective assessment methods and a control group to ensure a more comprehensive evaluation of the Flash Technique's effectiveness.

Conclusion

As a result, unlike traditional trauma interventions, the fact that it provides recovery without requiring direct exposure to traumatic content shows that the method can be safely applied in vulnerable individuals with low resilience and in populations under acute stress, such as field workers. Especially its applicability in group format, low intensity and prevention of cognitive-emotional overload are some of the reasons why it is effective even in a single session. This study shows that Flash Technique can be used as a fast and effective method to develop the mental health and professional functionality of trauma workers, especially in mass traumas such as earthquakes, where resources such as time, space and labor are limited. However, some limitations of the study should also be considered in terms of generalizability and reliability. In particular, small sample size, the lack of retesting and the use of only subjective measurements stand out as limitations.

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