Recent Traumatic Episode Protocol EMDR Applied Online for COVID-19-Related Symptoms of Turkish Health Care Workers Diagnosed with COVID-19-Related PTSD: A Pilot Study

ABSTRACT

Background: This study investigates the effect of the online Eye Movement Desensitization and Reprocessing Recent Traumatic Episode Protocol on posttraumatic stress disorder, anxiety, depression, and burnout symptoms in healthcare workers diagnosed with pandemic-related post-traumatic stress disorder.

Methods: The study included healthcare workers who applied to psychiatry outpatient clinics due to the psychiatric symptoms that developed related to the pandemic and who were diagnosed with post-traumatic stress disorder. The Beck Anxiety Inventory, Impact of Event Scale-Revised to evaluate the symptoms of post-traumatic stress disorder (avoidance, intrusion, and hyperarousal), Maslach Burnout Inventory, and Beck Depression Inventory were used for the assessment. The tests were administered 3 times (pre-treatment, post-treatment, and at 1-month follow-up).

Results: This study included 14 healthcare workers diagnosed with post-traumatic stress disorder; 2 (14.3%) physicians, 2 (14.3%) nurses, 4 (28.6%) other healthcare workers/medical staff, and 6 (42.8%) other healthcare workers/non-medical staff. There was a significant decrease in Impact of Event Scale-Revised total score, the intrusion and hyper-arousal sub-scores between T1 and T2 (\(P = .018; P = .005; P = .0005\), respectively) and between T1 and T3 (\(P < .001; P < .001; P < .001\), respectively), but there was no difference between T2 and T3 (\(P = .89\)). A significant difference was found in repeated measurements of both Beck Depression Inventory (\(P < .001\)) and Beck Anxiety Inventory (\(P < .001\)) scores. There was a significant difference in emotional exhaustion, one of the subscales of Maslach Burnout Inventory (\(P = .09\)). However, there was no significant difference in depersonalization (\(P = .48\)) and personal accomplishment (\(P = .66\)).

Conclusions: Recent Traumatic Episode Protocol appears to be capable of reducing symptoms of anxiety, depression, intrusion, and hyperarousal symptoms of post-traumatic stress disorder and emotional exhaustion when symptoms that developed are related to the pandemic in healthcare workers.

Keywords: Eye Movement Desensitization Reprocessing, COVID-19, pandemics, healthcare workers

Introduction

Since the end of December 2019, coronavirus disease 2019 (COVID-19) spread across the world with almost 180 million confirmed cases and about 3 million deaths by July 25, 2021.\(^1\) In this process, healthcare workers (HCWs) have undertaken the greatest burden. In addition to the existing complexity and difficulty of working as an HCW, considering the circumstances such as the risk of infecting relatives, inability to take care of their children, being set aside from their family, witnessing or hearing their colleague’s deaths, it is evident that the HCWs are exposed to critical psychological stress during the COVID 19 outbreak.\(^2,4\) Thus, in addition to the difficulties mentioned above, inadequate psychological precaution and

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Post-traumatic stress disorder is a mental disorder marked by avoidance distressing trauma reminders, intrusion symptoms (such as recurring images and dreams), hyper-arousal symptoms (such as sleep problems and concentration problems) and resulting in a significant loss of functionality. The prevalence of PTSD among healthcare workers ranges from 3.4% to 71.5%, depending on the target population in studies, course of the pandemic, and procedure used to assess the mental problems. Since this work involves intervention during ongoing trauma, it should be differentiated from PTSD after trauma has ended. The major difference between the 2 is that the former is characterized by a constant and possibly inevitable, stressful, and traumatic environment that fuels PTSD. It is supported by some studies that ongoing threatened PTSD may be associated with higher cortisol levels.

Burnout is a phenomenon characterized by reduced personal accomplishment, emotional exhaustion (running out of personal resources), and depersonalization (perception of excessive disconnection that reduces harmony in relationships unlike in the context of traumatic dissociation). During outbreaks, risk factors for adverse psychological reactions may be related to burnout. Indeed, coexisting acute stress has been shown to contribute to PTSD symptoms in frontline HCWs in COVID-19 patient care.

Eye Movement Desensitization and Reprocessing (EMDR) is an 8-stage psychotherapy technique based on the adaptive information processing (AIP) model to alleviate distress caused by traumatic memories. Francine Shapiro first proposed this strategy, claiming that rhythmic bilateral eye movements during periods of strategic exposure to stress stimuli can lessen the trauma reaction. Based on clinical observations, Shapiro created the AIP model, which explains how poorly processed psychological stressors from prior developmental experiences influence current emotional, behavioral, and cognitive phenomena that define our identity. As the clinical use of EMDR has expanded, numerous controlled, randomized studies have shown that EMDR is clinically effective for PTSD. In international guidelines, EMDR is currently recognized and recommended as first-line therapy for trauma. The EMDR R-TEP is a comprehensive, structured, and integrative recent trauma-focused protocol for early EMDR intervention (EEI). This was an 8-phase protocol including history-taking, preparation, assessment, desensitization, installation, search for body sensations, closing the session, and re-evaluation. It provides a mental health screening, which is useful for treating traumatic distress and preventing post-traumatic problems and trauma memory build-up.

Mental disorders such as anxiety, depression, insomnia, and burnout that may develop due to the stress caused by the pandemic may induce a substantial slowdown in motivation and productivity, even neglect of self-protection in HCWs. For this reason, the importance of mental support to HCWs for the sustainability of health systems has been emphasized since the beginning of the pandemic. Social distancing measures implemented in a number of countries to reduce the diffusion of COVID-19 are forcing clinicians to offer online treatments. For this reason, some online therapies have been shown to be effective. A meta-analysis stated that online cognitive behavioral therapy (CBT) practice for PTSD is promising. The online short group therapy intervention according to the EMDR protocol was found to be effective in a clinical population of adolescents and young adults in improving anxiety levels, particularly intrusiveness and hyperarousal symptoms of post-traumatic stress. It has been reported that the URG-EMDR protocol in the telemental health setting provides an improvement in anxiety, depression, and reduction in perceived disturbance assessed with Subjective Units of Disturbance scale even in a single session. The URG-EMDR used in that study was a single session early psychological intervention that included standard EMDR phases lasting an average of 2 hours and 14 minutes with no questions about positive cognition and somatic. The quality of studies indicating the effectiveness of online EMDR therapy is still limited in the literature. There are many application protocols of EMDR therapy in the literature. Some of these were created for early EEI, and a favorite is the EMDR Recent Traumatic Episode Protocol (EDMR R-TEP). Recent Traumatic Episode Protocol is a protocol that combines the “Recent Event” and “eye movement desensitization” protocols, making the entire episode’s (from the event to the present) strategic focus within its expand. In this study, we used the online EMDR R-TEP protocol in HCWs diagnosed with PTSD associated with the pandemic to evaluate its effect on PTSD, anxiety, depression, and burnout symptoms.

**Methods**

**Participants**

The study was conducted at the Bağcılar Training And Research Hospital between September 1, 2020, and December 1, 2020. The study population was the HCWs who applied to psychiatry outpatient clinic due to the psychiatric symptoms that developed related to the pandemic (e.g., working in the COVID-19 intensive care or clinics where COVID-19-positive patients are followed, being quarantined, having a COVID-19 infection in self or his/her family including having symptoms of the disease along with a positive COVID-19 test). In this study aiming to investigate the effect of the online EMDR R-TEP protocol on PTSD, anxiety, depression, and burnout symptoms in HCWs diagnosed with pandemic-related PTSD, the effect size (\(i = 0.35\)) was chosen as statistically significant and the minimum number of participants was determined as 5 (\(\alpha = 0.05\), \(1 – \beta = 0.80\)) based on another EMDR study in Turkey. Analysis was performed in G power versions 3.9.1. Considering dropouts, this study started with 16 participants who applied for treatment, met the study criteria, and voluntarily agreed to participate.
Inclusion criteria for the study were (1) being diagnosed with PTSD according to The Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 criteria by the psychiatrists, (2) Being between the ages of 18 and 65 years old, (3) not taking any psychotropic drugs and/or psychotherapy, and (4) accepting to participate in the study voluntarily. Healthcare workers who had serious mental or physical illness, comorbid schizophrenia, other psychotic disorders, severe depression with suicidal ideation or with psychotic features, bipolar spectrum disorders, organic brain syndrome, pronounced personality disorder, and substance and/or alcohol dependence/abuse were excluded from the study. The informed consent forms were taken from the participants. The research was approved by the Bagcilar Research and Training Hospital’s Ethical Committee (2020.1.01.099. r1.147). We have obtained permission from the Ministry of Health in this study related to COVID-19. This study complied with the Declaration of Helsinki. After informed consent forms were signed, 1 participant dropped out of the study before therapy began and 1 participant after the first interview. The study was completed with 14 participants.

Procedure and Treatments

The EMDR R-TEP was applied online to the HCWs included in the study. No other psychotherapeutic agent was initiated for the patients who were included in the study. The EMDR R-TEP includes an adaptation of the eye movement desensitization and recent event protocols, with additional precautions for containment and security. It provides guidelines for a first therapy contract that uses the bare minimum of contemporary trauma-focused intervention modalities. The protocol has the ability to provide quick treatment results, usually in 2-4 sessions. Because the follow-up is considered crucial, a minimum of 2 sessions is required. The intervention can take place on consecutive days, which is beneficial for high-distress individuals and field teams. Because the experiences have not yet been integrated or adaptively processed, the initial crucial occurrence and its painful aftermath are regarded as a continuous traumatic episode continuum. The episode includes a number of traumatic incidents, ranging from the original occurrence to the present day, as well as multiple targets of disturbance. Points of disturbance are the name given to these target components (PoDs). The client is taught scanning and self-stabilization exercises. The client is invited to speak out loud the traumatic tale of the occurrence while getting bilateral stimulation, preferentially involving eye movements for preserving dual consciousness and anchoring in the present safety. This is the first stage of processing that allows certain gaps in the traumatic story to be filled in. Then comes the "Google search," which entails a non-consecutive inner scanning of the section in order to find a PoD. As with the conventional EMDR technique, this target fragment is appraised and subsequently processed using strategies that keep associations within the traumatic episode’s bounds. Any connections made during the episode are acknowledged, but the client is instructed to return to goal to refocus and check the Subjective Units of Disturbance Scale (SUD). If the client does not achieve an adaptable resolution, client can be invited to work with the conventional EMDR protocol for more extended processing, with the client’s consent. The EMD technique, which incorporates a restricted associative focus just on the target/fragment, is the best way to process intrusive fragments. This is usually a quick treatment that can help reduce the disruption caused by invasive pieces quickly. The therapist will install a PC if the SUD of the PoD target is decreased to a practical level. The therapist moves to the episode level for completion once no more fragments are found in the Google search. The entire episode’s SUD is verified, and if ecological, the episode’s PC is determined and installed. After that, the first body scan is performed, and the treatment is completed with stabilizing operations. Each treatment session is ended with a vigorous closure of resources to ensure that containment is maintained. The EMDR R-TEP protocol is based on a theoretical understanding of the nature of the AIP system’s memory consolidation process following recent trauma. From fragment to identity, a shift in processing focus is suggested. The EMD technique with a restricted and concentrated border on connections connected solely to the intrusive target/fragment (PoD) promotes contained, concise processing, which matches this stage. The EMDR method with a broader border of associations connected to the present traumatic incident is appropriate, since it keeps the processing restricted and episode-focused. With unlimited free associations and increased cognitive organization, this could serve as a transition to the wide focus of the EMDR classical protocol. Retrospective and future adaptive connections to past traumatic memory networks are supported by episode adaptive analysis. This results in coping, self-affirmation, and resilience.

Therapists were selected from EMDR Turkey Trauma Recovery Group (EMDR Turkey Humanitarian Assistance Program) as volunteer therapists for this study. The therapists were selected according to the criteria of having completed at least EMDR basic training part II, received training in the application of the R-TEP protocol, and had experience in the application of the protocol in previous volunteer studies. In addition, therapists were given 2 hours of online training on the online EMDR R-TEP application before the application. The therapists received regular and daily 1 hour group supervision by EMDR EUROPE Accredited Consultants and worked in the presence of a supervisor. Thus, it was ensured that every client was treated in the same way. Based on the average of previous humanitarian-aid sessions, the number of therapy sessions to be given within the scope of the study by the EMDR Turkey Trauma Recovery Group Supervision and Training Commission was planned as 90 minutes and 5 consecutive sessions. All participants completed the 5 consecutive therapy sessions twice weekly.

Measures

The assessment tools were applied to the HCWs 3 times (pre-treatment, post-treatment, and 1-month follow-up) by the same accredited consultant.

Sociodemographic and Characteristics Form

The sociodemographic information form consisted of 9 questions aiming to collect information in line with the purpose of the study, such as age, gender, marital status, weekly working hours during the pandemic, and job (physician, nurse, and other HCWs (other HCWs include medical staff such as surgery technician, anesthesia technician, laboratory technician, etc. and non-medical staff such as secretary, security staff, cleaning staff)) of participants were determined. Information on stressful events (family members who have been diagnosed with COVID-19 and being quarantined and diagnosed with COVID-19) that were experienced during the pandemic was obtained.
The Assessment Tools Were Administered Per 3 Times (Pre-treatment, Posttreatment, and at 1-Month Follow-Up)

The Impact of Event Scale-Revised: This scale measures psychological distress. It is a 22-item and 5-point scale ranging from 0 to 4; higher total scores indicate severe distress. The Impact of Event Scale-Revised (IES-R) measures the 3 major symptoms of distress: avoidance (8 items), intrusion (7 items), and hyperarousal (7 items).26 The validity and reliability studies of the Turkish version of the IES-R were performed by Corapcioglu et al.27

Beck Anxiety Inventory: Beck Anxiety Inventory (BAI) is a self-report scale that aims to measure the density of anxiety symptoms.28 The scores range from 0 to 63. Higher scores show severe anxiety. The Turkish validation study of this scale was conducted by Ulusoy et al.29

The Beck Depression Inventory: Beck Depression Inventory (BDI) is a clinical scale developed by Beck et al.30 (1961) to evaluate depressive symptoms. The scores range from 0 to 63. Higher scores show severe depression. The Turkish version of this scale was adapted by Hisli.31

Maslach Burnout Inventory: This scale was developed by Maslach and Jackson (1981).32 The sub-dimensions of the burnout scale were divided into 3 groups emotional exhaustion, depersonalization, and personal accomplishment. The high score obtained from the emotional exhaustion and depersonalization and the low score obtained from the personal accomplishment indicated high burnout. The Turkish adaptation of the scale was performed on health professionals by Ergin (1995)33 and the original scale was changed to a 5-point Likert scale. On the scale, (0) never, (1) very rare, (2) sometimes, (3) most of the time, (4) always was used as a 5-point rating.

Statistical Analysis
Median values, 25%-75% interquartile ranges, and mean (Standard Deviation) for quantitative variables are presented. For categorical variables, frequencies and percentages were presented. A non-parametric Friedman’s test was conducted to test the efficacy of the treatment for decreasing IES-R, BDI, BAI, and MBI scores. All the analyses were 2-sided with α of 0.05 and with Bonferroni correction test. Statistical Package for the Social Sciences (SPSS) version 26.0 (IBM SPSS Corp.; Armonk, NY, USA) was used for the analysis.

Results
This study included totally 14 HCWs diagnosed with PTSD as 2 (14.3%) physician, 2 (14.3%) nurse, 4 (28.6%) other HCWs/medical staff, and 6 (42.8%) other HCWs/non-medical staff. Eleven (78.6%) of them were women, 9 (64.3%) of them were married, and their mean age was 34.14 (SD = 8.06). During the pandemic, 5 (28.6%) of the participants and 1 of the family members of 2 participants (14.3%) were diagnosed with COVID-19 and 7 HCWs (5.0%) were quarantined. Average work experience (years) was 9.13 (SD = 7.38) and average weekly working hours during the pandemic was 45.42 (SD = 5.04) (Table 1).

Evaluation of the differences between repeated measurements (T1, pre-test; T2, post-test; T3, 1-month follow-up) was made with the Friedman test. While there was a significant difference between the measurements in terms of IES-R total score \(P < .001\), intrusion \(P < .001\), and hyperarousal \(P < .001\) subscores. Avoidance \(P = .211\) sub scores were not significantly different \(P = .21\) (Table 2).

There was a significant decrease in IES-R total score and the intrusion and hyperarousal subscore between T1 and T2 \(P = .018; P = .005; P = .005\), respectively) and between T1 and T3 (the median difference, \(P < .001; P < .001; P < .001\), respectively), but there was no difference between T2 and T3 (Table 2).

A significant difference was found in repeated measurements of both BDI \(P < .001\) and BAI \(P < .001\) scores. There was a significant decrease in BDI and BAI scores between T1 and T2 (the median difference, \(P = .002; P = .024\), respectively) and between T1 and T3 (the median difference, \(P < .001; P < .001\), respectively), but there was no significant difference between T2 and T3 (\(P = 1.00\) for both BDI and BAI) (Table 2).

Discussion
In this study, in which the online application of the R-TEP protocol on HCWs diagnosed with PTSD associated with the pandemic was evaluated, PTSD symptom severity and PTSD symptom clusters, intrusion, and hyperarousal symptom severity, it was determined that the severity of anxiety, depression, and emotional exhaustion symptoms decreased significantly both in the first week after the application and in the first month of follow-up compared to the pre-treatment. It was observed that there was no significant change in

| Table 1. Sociodemographic and Work-Related Characteristics of Participants |
|-------------------|---------------------|
| Variables         | n (%)               |
| Sex               |                     |
| Female            | 11 (78.6)           |
| Male              | 3 (21.4)            |
| Marital status    |                     |
| Unmarried         | 5 (35.7)            |
| Married           | 9 (64.3)            |
| Professions       |                     |
| Physician         | 2 (14.3)            |
| Nurse             | 2 (14.3)            |
| Other HCWs/medical staff | 4 (28.6) |
| Other HCWs/non-medical staff | 6 (42.8) |
| Family members who have been diagnosed with COVID-19 | 2 (14.3) |
| Being quarantined | 7 (5.0)             |
| Diagnosed with COVID-19 | 5 (28.6) |

HCWS, healthcare workers; COVID-19, coronavirus disease 2019; SD, standard deviation.
depersonalization and personal accomplishment scores of avoidance symptom cluster and burnout in these measurements.

In a recent meta-analysis about the effectiveness of psychological therapies for PTSD, trauma-focused CBT, and EMDR are recommended as safety as first-line treatments among trauma-focused CBT, EMDR, brief eclectic psychotherapy, cognitive therapy, narrative exposure therapy, prolonged exposure, single-session CBT, reconsolidation of traumatic memories, non-trauma-focused CBT, supportive counseling, present-centered therapy, psychodynamic therapy, written exposure therapy, virtual reality therapy, observed and experimental integration, relaxation training, group CBT, group interpersonal therapy, and guided internet-based trauma-focused CBT. Among the trauma-focused CBTs evaluated in a review by Lewis et al. cognitive processing therapy and prolonged exposure and cognitive therapy were recommended as treatments of choice. Studies on the effectiveness of various treatment protocols in the protection and/or treatment of HCWs during the current pandemic process have begun to be reported. Moench et al. evaluated the effectiveness of Self-Care Traumatic Episode Protocol (STEP) for mental health clinicians in the context of COVID-19 in their randomized clinical trial. They showed that STEP was effective in increasing self-efficacy and improving symptoms of anxiety, depression, and stress according to “Self-Efficacy Scale” and “Depression and Anxiety Stress Scale” to facilitate the processing of a recent, ongoing traumatic episode. Tarquinio et al. evaluated the effectiveness of URG-EMDR in HCWs suffering from conditions imposed by the COVID-19 pandemic. However, the participants in this study were not directly diagnosed with PTSD but had been exposed to one or several recent occupational events related to the COVID-19 pandemic and had associated clinical symptoms of an anxiety or depressive nature. In this study, URG-EMDR was found to be effective in decreasing anxiety and depression scores. Perri et al. evaluated the effectiveness of 2 short treatments in HCWs and individuals diagnosed with acute stress disorder and suffering from conditions imposed by the COVID-19 pandemic. In this study, EMDR and trauma-focused CBT were found to be equally effective to reduce anxiety, depressive, and traumatic symptoms. It also stressed the importance of assessment and follow-up at the earliest stage of distress to manage ongoing trauma associated with quarantine or illness.

In our literature review, we could not find any new study results that directly evaluated the efficacy of R-TEP during the COVID-19 pandemic. The results of the CovEMERALD study, in which the study protocol was reported and in which COVID-19-related critical illness, and also PTSD, anxiety, and depression were investigated, have not been published. However, successful results of the R-TEP protocol have been reported in different trauma patients. The URGent EMDR protocol that based on the combination of R-TEP, modified abridged EMDR, and emergency response protocol of Quinn was effectively used in 17 female rape victims within 24-78 hours after their aggression. Irish reported the usefulness and effectiveness of the R-TEP protocol in 1 case who was experienced mental distress following the mass casualty shooting. Tofani et al. assessed the use of the R-TEP protocol with 3 different clients: a kid with a chronic disease, a woman who has experienced a profound loss, and a teenager who has self-harmed. They concluded that the value of identifying and treating intrusive fragments as well as the procedure’s incisiveness in reducing intrusive sensorimotor disturbance using an initial EMD strategy is demonstrated. Saltini et al. examined the effects of R-TEP administered within 3 months of a traumatic incident to a large group of people who were affected by the earthquake that struck Emilia Romagna in 2012. They found that in both the early (treated within 1 month after the earthquake) and late treatment samples (treated after the first month from the earthquake), post-treatment IES-R average scores were considerably lower than baseline.

When we examine early psychological interventions for ongoing traumas, a study reported that prolonged exposure and cognitive therapy resulted in significant reductions in PTSD symptoms, including intrusion, hyperarousal, and avoidance in recent survivors from the Jerusalem Trauma. In our study, R-TEP resulted in reductions in anxiety, depression,
The early stages of trauma are seldom investigated. So, analyzing the information processing of trauma that impacts a large number of people, such as a pandemic, could be especially useful in understanding the symptoms and treatment of acute stress. This study shows that the R-TEP protocol is effective in reducing the symptoms of anxiety, depression, and burnout, especially emotional exhaustion, when symptoms related to the pandemic develop in HCWs. Recent Traumatic Episode Protocol can be used as an effective approach to HCWs who are considered at risk in a pandemic-related traumatic event, in order to protect them from burnout, anxiety, and depression.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of Bagcilar Research and Training Hospital University, (Approval No: 2020.1.01.099.r1.147).

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Peer-Review: Externally peer-reviewed.

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