

The effects of bilateral lights on the processing of traumatic memories: A pilot study

Nobuhiko ASAI (*International and psychological support association, Japan*)

Yoshikazu FUKUI (*Konan University, Japan*)

Hiroaki TAMURA (*Osaka Electro-Communication University, Japan*)

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Eye Movement Desensitization and Reprocessing (EMDR), through all the research that has taken place until now, has been demonstrated to be an effective bilateral stimulus (hereinafter referred to as BLS) in the desensitization and reprocessing of trauma. Research has confirmed, however, that BLS does not necessarily need eye movement but can also be conducted with left and right alternating auditory stimuli and bilateral tapping on the skin for stimulation as well (Shapiro, 1994). It is also suggested that there is a difference between the stimulation effectiveness of eye movements in comparison with other types of stimuli, with current research showing that association is best facilitated when using eye movement, surpassing the associative connections we can make by our sense of touch and our auditory sense respectively. Such findings have led to the conclusion that stimulation effectiveness is the strongest in eye movement-based BLS compared with other sensory modalities.

However, in clinical situations, there are many instances in which it is difficult to perform the eye movements themselves due to the patients being infants or intellectually impaired. In such cases, therapists strive to work around difficulties by slowing eye movement speed, or by implementing other types of stimuli using BLS.

Speaking of our eyes, we must not forget that they are sensory receptors of light, just as our ears are sensory receptors of sound, and our skin is a sensory receptor of touch and temperature. Nonetheless, in the current clinical practice of EMDR, although BLS is performed using a sound stimulus to the ear and a tapping stimulus to the skin, light stimulation is not currently used for the eyes in EMDR. Instead, this type of BLS is conducted in the form of eye movements to the left and right. Considering that our eyes are sensory receptors of light, it follows that the use of light as a stimulus could provide a more effective way of conducting ocular BLS.

In addition, by using light stimulation, it seems that there is a possibility that EMDR can be effectively used even for cases where it is difficult to perform eye movements, such as in the case of children and patients with intellectual impairment. With light stimulation, it may be possible to reprocess memory and maximize association effectiveness. Nevertheless, as far as the authors know, the effect of using light stimulation as BLS has not been studied so far.

Therefore, in this study, we used light stimulation as BLS in EMDR as a pilot study performed with both eye movement and light stimulation on a number of participants. The objective was to compare the results and efficacy of both forms of trauma desensitization and verify the possibility of using

light stimulation as BLS efficiently. Both procedures in the study were conducted following EMDR standard protocols.

II. Method

1. Subjects: 4 participants (Females=4, Mean=38) volunteered to be part of the study. Two sessions were conducted for each participant, one using light as a bilateral stimulus and the other using eye movement stimulation; both procedures were conducted in accordance with the standard protocol of EMDR. Counter balance measurement was taken into consideration as to which condition was to be executed first. The participants were asked to select near equal trauma memories they had, based on a SUD scale. Such traumas were desensitized at different instances. To successfully accomplish the application of the light stimulus on the participants, it was necessary to develop a special goggle for this research, and subjects were irradiated with the light on the right and left eye alternatively, for a period of 1 second, while keeping both of their eyes closed.

III. Results

The results found that effectiveness of trauma memory desensitization was almost equal for the light stimulation and eye movement stimulation methods of BLS. Upon concluding the study, the participants were able to provide both positive as well as negative feedback in regard to the use of light stimulation. Positively, the participants mentioned that "light stimulation helped me focus better because I was able to keep my eyes closed during the process." Negatively, some of them stated that "keeping my eyes closed made my mind focus too much on the traumatic memory and it was challenging to stay aware of my present state while going through the procedure." Others also said that "the light was bit too strong for me even though I had my eyes closed."

In this study, we examined whether bilateral light stimulation has the same effect as bilateral eye movement used in standard protocols. The results showed that bilateral light stimulation has an effect comparable to eye movement stimulus, although maintaining focus equilibrium was found to be difficult for some participants, as the procedure was conducted with their eyes closed. In the future, we need to contrive methods to promote the balance of our clients' dual attention while using bilateral light stimulation. Periodically speaking to our clients to strengthen their connection with the present could be a measure used to help them maintain dual attention. Moreover, the speed of bilateral light stimulation used in this study was somewhat slower than the standard eye movement stimulation, so it is necessary to reconsider the speed of both conditions in order to optimize its use in the standard protocol of EMDR. Consequently, it will be necessary to devise safety measures for the introduction of bilateral light stimulation to clinical groups and to examine the effectiveness of this form of BLS with further research.