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Eye movements and emotions: Efficacy of novel eye-movement protocol Tholáge

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Abstract

Background: Eye-movement protocols are considered empirical, evidence-based treatments for mental disorders, and there is ample research around their efficacy. However, little research as to why these approaches are effective exists. In this study, an emerging approach, titled Tholáge neuropsychotherapy (called RELEASE at the time of the study), is explained and tested through an exploratory mixed method experiment.

Aims: A new theory on the efficacy of eye-movement treatments is also presented, exploring existing research and contending that specific emotions are associated with specific eye movements. If proven, it may be possible to use eye movements to access specific emotions, for therapeutic outcomes.

Methods: In this experiment, there were 14 participants ($n=14$) who experienced Tholáge as a treatment for depression. Two one-way ANOVAs were conducted and found to be statistically significant and have a large effect size. Qualitative responses were shared from participants, and themes were highlighted.

Results: The ANOVAs and qualitative responses demonstrated that Tholáge was effective with emotional regulation, and participants showed improvement on measures of affect and depression (the Positive and Negative Affect Schedule and Beck Depression Inventory).

Discussion: These results show that there is potential for this new eye-movement treatment in reducing symptoms of depression.

Conclusion: These findings can help practitioners in treatment of depression and potentially other diagnoses as well. There needs to be more research studies conducted on the efficacy of this treatment protocol.

KEYWORDS

emerging approach, emotion regulation, emotion suppression, eye movement, innovative treatments

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1 | INTRODUCTION

The eyes may be physiological windows to the metaphorical soul or, in this case, emotions. Psychotherapeutic treatments incorporating eye movements are a growing area of research and practice, which can address client difficulties arising from traumatic experiences (Lee & Cuijpers, 2013). The retina and optic nerve are made of brain tissue (Berry et al., 2008). The biological connection between the brain and eyes may be key to understanding how treatments involving eye movements, such as eye-movement desensitisation and reprocessing (EMDR), are effective in treating trauma, depression and other diagnoses (Barrowcliff et al., 2004). This connection also underlies a novel protocol, which is one part of a larger treatment termed Tholáge (formerly called RELEASE).

This article presents exploratory research on the effectiveness of the novel eye-movement protocol used in Tholáge. The development of this protocol is based on the National Institutes of Health's (NIH) six-stage model for developing novel behavioural change interventions (Onken, 2022; Onken et al., 2014). The basic science behind the protocol of Tholáge is that different eye movements are associated with specific neurological reactions and emotions. For example, the side-to-side eye movements of EMDR have been shown to suppress the amygdala, excess threat assessment and the emotion of fear (de Voogd et al., 2018; Jung & Huberman, 2018; Macé et al., 2018). Such lateralised eye movements, done naturally, are theorised by the present authors to also *access and explore* the emotion of fear, such as to search the horizon for potential signs of danger, perhaps invoking trust. The novel protocol discussed in this paper is based on research into the known and theorised psycho-physiological effects of *the eyes looking upward*—activating effects involving the locus coeruleus (LC) and norepinephrine (NE; Matsuo et al., 2015), which may implicate psychological processes through which the emotion of anger is accessed and engaged.

The proposed protocol arises from known research into the neurophysiological response to the eyes looking up and from the hypothesis that by performing upward eye movement, clients may be able to stimulate psycho-physiological processes that help them to access and engage with strong feelings, most notably in the current protocol, anger they may be suppressing to their detriment. Freud remarked that depression is 'anger turned inward' (McGinn & Sanderson, 2001), which may support the research showing that accessing suppressed emotions alleviates depressive symptoms. This protocol is supported by scholarly research consisting of research on eye movements as they relate to emotion regulation (ER), research on existing eye-movement interventions, such as EMDR, and research on the neurobiology of eye movements, eye exercises and somatic bodywork.

2 | EYE MOVEMENTS AND THEIR CONNECTION TO EMOTIONAL REGULATION

Eyesight is directional, and the direction of sight impacts emotion (Chrones et al., 2023; Semyonov et al., 2021). Upward eye

Implications for practice and policy

- There was overall improvement on both instruments used within the study, which could indicate that Tholáge lowers depressive symptoms and increases ER. The high effect size of both statistical analyses indicates that a large percentage of the variance on both instruments is due to the treatment, indicating that Tholáge could be effective in treating depressive symptoms as measured by the BDI.
- Participants reported high overall efficacy of treatment and a deepened sense of accessing, processing and releasing emotions, as indicated by depth of emotions and their overall lived experience of completing Tholáge.
- Improved mood and presence of ER indicates that the PANAS was also an effective tool in measuring ER and the efficacy of Tholáge. Additionally, participants achieved a better mood as indicated by self-report, or the presence of more positive emotions and the absence of difficult emotions.
- The qualitative components of this study also confirm that there could be significant clinical implications, and this tool could be helpful to counsellors around the world. It is a simple protocol that has multiple benefits clinically. Clients were overall highly positive about the effects in their lives when using the protocol.

movements called eye rolls are well-known to be associated with anger, or disgust (Miceli & Castelfranchi, 2018). Additionally, a downward eye position is long considered to be associated with expression of sadness (Semyonov et al., 2021).

Studies show association between eye movement and accessibility of emotions and cognitions (Harezlak & Kasprowki, 2018). Eye movements and ER are also connected (Harricharan et al., 2019). ER is contextual; persons use internal skills to control affect expression either precipitating emotion, in an antecedent-focussed format, or after emotion, in a response-focussed format (Weissman et al., 2019). Emotion suppression (ES) is response-focussed; emotion is felt, and subsequently, internal skills are used to manage and divert the behavioural response (Weissman et al., 2019).

There is a well-established relationship between emotion and psychopathology (Fernandez et al., 2016; Pastuszek-Draxler & Gierowski, 2017). ES is considered a mainly maladaptive ER strategy, and this is further emphasised by the connection between ES and psychopathology (Aldao et al., 2010). ES plays a role in depressive disorders (Aldao et al., 2010; Dryman & Heimberg, 2018), anxious disorders (Dryman & Heimberg, 2018), eating disorders (Aldao et al., 2010; Naumann et al., 2016) and trauma disorders (Weissman et al., 2019). ES can be necessary for survival, and understandably, people engage in ES as a necessary coping strategy to survive, even if it is at the cost of exhibiting depressive symptoms. However, ES is

also seen as a necessary and even adaptive coping strategy in childhood, due to contextual factors, culture and emotional development (Gross & Cassidy, 2019), a coping strategy that becomes less adaptive and healthy in adulthood when individuals can survive on their own.

3 | CURRENT EYE-MOVEMENT INTERVENTIONS

Therapeutic processes incorporating eye movements are growing in the research. Five of the most cited interventions are as follows: EMDR, brainspotting (BSP), accelerated resolution therapy (ART), rapid resolution therapy (RRT) and eye movement integration (EMI) therapy. This section examines these treatments' efficacies, as well as the differences between their eye movements and those of Tholáge.

The eye movements of Tholáge involve the client looking up, with minimal upward head movement (as the head is held mainly straight, in place), and then holding the eyes in that position for a set time. Matsuo et al. (2015) studied the eyes lifted to 60 degrees up from straight ahead and held there for at least 10s, which was shown to produce an activating effect on the autonomic nervous system and on specific brain areas, described in more detail later. Tholáge uses this eye movement/position for longer than 10s, to allow clients time to explore the trauma they are thinking about and any strong, empowering emotions that might be associated with it. The full methodology used in the study also will be detailed further later in this paper.

3.1 | EMDR

EMDR uses bilateral stimulation, including lateralised eye movements, to treat PTSD, depression and other mental disorders (Valiente-Gómez et al., 2017). The treatment is shown to suppress strong affective responses occurring in accessing traumatic memories (Lee & Cuijpers, 2013; Schubert et al., 2016; van der Kolk, 2014). Beyond lateralised eye movements, other forms of bilateral stimulation, such as those involving touch or sound (i.e. tapping by the clinician, pulsing devices and headphones), can also be used with great efficacy (Shapiro, 2018). Efficacy of EMDR is established through results found in treating PTSD caused by a range of traumatic experiences (Thomaes et al., 2016). The eye movements of Tholáge are different from the eye movements of EMDR in that EMDR uses side-to-side eye movements done in repetition, whereas Tholáge uses an upward eye position held in place for longer than 10s, per the research by Matsuo et al. (2015). The neuroscience behind the eye movements of both EMDR and Tholáge is provided later in this article.

3.2 | Other eye-movement therapies

There are four other treatment modalities to note, protocols that have shown efficacy for processing trauma, and some in treating

other disorders. They are as follows: BSP in treating trauma and depression (Shapiro & Brown, 2019), ART in treating trauma and depression (Kip et al., 2013), RRT in treating trauma (Hames, 2010) and EMI in treating trauma (van der Spuy & van Breda, 2019). However, the research on why these treatments are effective has multiple theories, all of which lack consistent conclusions (Landin-Romero et al., 2018). BSP has less evidence available in the literature than EMDR; however, it too involves some use of bilateral stimulation, though strictly auditorily, through a headset (D'Antoni et al., 2022). Unlike EMDR, the eye movements of BSP are guided by the clinician, who uses a pointer to move the eye through various positions throughout the visual field until the client reports a somatic response or the clinician notices an eye or somatic response, which indicates a level of nervous system activation not seen in the other eye positions, as well as a portal or entryway to treat the trauma that underlies that activation (D'Antoni et al., 2022). While this revelatory 'brainspot' may occur at the top of the visual field, the eye movements of BSP are different from the Tholáge eye movements; in Tholáge, the eye is lifted on the client's own (with spoken guidance from the therapist) and lifted only to that one position, 60 degrees raised from straight ahead and then the client holds the eyes there for a set time while thinking of the trauma.

Additionally, further eye-movement differences can be seen between Tholáge and the remaining treatments previously mentioned. ART is considered to have similarities to EMDR, including the eye movements. RRT involves speaking of the trauma while the clinician and client hand a ball back and forth, and the client's eyes follow the ball. EMI uses numerous eye-movement patterns, as physically guided by the clinician.

4 | DEVELOPMENT ETHICS AND FRAMEWORK

When creating novel interventions, it is important to consider ethics. The ACA Code of Ethics (2014) provides guidance on creating new techniques, specifically in C.7.b, in which development and innovation are highlighted. ACA (2014, p. 10) requires that 'potential risks, benefits and ethical considerations' be explained and discussed prior to using the emerging protocol. Additionally, counsellors must try to minimise risk when using these procedures (ACA, 2014).

When creating and implementing new interventions, the NIH's six-stage model of intervention development (Onken, 2022; Onken et al., 2014) provides a process to guide the development of the Tholáge protocol, as translational research, which indicates research intended to use in practice. The model describes conducting basic research and establishing the basic science behind the intervention (Stage 0), intervention generation/refinement (Stage 1), feasibility of intervention in research settings (Stage II), efficacy in natural settings (Stage III), effectiveness (Stage IV), and implementation and dissemination (Stage V) (Onken et al., 2014). Given the basic science of the eye and eye movements, the

Tholáge model is an approach in the first stage of development, intended to integrate into clinical practice. The basic science required in Stage 0 is below.

5 | THE NEUROBIOLOGY OF EYE MOVEMENTS

It is important to understand the neurobiological connections between the eyes/eye movements and emotions/ER, especially those connections that are nonvisual. As stated, the retinas and optic nerves are made of brain tissue (Berry et al., 2008). The nonvisual connections between the retinas and brain are literal and countless, occurring throughout the brain, including numerous areas in the limbic system, known for the regulation of emotion and behaviour (Fernandez et al., 2018; Ospri et al., 2017). This direct communication is sparked by light, even in blind people, though, again, it is not vision related (Ospri et al., 2017). This nonvisual communication directly impacts the body's circadian clock, arousal and mood (Fernandez et al., 2018; Ospri et al., 2017).

5.1 | The literal connection between eyes and brain

Working largely without conscious awareness, these nonvisual pathways work in both directions, from eyes to brain, and vice versa (Zelinsky, 2010). The communication occurs through axons originating from neurons at both ends of each path, via the optic nerve (Csáki et al., 2015; Köves et al., 2016). Light activates these nonvisual pathways through retinal ganglion cells (RGCs), the cells or neurons of the retinas (Zelinsky, 2018). All RGCs were originally thought to communicate with the photosensitive rods and cones used in *vision only* and to transmit *visual information, solely*, to the brain (Sanes & Masland, 2015). Later, a new type of RGC was discovered, which is light-sensitive and represents a third type of photoreceptor cell beyond the well-known rods and cones used in vision, a type of cell used for nonvisual purposes, including those related to mood (Berson et al., 2002; Fernandez et al., 2018; Ospri et al., 2017). These RGCs are known as intrinsically photosensitive RGCs (ipRGCs). They project their axons directly to parts of the amygdala and other mood-modulating areas of the limbic system (Ospri et al., 2017).

5.2 | Neurochemicals released by the retinas and retino-limbic pathways

The majority of two-way, retino-limbic paths known are glutamatergic, gamma-aminobutyric-acid- or GABA-ergic (Rio et al., 2003), or serotonergic (Ospri et al., 2017). In general, the main neurotransmitter expressed by ipRGCs is glutamate, and ipRGCs are associated with mood management (Do, 2019). The

neuromodulators expressed by these nonvisual pathways and ipRGCs connect the emotion-related functions of these paths. The neurotransmitters of glutamate, GABA and serotonin are included in theories on the origins of depression (Field et al., 2019). Furthermore, specifically, the 'glutamate theory of depression'—a recently developed neurobiology-rooted theory on the causes of depression—which states increased levels of glutamate mediate an increased rate of neurotransmission and the creation of new synapses, thus impacting both the present and long-term mental condition of clients (Field et al., 2019), illustrates how activation of ipRGCs through eye movements might lessen depressive symptoms.

5.3 | The neuroscience of side-to-side eye movements

There is evidence of a biological connection between the brain and eye movements supporting traumatic memory access and ER (Harricharan et al., 2019). For example, EMDR uses horizontal eye movements to ease the experience of traumatic memory recall; the eye movements reduce sharpness and emotional intensity of those memories (Lee & Cuijpers, 2013). The amygdala, which houses the emotion of fear and the evaluation of danger, is deactivated when lateralised eye movements are applied (de Voogd et al., 2018; Jung & Huberman, 2018). ER is strengthened through eye movements, as the parts of the brain responsible for vision are suppressed and activation in the dorsolateral prefrontal cortex rises (Thomaes et al., 2016).

5.4 | Neuroscience of upward eye movements

Additionally, other specific eye movements have been shown to cause their own neurobiological reactions in the brain, related to ER. For example—and most relevant to this study—research shows moving the eyes upward and holding them up for at least 10s activates the locus coeruleus, or LC (Matsuo et al., 2015), a powerful area which, in turn, reaches out to numerous other areas throughout the brain, saturating them with norepinephrine (NE) and activating and awakening them (Poe et al., 2020). NE is a neurotransmitter known to have antidepressant properties (Hajós et al., 2004). In fact, the LC is the main producer of NE in the nervous system (Breton-Provencher et al., 2021), and it helps manage nervous system activation and other behavioural and sensory aspects (Poe et al., 2020). The reach of the LC is great; it communicates with areas throughout the brain, as well as the spinal cord (Breton-Provencher et al., 2021). The LC has a strong correlation with mental disorders; importantly, for this study, malfunctions of LC—and its ability to release NE—are believed to play a part in depression and numerous other mental disorders (Poe et al., 2020). In fact, physical interventions

have demonstrated a positive impact on mental disorders, such as depression, by manipulating the LC/NE system, with little invasiveness (Poe et al., 2020). This shows the strong connection between depression and the LC/NE, and, indeed, Poe et al. (2020) state more research is needed on the manipulation of the LC for the treatment of psychiatric disorders in general.

Furthermore, the activation of the LC and resulting release of NE stimulate the basolateral amygdala, the part of the amygdala responsible for the strong emotions tied to powerful memories (Atucha et al., 2017; Poe et al., 2020). This is theorised by the present authors to allow for the accessing of difficult, suppressed emotions associated with trauma, especially the emotion of anger and related emotions, as NE is also activating. Beyond that, the upward eye movements of Tholáge have been shown to go on to activate the ventromedial prefrontal cortex (Matsuo et al., 2015), hypothesised to be involved in ER, the creation of emotions, arousal, social decisions and memory (Schneider & Koenigs, 2017). Matsuo et al. (2015) believe the upward gaze and resulting LC/NE triggering then act on the vmPFC through the trigeminal nerve. Lastly, NE is believed to be involved in neural plasticity, though the exact manner is unclear (Poe et al., 2020). The present authors theorise that, similarly, just as EMDR seems to manage fear and access trust, and Tholáge seems to invoke anger and related emotions, downward eye movements could access sadness and, possibly, shame, though we are not studying that here. The research into the neurobiology of the connection between eye movements and emotions and the research on upward eye movements activating the LC and releasing NE—which, in turn, cause the awakening of almost the entire brain and spinal cord, the arousal of the nervous system and the recall of potentially empowering emotions associated with trauma—support the use of the upward-gaze protocol of Tholáge.

6 | METHODOLOGY

This study was approved by the University's Institutional Review Board prior to data collection. The study utilised an exploratory, mixed methods design to explore the efficacy of the novel protocol, titled Tholáge. The main research question is as follows: How efficacious is Tholáge as a treatment for depression? The main hypothesis is that upward eye movements will be efficacious in releasing emotions that have been inaccessible, specifically anger and related emotions, for the regulation of emotions and overall reduction in depressive symptoms. To address the research question that analyses Tholáge's efficacy in an exploratory, repeated-measures study, the authors used R to conduct descriptive statistics, Fisher's exact test and two Analyses of Variances (ANOVAs).

Each participant took a pre-test survey prior to beginning the intervention and a post-test survey after completion of the treatment. The instruments used were a demographic form, the Positive and Negative Affect Schedule (PANAS) and The Beck Depression Inventory (BDI).

6.1 | Participants

Client-participants were all in counselling treatment prior to beginning the Tholáge protocol. Inclusion criteria were that participants had to be in counselling, be 18 years of age or older, meet criteria for depressive symptoms per the DSM-5 and complete informed consent documentation. Therapist-participants were recruited through personal networks. Only licensed clinical therapists were utilised in this study. The authors provided 2 h of live online training, a 50-min demonstration video and a 16-page training manual to help prepare the therapists conducting Tholáge (called RELEASE at the time) with their clients. Because Tholáge is based on the premise that depression is anger turned inward, the therapists screened their own clients for subjects who had significant reason to be angry with a primary person from childhood—termed the 'Focal Object' or 'Focal Person'—but actually felt no anger at all towards that person or, upon exploration of any reported anger, actually only felt 'irritation', 'frustration', 'aggravation' or the like, rather than the emotion of anger, therefore showing possible emotion suppression; others reported anger but quickly reported and showed signs of sadness, also possibly showing suppression of anger. Recruited subjects then went through a full informed consent process. No incentive was used.

6.2 | Procedures

The clinicians devoted six consecutive counselling sessions, both in person and online, to the implementation of Tholáge. Tholáge involves three overarching steps: the planning session, the treatment session and the debrief session. For this study, two cycles of those steps were used, requiring six sessions of a participant's regular therapy treatment. Before the planning session, resistance was addressed. This included addressing the statements clients made that revealed the suppression of their anger: 'he did the best he could', 'she fed me and put a roof over my head' and 'they had their own issues', all of which were true but did not preclude the emotion of anger being felt by clients. Resistance in the form of anger being 'useless' was also addressed. After resistance was addressed, clients would have to complete the informed consent documentation, then the pre-test survey, which included the assessment instruments (PANAS and the BDI). Once the pre-test was complete, the client and counsellor would engage in the planning session.

The planning session consisted of gathering information which would be used in the treatment session. This information included the Focal Object (usually a caregiver from childhood whose affective/attachment responses to the client were maladaptive and who invalidated or thwarted the child's appropriate emotional response), the Root Emotion (regulated anger and related, activated forms of emotion), Initial Cognition (the topic/aspect they feel they *have reason* to be most angry about but are not), Focal Incident (the incident that best illustrates the initial cognition; it is best to target the youngest age/earliest memory of the treatment that would invoke anger for many people, though the client's

mind will tend to go where it needs to go during treatment, and the week after treatment usually yields memories and dreams that further guide the clinician in the client's case conceptualisation and treatment), Incorrect Self-Perception (what negative self-perception seems true about the client for this to have happened), Correct Self-Perception (a more adaptive and true belief the client could have instead) and the Somatic Release Position (a physical position, act or acts the client will take to help access and experience the emotion of anger and to help release the symptoms from the body, such as clenching the fists, tightening the muscles of the arms/legs, shaking out the hands and stretching). Then, clients were taught two calming exercises: the Un-Focus Exercise and the Pull-Focus Exercise. These were taught as guided meditations though they only take a few seconds to do in practice; clients were informed they could do the exercises for longer than that and they could do them on their own. The Un-Focus Exercise involved widening the field of vision and unfocussing the eyes, to tap into the parasympathetic nervous system, as described previously. The Pull-Focus Exercise involved pulling the attention of the mind from wherever it was in, to a physical part of the body that is considered innocuous by the client for a few seconds, to slow racing thoughts and ground the client. Therapists then described and demonstrated the Eye Lift, the eye movement that would be used in the treatment, which will be described below. Clients were informed they might be tired after the treatment, for that day, and that they might experience more vivid and relevant dreams, newly recalled memories, emotions, catharsis, insights into themselves and interactions in the days or the week after treatment. Therapists emphasised the client must keep notes, however brief, about these occurrences. Clients were informed that, if anger was accessed during the treatment, the goal would be to lean into it; experience it within the 'window of tolerance' (regulated, rather than rageful/in fight or flight), if possible; and to recognise that they can survive the experiencing of difficult emotions such as anger. During the planning session and throughout the Tholáge treatment process, resistance by the client continued to be addressed.

In the treatment session, therapists reviewed information from the planning session, to ensure continued accuracy for clients. Clients were led in the guided meditations of the Un-Focus and Pull-Focus Exercises; then, clients were instructed to take a deep breath in through the nose and out through the mouth (n.b., these calming steps are no longer taken before the activating Eye Lifts). Therapists reminded clients of the Initial Cognition and Incident, which is all clients needed to think about during the first Eye Lift, and asked clients to position their eyes at the midpoint of their visual field. When ready, clients were instructed to look up/lift their eyes high enough to feel 'strain but no pain', at 60 degrees up, and to think about the Initial Cognition/Incident, and breathe regularly, while therapists kept track of 15 s of time. Then, clients were instructed to lower and rest their eyes as needed and take another deep breath. Therapists asked clients, 'What emotions did you feel and where in your body did you feel them?' and 'What thoughts did you have and how did you feel about them?' These

were briefly discussed, and any new cognition was determined by therapists, for use in the next Eye Lift. Then, the next Eye Lift was performed. The number of Eye Lifts ranged from about four to seven per treatment session. Any time anger was accessed, the Somatic Release Position exercise was performed next for a total of about 1 min; if anger was not accessed, the Somatic Release Position exercise was performed about halfway through the Eye Lifts/treatment session and at the end of the Eye Lifts. After all the Eye Lifts and the final Somatic Release Position were concluded, the calming exercises were offered, but these were often reported as not needed by clients. Clients were reminded they might be tired that day, they might experience the things mentioned previously in coming days (and for perhaps a week or longer) and to notice those things for the debrief session.

In the debrief session, therapists asked clients about the things mentioned above, such as dreams, new memories, insights and emotions as well as any symptoms that were present, in the week after the treatment. Therapists were required to proceed through the list of possible occurrences one by one. Sometimes, clients reported that 'nothing happened'; resistance caused clients to think nothing had happened, when upon further exploration by the therapist and client, there had been many relevant occurrences. For example, clients might say they had a kind of dream they 'didn't usually have', but it did not 'mean anything'. In every case, therapists determined the dream was highly symbolic of the initial incident or other actions of the Focal Person, and clients were, without fail, surprised and impressed with the meaningfulness of the occurrence. As stated, this cycle of plan-treat-debrief was repeated once, for a total of two cycles, and then the second assessment was taken (the PANAS and BDI).

7 | MEASURES

7.1 | PANAS

The PANAS measures positive and negative affects across 10 positive affect words and 10 negative affect words. The client uses a Likert scale of how much they identify with the affective word. This instrument was rigorously evaluated for reliability and validity by Watson et al. (1988). The reliability demonstrated internal consistency between .86 and .90 for positive affect and between .84 and .87 for negative affect (Watson et al., 1988). Test-retest reliability for the PANAS after 1 week was reported as .79 for positive affect and .81 for negative affect (Watson et al., 1988). For validity, PANAS was correlated with BDI scale, and the results were .56 for positive affect and $-.35$ for negative affect (Watson et al., 1988).

The PANAS score is calculated by combining the sum of the positive items and the sum of the negative items. Scores can range from 10 to 50 for both sets of items. Higher scores are equivalent to more positive affect (Watson et al., 1988). Due to the way the PANAS was constructed, for this study, the authors combined the

scores (both positive and negative sum) to get one number, the total score. This scoring remains consistent with the intentional interpretation of the PANAS. The PANAS has been used to measure anger (Harmon-Jones et al., 2009). As such, this instrument will be used in this study. The PANAS has combined both positive and negative scores, and an overall shift towards the positive indicates emotion regulation and more positive affect (Harmon-Jones et al., 2009).

7.2 | BDI (21-item)

The BDI was initially developed by Beck et al. (1961). There was a large somatic component to this original version, which raised concern around illness skewing the level of depression. The BDI-II (referred to as Beck or BDI widely and in this paper) is widely used today both for research and clinically. The BDI-II is a 21-item scale, which measures depressive symptoms using a Likert scale. Higher scores indicate more severe symptoms of depression. There are clinical cut-offs included in the manual associated with the BDI-II: 0–13 indicates minimal depression, 14 to 19 is mild depressive symptoms, 20 to 28 indicates moderate depressive symptoms and 29 to 63 indicates severe depressive symptoms (Beck et al., 1996).

The BDI-II version was revised by Beck et al. (1996) to be consistent with the DSM criteria of depression, which is why this scale is so widely used in research. There have been many studies that utilise the BDI-II in research (Segal et al., 2008), and there are high psychometric properties associated with this version of the Beck. Jefferson et al. (2000) reported a high internal consistency alpha of .85. It was also highly correlated with other measures of depression ($r = .71$). Segal et al. (2008) determined the psychometric properties within a wider age gap, which contributes to the overall understanding of the psychometric properties. Internal consistency was found to be good ($\alpha = .90$) for older adults and for younger adults as well ($\alpha = .91$). Segal et al. (2008) correlated the BDI-II with multiple other assessments of depression and found that, generally, there were strong correlations across the board, indicating that this is a strong measure of depressive symptoms and can be used widely in research regardless of age, ethnicity or other demographic variables.

TABLE 1 Descriptives.

Gender	No. of participants	Age (mean)	Pre-test PANAS mean (SD)	Post-test PANAS mean (SD)	Pre-test BDI mean (SD)	Post-test BDI mean (SD)
Female	12	39.16	0.0 (10.46)	17.92 (9.93)	21 (11.95)	5.67 (4.81)
Male	2	32.5	-9.5 (19.09)	0.50 (28.99)	26 (9.90)	17.50 (21.92)

TABLE 2 Emotional dysregulation changes post-treatment.

Race/ethnicity	Gender	ED decreased	ED increased	No change in ED
White/Caucasian	Female	9	1	2
White/Caucasian	Male	1	0	1

8 | RESULTS

The results were analysed through the statistical program R. Initially, the descriptive statistics were analysed. After describing the sample, Fisher's exact test and two ANOVAs were conducted to quantitatively determine whether Tholáge was efficacious in treating depressive symptoms. The design was a pre-test/post-test instrument administration with all participants using the PANAS and the BDI. The participants ($N = 14$) were also asked about emotional dysregulation before and after the treatment. Additionally, a qualitative review was completed to determine the lived experiences of those who completed the treatment and will be described after the statistical analyses.

8.1 | Descriptive statistics

Initially, the descriptives showed that the sample was primarily White/Caucasian, and predominantly female (male: 2; female: 12). Additionally, ages of participants ranged from 20 years to 62 years of age, with the means listed below. The test scores on the pre- and post-tests indicate a significant decrease in symptoms across the board, as indicated below on Table 1, with the means and standard deviations highlighted. To get the decrease in symptoms, there has to be an increase in PANAS scores and a decrease in BDI scores.

Additionally, this sample indicated overall positive changes in regard to emotional dysregulation. This was an important question asked on both the pre- and post-tests to indicate overall improvement with mood and regulating emotions. Table 2 summarises this.

8.2 | Fisher's exact test

This statistical analysis was chosen due to the comparative nature of the pre-/post-test design. The Fisher's exact test is usually used to compare responses over time. In this instance, this test was comparing peoples' responses about emotional dysregulation prior to treatment and the change in emotional dysregulation after treatment. This is a statistical significance test used in the analysis of contingency tables, generally used when sample sizes are small.

The null hypothesis cannot be rejected, and it cannot be concluded that the variables of the emotional dysregulation on the pre-test and the change post-treatment are not dependent on one another (p -value=.299). Of the participants who had emotional dysregulation on the pre-test ($n=11$), 73% ($n=8$) saw a decrease in emotional dysregulation as a result of the treatment, and none saw an increase in emotional dysregulation after the treatment. Finally, three people had no change in emotional dysregulation after the treatment. For those who did not have emotional dysregulation on the pre-test, one participant indicated an increase due to significant clinical depressive symptoms. Two of the three individuals who did not have emotional dysregulation prior to the treatment also reported a decrease in emotional dysregulation after the treatment on the post-test assessment.

8.3 | ANOVAs

The authors utilised two ANOVAs to analyse the two separate inventories in order to compare participants' responses on each instrument. The first ANOVA analysed the PANAS instrument scores pre- and post-test for each participant and then a second ANOVA analysed the BDI scores both pre- and post-test for each participant.

8.4 | PANAS

The authors utilised the one-way repeated ordinal regression to compare participants' responses on the PANAS before and after

TABLE 3 PANAS summary.

Test	N	Mean	SD
PANAS pre-test	14	-1.357	11.513
PANAS post-test	14	15.429	13.715

treatment. The inventory score is the dependent variable. This is considered an ordinal variable due to it being the summation of the inventory items. Participants are the independent variable. Time of test (pre or post) is a blocking variable, identified as a random variable in the mixed model. Table 3 indicates the descriptive statistics of the inventory score (Figure 1).

The PANAS score was statistically significantly different at the different time points, $F(1, 13)=22.77$, $p<.001$, generalised eta squared=0.64. This indicates a large effect size as this eta squared score means that 64% of the variance in the pre- and post-test scores can be explained by the treatment.

8.5 | BDI

The authors utilised the one-way repeated ordinal regression to compare participants' responses on the BDI before and after treatment. The BDI score is the dependent variable. This is considered an ordinal factor due to it being the summation of the BDI items. Participants are the independent variable. Time of test is the blocking variable, identified as a random variable in the mixed model. Table 4 indicates the descriptive statistics of the inventory score (Figure 2).

The BDI score was statistically significantly different at the different time points, $F(1, 13)=19.41$, $p<.001$, generalised eta squared=0.60. This indicates that 60% of the variance in the pre- and post-test scores can be explained by the treatment. Typically, anything over 0.14 is considered a large effect size, so this indicates promise with the efficacy of this treatment.

TABLE 4 Beck depression inventory summary.

Test	N	Mean	SD
Beck pre-test	14	21.714	11.479
Beck post-test	14	7.357	8.661

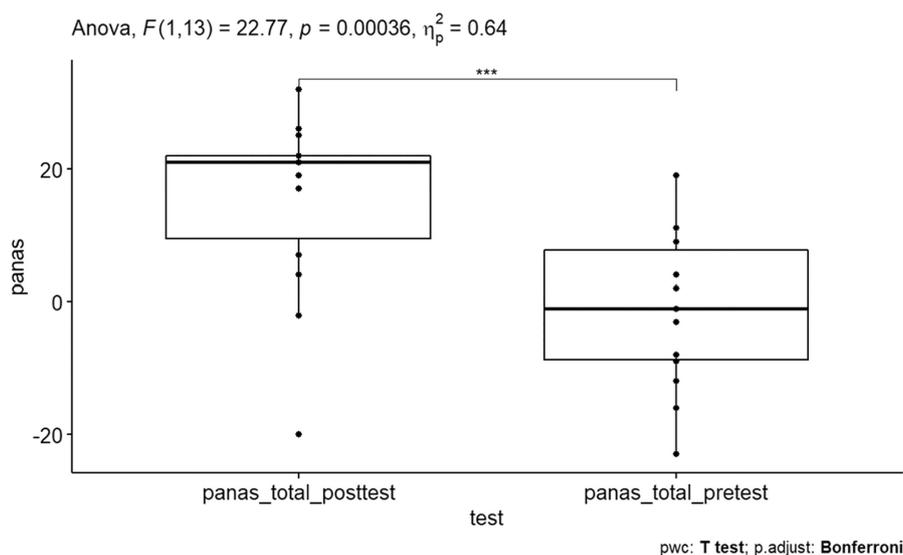


FIGURE 1 ANOVA for the PANAS.

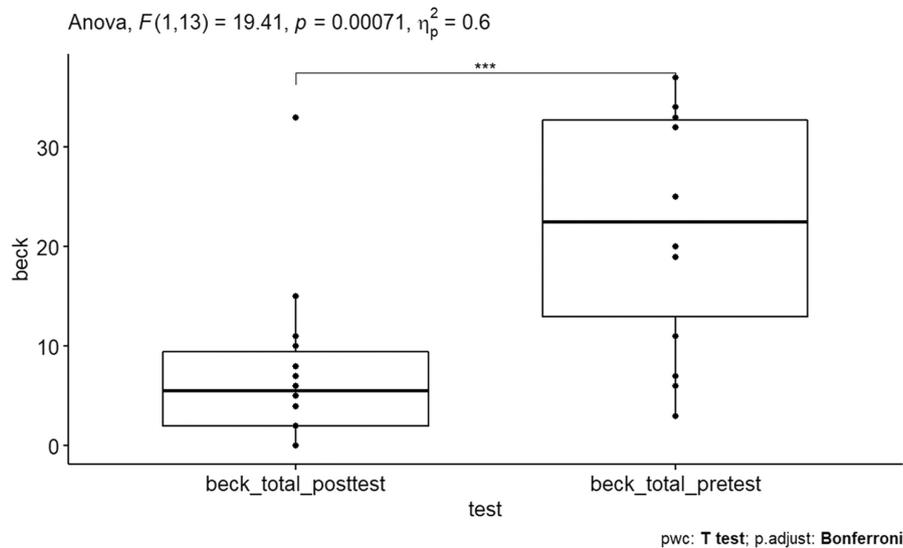


FIGURE 2 ANOVA for beck depression inventory.

8.6 | Qualitative section

Included in the demographic form that was administered post-treatment, there was a qualitative section where participants could include what they took away from the treatment. There were two questions:

Q5: Did you have any unusual experiences in the three to five days after treatment with the eye lifts (i.e. dreams, emotional expression and shift in mood)? What were they/describe them?

Q6: Describe your experience doing RELEASE (now Tholáge). What results did you notice? How was the overall experience for you?

The authors coded the participants' responses to these questions and discovered several main themes that emerged. The two main authors coded participant responses separately, then came together and discussed coding. These were the main themes that emerged through this work. The authors acknowledge that there is inherent bias, and we cannot completely remove ourselves from the data analysis with qualitative work. The authors used *in vivo* coding (Saldana, 2015). The four codes that emerged were emotion access/processing/release, increased access to memories and insights, the occurrence of dreams, and improved mood. Each code will be discussed and supported with direct quotes from participants, as well as summaries of what was reported.

8.7 | Emotion access/processing/release

This was the most frequent code reported among participants. A majority of the participants ($n = 10$) noticed a shift in emotional processing, access to deeper emotions or a release of emotions. One participant reported feeling 'stronger emotions' in the days following treatment. Others described it as an emotional 'lightness' that

occurred after the treatment; another way that this was stated was 'it was as if I had a weight lifted'. Multiple participants mentioned a weight being lifted or the feeling of emotional lightness. Another participant reported that it 'felt like a release', which indicates the objective of the treatment. A different participant reported, 'I feel it allowed me to tap into feelings I had suppressed'. These responses indicate a clear shift overall for the majority of participants in their ability to access, process and release emotion, indicating overall positive outcomes for tapping into the anger and emotions present, as is the intended outcome of Tholáge (RELEASE).

One participant sums this up: 'I was able to relieve a lot of stored up pain and anger and now find myself naturally practicing methods used during RELEASE in moments of stress'. This indicates the lasting effect of Tholáge as a tool for clients clinically and beyond the therapeutic relationship as well.

8.8 | Increased access to memories and insights

Another objective of Tholáge is to identify experiences that contributed to the emotion. As a result, participants had to think of an event or a person that was the focal point of their anger, but whom they did not actually feel anger towards. Multiple participants ($n = 3$ for Q5; $n = 5$ for Q6) mentioned increased access to memories, or different insight on past experiences or on themselves. One participant mentioned, 'I also had memories come to the forefront which were related to subjects discussed. I also had a lot of thoughts about the situations used in RELEASE and came to new conclusions or was able to see them from a different perspective'. A different participant stated that this experience of Tholáge/RELEASE 'allowed me to gain more insight into my subconscious', which indicates the deepened insight.

A different participant stated, 'I experienced more memories from my childhood that while they were not lost to me, were never thought about'. Another participant stated that they experienced

new perspectives and thoughts. A different participant reported, 'Unlocking of memories I had since forgotten/not thought about'. Another direct quote is that the treatment 'give[s] more detail to memories that are fuzzy and seem locked away'.

A participant also stated, 'During RELEASE, I felt like I was able to go back to a specific moment and shift my perspective so I could properly assign the emotions and feelings'. It is apparent from these direct quotations that there was a new sense of perspective and insight that emerged from experiences that were thought about, remembered or 'unlocked' as a result of this experience.

8.9 | Dreams

Another highly reported phenomenon included the experience of vivid, or more dreams after the treatment. Nine participants ($n=9$) recorded a shift in dreams. One participant stated, 'Yes, I had dreams related to the subjects discussed'. Another participant stated, 'Yes, some dreams had strong emotional connections'. A different participant reported, 'Remembering my dreams'. A different participant stated, 'More vivid dreams – some really strange and some happy'. Another participant stated, 'I would have dreams and felt more relaxed in the days that follow treatment'. Another said, 'I experienced more vivid dreams with deep emotions in them usually one or two days following eye lifts'. Another direct quote is, 'Some dreams were more vivid', while another quote stated, 'Dream of saving a familial baby'. From these numerous direct quotes all indicating an increase in dreams, or increase in the emotional connection to the dream, it is evident that Tholáge stirs up a connection to the subconscious and that dreams are a way that connection manifests. This code came up only in Question 5, in which participants were asked about how they felt and what they noticed after experiencing Tholáge treatment.

8.10 | Improved mood/ER

The final code that emerged was the overall notion of improved mood or emotion regulation post-treatment. Eight participants ($n=8$) indicated a positive shift in emotions, mood or ER. Participants characterised this differently (i.e. calm, relaxed and motivated). One participant noted, 'Also a positive shift in mood and an increase in my confidence to handle symptoms arising'. A different participant discussed more motivation for their future as a result of their past and the emotional processing they were able to do as a result of the treatment. Another participant reported, 'I also feel more calm than before', which indicates more ER, or stability. A different participant stated that they '...felt more relaxed in the days that follow treatment', again indicating potential ER, which is also triangulated with the quantitative portion of this study. Another participant stated they felt their 'Mood increased more at peace', again indicating the presence of ER post-treatment. Another quote states, 'Release does seem to help calm me a bit or move slower with my thoughts', which indicates the lack of reactivity or the presence of ER.

One participant summed up the experience by stating, 'overall sense of well being is better and I am much happier'. A different participant stated, 'I felt more calm and relaxed...', while another participant reported that they 'have been able to attain a place of self-love and respect as well as more emotional regulation'.

9 | DISCUSSION

The results of this study were exploratory in nature, but the findings were interesting and offer some clinical implications. First, it was noteworthy that there was overall improvement on both instruments used within the study, which could indicate that Tholáge lowers depressive symptoms and increases ER. Additionally, the presence of two statistically significant results on such a small sample size indicates potential for high efficacy. The high effect size of both statistical analyses indicates that a large percentage of the variance on both instruments is due to the treatment, indicating that Tholáge could be effective in treating depressive symptoms, as measured by the BDI. Tholáge is also effective in raising ER, as measured by the PANAS, as indicated by the large effect size.

These statistical findings were also confirmed in the qualitative section of this study. Participants reported high overall efficacy of treatment and a deepened sense of accessing, processing and releasing emotions, as indicated by depth of emotions and their overall lived experience of completing Tholáge. Additionally, memories were 'unlocked', or more clearly remembered, which indicates the deep connection to the subconscious through using Tholáge. Dreams were also more remembered and vivid, further confirming that there is a connection between the subconscious and the experience of Tholáge. Finally, the improved mood and presence of ER indicates that the PANAS was also an effective tool in measuring ER and the efficacy of Tholáge. Additionally, participants achieved a better mood, as indicated by self-report, or the presence of more positive emotions and the absence of difficult emotions. The PANAS has been used traditionally as a measure of anger, and these results can confirm that traditional use (Harmon-Jones et al., 2009).

Further research within the different stages of the NIH model is needed to confirm that this protocol is widely efficacious. However, it is evident from these preliminary findings that there is possibility in the connection between upward eye movements and ER and the reduction in depressive symptoms. Clinically, this type of treatment could have useful applications in working with depression. When considering counselling interventions for clients who feel stuck specifically in depressive symptoms and lack insight as to why, engaging specific parts of the brain can help with releasing emotions that have been suppressed as a method of survival. If Tholáge can be effective in activating the necessary parts of the brain (i.e. the locus coeruleus) and releasing those emotions, powerful breakthroughs may result. Clients seek counselling for relief, seeking calm, wellness and release of difficult emotions—if Tholáge can help clients access some of those clinical goals, it is worthwhile to continue researching and developing.

9.1 | Limitations

The nature of this pilot study was exploratory, which lent itself well to the new protocol; however, as a result, the overall *N* was low for this study, which indicates no statistical power. There was difficulty recruiting participants and participant clinicians to conduct the treatment with clients. This resulted in challenges with the statistical analyses; however, there were still some results that offered powerful data and contributions to clinical implications. This is an initial, exploratory study, and it offered a mixed method analysis to combat some of the low power that comes from such a small sample. Due to this, we acknowledge the nesting effects of having two groups as such is a limitation as well.

The PANAS was reliable and valid, so the research team decided not to construct a new measure; that meant the PANAS was not tailored towards the treatment and included some items that were not relevant to treatment. While depression and depressive symptoms were variables, overall reduction in emotional dysregulation was seen in this study.

There was no diversity in the clinical sample. For both race/ethnicity and gender, the sample population was homogenous, with the exception of two male participants. Additionally, there was no notice of who was taking medication, or any analysis of the effect of psychotropic medication utilised before the study, or during treatment.

10 | FUTURE DIRECTIONS

Although this pilot study faced numerous limitations, the strong literature behind it and the powerful results through the two instruments, as well the two statistically significant results, show that the underlying premise that upward eye movements might help access the difficult emotions around anger. This concept should be explored, especially given the number of mental disorders believed to be rooted in emotion suppression. Future studies of this eye-movement protocol, Tholáge, should involve more clinicians and participants for statistical power and should examine several different constructs, such as depression, anxiety and trauma. A new study by the same research team is currently underway, and future studies are being planned, including the eventual clinical trials. Neuroimaging should be included in studying this protocol of Tholáge, as well as the other two protocols of the treatment, as the entire treatment is based in the neuroscientific literature. Future studies might help confirm this literature and the fascinating work and theories of numerous neuroscientists in this space.

ETHICS STATEMENT

This research was conducted according to ethics standards. The authors followed the National Institutes of Health's six-stage model for implementing new protocols. Additionally, it was passed through the institutional review board and has maintained ethical integrity. The College provided private funding for this research. No participants received any funding. There were no conflicts of interest. Finally,

all participants completed informed consent per the institutional review board requirement.

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REFERENCES

- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237. <https://doi.org/10.1016/j.cpr.2009.11.004>
- American Counseling Association. (2014). ACA code of ethics.
- Atucha, E., Vukojevic, V., Fornari, R. V., Ronzoni, G., Demougin, P., Peter, F., Atsak, P., Coolen, M. W., Papassotiropoulos, A., McGaugh, J. L., de Quervain, D. J.-F., & Roozendaal, B. (2017). Noradrenergic activation of the basolateral amygdala maintains hippocampus-dependent accuracy of remote memory. *Proceedings of the National Academy of Sciences of the United States of America, 114*(34), 9176–9181. <https://doi.org/10.1073/pnas.1710819114>
- Barrowcliff, A. L., Gray, N. S., Freeman, T. C., & MacCulloch, M. J. (2004). Eye-movements reduce the vividness, emotional valence and electrodermal arousal associated with negative autobiographical memories. *Journal of Forensic Psychiatry & Psychology, 15*(2), 325–345. <https://doi.org/10.1080/14789940410001673042>
- Beck, A. T., Steer, R. A., & Brown, G. (1996). Beck Depression Inventory–II (BDI-II) [Database record]. *APA PsycTests*. <https://doi.org/10.1037/t00742-000>
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbauch, J. (1961). Beck Depression Inventory (BDI) [Database record]. *APA PsycTests*. <https://doi.org/10.1037/t00741-000>
- Berry, M., Ahmed, Z., Lorber, B., Douglas, M., & Logan, A. (2008). Regeneration of axons in the visual system. *Restorative Neurology and Neuroscience, 26*(2/3), 147–174.
- Berson, D. M., Dunn, F. A., & Takao, M. (2002). Phototransduction by retinal ganglion cells that set the circadian clock. *Science, 295*(5557), 1070–1073. <https://doi.org/10.1126/science.1067262>
- Breton-Provencher, V., Drummond, G. T., & Sur, M. (2021). Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets. *Frontiers in Neural Circuits, 15*, 638007. <https://doi.org/10.3389/fncir.2021.638007>
- Chrones, D., Martin, G. C., & Beeson, E. (2023). The eyes and emotion regulation: Helpful tips for counselors. *Journal of Mental Health Counseling, 45*(1), 53–73. <https://doi.org/10.17744/mehc.45.1.04>
- Csáki, Á., Vigh, B., Boldogkői, Z., Vereczki, V., Szél, Á., & Köves, K. (2015). Is a neuronal chain between the pineal body and the retina in rats and hamsters? Transneuronal tracing studies. *Neuroscience Letters, 588*, 1–6. <https://doi.org/10.1016/j.neulet.2014.12.043>
- D'Antoni, F., Matiz, A., Fabbro, F., & Crescentini, C. (2022). Psychotherapeutic techniques for distressing memories: A comparative study between EMDR, Brainspotting, and body scan meditation. *International Journal of Environmental Research and Public Health, 19*(3), 1142. <https://doi.org/10.3390/ijerph19031142>
- Do, M. T. H. (2019). Melanopsin and the intrinsically photosensitive retinal ganglion cells: Biophysics to behavior. *Neuron, 104*(2), 205–226. <https://doi.org/10.1016/j.neuron.2019.07.016>
- Dryman, M. T., & Heimberg, R. G. (2018). Emotion regulation in social anxiety and depression: A systematic review of expressive suppression and cognitive reappraisal. *Clinical Psychology Review, 65*, 17–42. <https://doi.org/10.1016/j.cpr.2018.07.004>
- Fernandez, D. C., Fogerson, P. M., Lazzzerini Ospri, L., Thomsen, M. B., Layne, R. M., Severin, D., Zhan, J., Singer, J. H., Kirkwood, A., Zhao, H., Berson, D. M., & Hattar, S. (2018). Light affects mood and

- learning through distinct retina-brain pathways. *Cell*, 175(1), 71–84. <https://doi.org/10.1016/j.cell.2018.08.004>
- Fernandez, K. C., Jazaieri, H., & Gross, J. J. (2016). Emotion regulation: A transdiagnostic perspective on a new RDoC domain. *Cognitive Therapy and Research*, 40(3), 426–440. <https://doi.org/10.1007/s10608-016-9772-2>
- Field, T. A., Beeson, E. T., Luke, C., Ghoston, M., & Golubovic, N. (2019). Counselors' neuroscience conceptualizations of depression. *Journal of Mental Health Counseling*, 41(3), 260–279. <https://doi.org/10.17744/mehc.41.3.05>
- Gross, J. T., & Cassidy, J. (2019). Expressive suppression of negative emotions in children and adolescents: Theory, data, and a guide for future research. *Developmental Psychology*, 55, 1938–1950. <https://doi.org/10.1037/dev0000722>
- Hajós, M., Fleishaker, J. C., Filipiak-Reisner, J. K., Brown, M. T., & Wong, E. H. F. (2004). The selective norepinephrine reuptake inhibitor antidepressant reboxetine: Pharmacological and clinical profile. *CNS Drug Reviews*, 10(1), 23–44. <https://doi.org/10.1111/j.1527-3458.2004.tb00002.x>
- Hames, J. M. (2010). Rapid resolution therapy. *Soldiers*, 65, 44–46.
- Harezlak, K., & Kasproski, P. (2018, April 1). Application of eye tracking in medicine: A survey, research issues and challenges. *ClinicalKey*. <https://www-clinicalkey-com.turing.library.northwestern.edu/#/content/playContent/1-s2.0-S089561117300435?returnurl=null&referrer=null>
- Harmon-Jones, E., Harmon-Jones, C., Abramson, L., & Peterson, C. K. (2009). PANAS positive activation is associated with anger. *Emotion*, 9, 183–196. <https://doi.org/10.1037/a0014959>
- Harricharan, S., McKinnon, M. C., Tursich, M., Densmore, M., Frewen, P., Théberge, J., van der Kolk, B., & Lanius, R. A. (2019). Overlapping frontoparietal networks in response to oculomotion and traumatic autobiographical memory retrieval: Implications for eye movement desensitization and reprocessing. *European Journal of Psychotraumatology*, 10(1), 1586265. <https://doi.org/10.1080/20008198.2019.1586265>
- Jefferson, A. L., Powers, D. V., & Pope, M. (2000). Beck Depression Inventory–II (BDI-II) and the Geriatric Depression Scale (GDS) in older women. *Clinical Gerontologist*, 22, 3–12.
- Jung, H., & Huberman, A. D. (2018). An unbiased view of neural networks: More than meets the eye. *Neuron*, 100(5), 1019–1021. <https://doi.org/10.1016/j.neuron.2018.11.038>
- Köves, K., Csáki, A., & Vereczki, V. (2016). Recent research on the centrifugal visual system in mammalian species. *Anatomy & Physiology*, 6(3). <https://doi.org/10.4172/2161-0940.1000216>
- Kip, K. E., Sullivan, K. L., Lengacher, C. A., Rosenzweig, L., Hernandez, D. F., Kadel, R., Kozel, F. A., Shuman, A., Girling, S. A., Hardwick, M. J., & Diamond, D. M. (2013). Brief treatment of co-occurring post-traumatic stress and depressive symptoms by use of accelerated resolution therapy. *Frontiers in Psychiatry*, 4, 11. <https://doi.org/10.3389/fpsy.2013.00011>
- van der Kolk, B. (2014). *The body keeps the score*. Penguin Books.
- Landin-Romero, R., Moreno-Alcazar, A., Paganí, M., & Amann, B. L. (2018). How does eye movement desensitization and reprocessing therapy work? A systematic review on suggested mechanisms of action. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.01395>
- Lee, C. W., & Cuijpers, P. (2013). A meta-analysis of the contribution of eye movements in processing emotional memories. *Journal of Behavior Therapy and Experimental Psychiatry*, 44(2), 231–239. <https://doi.org/10.1016/j.jbtep.2012.11.001>
- Macé, É., Montaldo, G., Trenholm, S., Cowan, C., Brignall, A., Urban, A., & Roska, B. (2018). Whole-brain functional ultrasound imaging reveals brain modules for visuomotor integration. *Neuron*, 100(5), 1241–1251.e7. <https://doi.org/10.1016/j.neuron.2018.11.031>
- Matsuo, K., Ban, R., Hama, Y., & Yuzuriha, S. (2015). Eyelid opening with trigeminal proprioceptive activation regulates a brainstem arousal mechanism. *PLoS One*, 10(8), e0134659. <https://doi.org/10.1371/journal.pone.0134659>
- McGinn, L. K., & Sanderson, W. C. (2001). What allows cognitive behavioral therapy to be brief: Overview, efficacy, and crucial factors facilitating brief treatment. *Clinical Psychology*, 8(1), 23–37.
- Miceli, M., & Castelfranchi, C. (2018). Contempt and disgust: The emotions of disrespect. *Journal for the Theory of Social Behaviour*, 48(2), 205–229. <https://doi.org/10.1111/jtsb.12159>
- Naumann, E., Tuschen-Caffier, B., Voderholzer, U., & Svaldi, J. (2016). Spontaneous emotion regulation in anorexia and bulimia nervosa. *Cognitive Therapy and Research*, 40(3), 304–313. <https://doi.org/10.1007/s10608-015-9723-3>
- Onken, L. S. (2022). Implementation science at the National Institute on Aging: The principles of it. *Public Policy & Aging Report*, 32(1), 39–41. <https://doi.org/10.1093/ppar/prab034>
- Onken, L. S., Carroll, K. M., Shoham, V., Cuthbert, B. N., & Riddle, M. (2014). Reenvisioning clinical science: Unifying the discipline to improve the public health. *Clinical Psychological Science*, 2(1), 22–34. <https://doi.org/10.1177/2167702613497932>
- Osprey, L., Prusky, G., & Hattar, S. (2017). Mood, the circadian system, and melanopsin retinal ganglion cells. *Annual Review of Neuroscience*, 40(1), 539–556. <https://doi.org/10.1146/annurev-neuro-072116-031324>
- Pastuszek-Draxler, A., & Gierowski, J. K. (2017). Changes in acceptance and suppression of negative and positive emotions in patients with depressive disorders: A longitudinal study. *Archives of Psychiatry and Psychotherapy*, 19(4), 13–21. <https://doi.org/10.12740/APP/80161>
- Poe, G. R., Foote, S., Eschenko, O., Johansen, J. P., Bouret, S., Aston-Jone, G., Harley, C. W., Manahan-Vaughan, D., Weinschenker, D., Valentino, R., Berridge, C., Chandler, D. J., Waterhouse, B., & Sara, S. J. (2020). Locus coeruleus: A new look at the blue spot. *Nature Reviews. Neuroscience*, 21(11), 644–659. <https://doi.org/10.1038/s41583-020-0360-9>
- Rio, J. P., Repérant, J., Vesselkin, N. P., Kenigfest-Rio, N. B., & Miceli, D. (2003). Dual innervation of the lamprey retina by GABAergic and glutamatergic retinopetal fibers: A quantitative EM immunogold study. *Brain Research*, 959(2), 336–342. [https://doi.org/10.1016/S0006-8993\(02\)03803-9](https://doi.org/10.1016/S0006-8993(02)03803-9)
- Saldana, J. M. (2015). *The coding manual for qualitative researchers* (3rd ed.). SAGE Publications.
- Sanes, J. R., & Masland, R. H. (2015). The types of retinal ganglion cells: Current status and implications for neuronal classification. *Annual Review of Neuroscience*, 38(1), 221–246. <https://doi.org/10.1146/annurev-neuro-071714-034120>
- Schneider, B., & Koenigs, M. (2017). Human lesion studies of ventromedial prefrontal cortex. *Neuropsychologia*, 107, 84–93. <https://doi.org/10.1016/j.neuropsychologia.2017.09.035>
- Schubert, S. J., Lee, C. W., & Drummond, P. D. (2016). Eye movements matter, but why? Psychophysiological correlates of EMDR therapy to treat trauma in Timor-Leste. *Journal of EMDR Practice & Research*, 10(2), 70–81. a9h.
- Segal, D. L., Coolidge, F. L., Cahill, B. S., & O'Riley, A. A. (2008). Psychometric properties of the Beck Depression Inventory II (BDI-II) among community-dwelling older adults. *Behavior Modification*, 32(1), 3–20. <https://doi.org/10.1177/0145445507303833>
- Semyonov, O., Ziv-El, A., Krumhuber, E. G., Karasik, S., & Aviezer, H. (2021). Beyond shared signals: The role of downward gaze in the stereotypical representation of sad facial expressions. *Emotion*, 21, 247–259. <https://doi.org/10.1037/emo0000706>
- Shapiro, F. (2018). *Eye movement desensitization and reprocessing (EMDR) therapy: Basic principles, protocols, and procedures* (3rd ed.). Guilford Press.
- Shapiro, R., & Brown, L. S. (2019). Eye movement desensitization and reprocessing therapy and related treatments for trauma: An innovative, integrative trauma treatment. *Practice Innovations*, 4(3), 139–155. <https://doi.org/10.1037/pri0000092>

- van der Spuy, C., & van Breda, A. D. (2019). An exploratory study on the use of eye movement integration therapy for treating trauma in early childhood in South Africa. *Child Care in Practice*, 25(2), 157–174. <https://doi.org/10.1080/13575279.2018.1441126>
- Thomaes, K., Engelhard, I. M., Sijbrandij, M., Cath, D. C., & Van den Heuvel, O. A. (2016). Degrading traumatic memories with eye movements: A pilot functional MRI study in PTSD. *European Journal of Psychotraumatology*, 7(1), 31371. <https://doi.org/10.3402/ejpt.v7.31371>
- Valiente-Gómez, A., Moreno-Alcázar, A., Treen, D., Cedrón, C., Colom, F., Pérez, V., & Amann, B. L. (2017). EMDR beyond PTSD: A systematic literature review. *Frontiers in Psychology*, 8, 1668. <https://doi.org/10.3389/fpsyg.2017.01668>
- de Voogd, L. D., Kanen, J. W., Neville, D. A., Roelofs, K., Fernández, G., & Hermans, E. J. (2018). Eye-movement intervention enhances extinction via amygdala deactivation. *Journal of Neuroscience*, 38(40), 8694–8706. <https://doi.org/10.1523/JNEUROSCI.0703-18.2018>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070. <https://doi.org/10.1037/0022-3514.54.6.1063>
- Weissman, D. G., Bitran, D., Miller, A. B., Schaefer, J. D., Sheridan, M. A., & McLaughlin, K. A. (2019). Difficulties with emotion regulation as a transdiagnostic mechanism linking child maltreatment with the emergence of psychopathology. *Development and Psychopathology*, 31(3), 899–915. <https://doi.org/10.1017/S0954579419000348>
- Zelinsky, D. (2010). Brain injury rehabilitation: Cortical and subcortical interfacing via retinal pathways. *PM & R: The Journal of Injury, Function, and Rehabilitation*, 2(9), 852–857. <https://doi.org/10.1016/j.pmrj.2010.06.012>
- Zelinsky, D. (2018). Retinal neuromodulation as a non-invasive assessment and treatment of autonomic function. *EC Ophthalmology*, 9(2), 72–75.

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QUESTIONNAIRE

C3(25)

Eye movements and emotions: Efficacy of novel eye-movement protocol Tholáge

INSTRUCTIONS

- Read through the article and answer the multiple-choice questions provided below.
- **Some questions may have more than one correct answer;** in which case you must mark **all** the correct answers.

Introduction

Question 1: Is it **TRUE** that the retina and optic nerve are made of brain tissue, and that there is a biological connection between the brain and the eyes?

- A: YES
- B: NO

Question 2: The novel protocol discussed forms one part of a larger treatment called

- A: EMDR
- B: Cognitive restructuring
- C: Tholáge
- D: Exposure therapy

Question 3: What is the basic science behind the protocol of Tholáge regarding eye movements?

- A: Most eye movements are intended to suppress emotions unless "triggered" to show emotion
- B: Different eye movements are associated with specific neurological reactions and emotions
- C: Three out of twenty-five eye movements are associated with specific emotions
- D: None of the above

Question 4: What psychological process may be implicated by the upward movement of the eyes?

- A: Accessing and engaging with sadness
- B: Accessing and engaging with anger
- C: Generalised emotional relief
- D: Connecting to the inner self

Eye Movements and Their Connection to Emotional Regulation

Question 5: What is eyesight described as, and what does its direction impact?

- A: Directional; memory
- B: Directional; emotion
- C: Unilateral; cognition
- D: Reflexive; motor skills

Question 6: How is Emotion Suppression (ES) described in terms of its focus?

- A: Response-focused
- B: Antecedent-focused
- C: Prevention-focused
- D: Cognition-focused

Current Eye-Movement Interventions

Question 7: What is a key difference between the eye movements of Tholáge and EMDR?

- A: EMDR uses upward eye positions, while Tholáge uses side-to-side eye movements
- B: EMDR uses side-to-side eye movements done in repetition, whereas Tholáge uses an upward eye position held in place for longer than 10s
- C: Both use circular eye movements
- D: Tholáge involves rapid, short eye movements, unlike EMDR

Question 8: How are the eye movements of Brainspotting (BSP) guided?

- A: By the client's self-direction
- B: Only by external auditory cues
- C: By the clinician, who uses a pointer to move the eye through various positions throughout the visual field.
- D: Through bilateral tactile stimulation

The Neurobiology of Eye Movements

Question 9: What is activated when moving the eyes upward and holding them for at least 10s, according to *Matsuo et al.* (2015)?

- A: The hippocampus
- B: The cerebellum
- C: The locus coeruleus (LC)
- D: The prefrontal cortex

Question 10: What neurotransmitter is known to have antidepressant properties and is mainly produced by the LC?

- A: Serotonin
- B: Dopamine
- C: Norepinephrine (NE)
- D: Acetylcholine

Methodology

Question 11: What are the three overarching steps involved in Tholáge?

- A:** Assessment, intervention, evaluation
- B:** Planning session, treatment session, debrief session
- C:** Intake, therapy, follow-up
- D:** Diagnosis, medication, maintenance

Results

Question 12: TRUE or FALSE?

A majority of the participants noticed a shift in emotional processing, access to deeper emotions, or a release of emotions.

- A:** TRUE
- B:** FALSE

Discussion

Question 13: Based on the discussion, what does the presence of two statistically significant results on such a small sample size indicate regarding the Tholáge protocol?

- A:** A lack of efficacy of the treatment
- B:** It has negligible impact on emotional regulation
- C:** Potential for high efficacy
- D:** The study's results are inconclusive

Question 14: What is evident from the preliminary findings regarding upward eye movements?

- A:** They conclusively cause emotional dysregulation
- B:** There is no connection between them and emotion regulation
- C:** There is the possibility of a connection between upward eye movements and emotion regulation (ER) and the reduction in depressive symptoms
- D:** They are only effective in severe trauma cases

Future directions

Question 15: What specific type of measurement is recommended for inclusion in future studies of the Tholáge protocol due to its basis in neuroscientific literature?

- A:** Behavioral observations
- B:** Self-report questionnaires only
- C:** Neuroimaging
- D:** Supplementary genetic testing

THE END



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ANSWER SHEET

C3(25)

Eye movements and emotions: Efficacy of novel eye-movement protocol Tholáge

	*Time spent on activity					hour	min				
	A	B	C	D	E		A	B	C	D	E
1						8					
2						9					
3						10					
4						11					
5						12					
6						13					
7						14					
						15					

How relevant was the content of this activity to your scope of practice?			
			
Not at all	Somewhat	Mostly	Extremely

RETURN ANSWER SHEET TO

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